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Encyclopedia of the History of Psychological Theories

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Robert W. Rieber (Ed.)

Encyclopedia of the History of Psychological Theories

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Preface

If there has been something like a magnificent failure of a theory in psychology, then it must imply something about the opposite, namely, a significant success.

The purpose of this encyclopedia is to present to the scientific community a unique coverage of the history of psychological theories. The subject matter of this work addresses current theoretical and political issues such as agency, realism, objectivity, subjectivism, structuralism, postmodernism, and multiculturalism. The encyclopedia deals with various aspects of the history of psychological theories by providing the reader with the following:

- Brief discussions of concurrent trends and definitions cited in the literature
- Historical background, especially for the more technical and conceptual topics
- Key Issues: The topics of major relevance to the development of psychological theories
- International perspectives such as cross-national similarities or differences
- Future Directions: Brief overviews of current knowledge and outlook for the future
- References: To facilitate the reader in searching the topic further
- Cross- references: To direct the reader to related topics

In general, the work includes the following types of content:

- Subject Matter Entries: These entries cover practically all the important theories.
- Biographies: Biographies of persons who made significant contributions to the different psychological theories are included.
- Department Histories: This includes most of the well-known institutions which have made important contributions to the development of the field of psychology.

I would like to thank Sharon Panulla for suggesting that I edit this work and all the members of the editorial board who have been so helpful in both contributing entries and suggesting possible authors.

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Basic Biographical Information

Born: July 24, 1843; Died: December 2, 1920.

William Abney, son of a clergyman in Derby, England, was commissioned in the Royal Engineers in 1861 and served in India through 1867. After his return to England, he was posted to the Royal Engineering School at Chatham, was promoted to Captain in 1873, and retired from service in 1881. He was elected to the Royal Society in 1876. He continued his career as an independent scientific investigator until his death. Knighted in 1900, he served in several official capacities in science and education and was also concerned with practical applications of visual science.

Major Accomplishments/Contributions

Abney brought a multifarious set of interests and skills to bear on a variety of scientific subjects. During his early engineering career, he devised a variation on the Locke hand level, the Abney level, adaptable to measuring inclination and grade. Teaching at Chatham led him to writing a chemistry textbook for engineers which was widely used. The most significant skill he developed was photography, which he had learned firsthand during the 1850s from his father Edward Abney who was friends with some of the first photographers in Britain. The Army encouraged Abney's photographic interests and at Chatham he offered a course in photography for which he wrote, in 1871, a pioneering textbook, *Instruction in Photography*.

An early culmination of his skills occurred in connection with his expedition to Egypt in 1874 to photograph the transit of Venus. Out of this emerged his improvements to the dry plate process, along with a book of photographs of historic temples at Thebes. Over the next decade, Abney made several lasting contributions to photography including the introduction of hydroquinone as a developing agent, the silver gelatin citrochloride process, and improved photographic printing papers (Ward 2008). He also published *A Treatise on Photography* which became a standard reference and went into ten editions. His astronomical and chemical interests intersected in his development of emulsions to capture the far infrared spectrum, for which he won the Rumford Medal in 1882. Abney's photometric researches on the visible spectrum, carried on the 1880s with his colleague E.R. Festing, resulted in several papers on chromatic photometry. He also wrote on the transmission of light in different atmospheric media and also supplied modifications to the Bunsen–Roscoe reciprocity law as applied to the exposure times of light sensitive materials. At this point in his career, his interest and writing became more specifically psychological as he considered color vision, on the one hand, and the perception of spectral lights on the other. His researches on color vision were eventually collated in his book *Colour Vision* (Abney 1895), which also went into several editions through 1913 and which E. G. Boring recommended, in his *History of Sensation and Perception in Experimental Psychology*, as a general reference. Abney was a proponent of trichromatic theory against the opponent-colors hypothesis. However, he was strongest in providing precise measurements of phenomena bearing on color vision, for instance, of the disappearance of hue sensations with increasing retinal eccentricity, which fed the ambiguity of the theoretical discussion. Abney was an

assiduous gatherer of facts and phenomena, and proposed several laws relating to visual phenomena which have in one way or another persisted in the study of perception. The first of the two best-known of these is called Abney's Law, which states that the luminance of a compounded stimulus equals the sum of the luminances of the contributing components. Abney and others proposed that this additivity would extend to brightness, but this eventually proved not to be correct (Cohen 2001). The second is his description of the regular change of perceived hue with increasing desaturation of spectral colors, termed the Abney Effect (Abney 1909). By varying the amount of red, green, and blue light in the white light he added, Abney demonstrated that the hue change was due to the red and green components. This quite striking effect has proved elusive of explanation since its proposal as it is not directly related either to retinal or central activity. Another "Abney Effect," more cryptic in terms of exposition and explanation, describes the apparent expansion and contraction of light in the visual field on sudden illumination (American Psychological Association 2008). Abney is also cited in connection with several other visual phenomena, for instance the circle of confusion in photography and microscopy. He also figured in the early history of color photography, inventing a camera for the purpose. And he was also interested in applications of color and visual science: for instance, toward the end of his career, he chaired a commission investigating the incidence of cataracts among glassblowers.

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Ach, N.

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Basic Biographical Information

Born: 29 October 1871; Died: 25 July 1946.

Son of a physician, Narziss Ach was born in Ermershausen, Bavaria, near Würzburg, and studied medicine and philosophy, obtaining his M.D. in 1895. He worked for a short time afterward with Kraepelin in Heidelberg and also traveled as a ship's doctor to America and East Asia, studying seasickness. On his return to Germany, he turned to the study of psychology, first in Strasbourg and then again in Würzburg with Oswald Külpe, where he obtained his Ph.D. in 1901. Then he studied with Müller at Göttingen, was posted as lecturer in Marburg in 1904, as professor in Berlin in 1906, and then in Königsberg for 15 years beginning in 1907. He succeeded Müller at Göttingen in 1922 and retired emeritus in 1937.

Major Accomplishments/Contributions

Ach is usually grouped with the psychologists of the "Würzburg School," including his teacher Külpe, Karl Marbe, and Karl Bühler, who were instrumental in introducing the study of central cognitive processes into experimental psychology. Ach did not view experimental psychology as a natural science because its subject matter is mental processes, though it uses scientific methods to access these processes. Ach's particular contributions to method centered around the will and were presented in several books, the most prominent of which were *Über die Willenstätigkeit und das Denken* (1905), *Über den Willen* (1910), and *Über den Willensakt und das Temperament* (1910), along with a much cited handbook chapter from later in his career, *Analyse des Willens* (Ach 1935). He utilized a combination of self-report on conscious states before, during, and after presentation of stimuli, along with chronoscopic measurement of reaction times, by which he claimed to have isolated and quantified the act of will. This he accomplished by extensive pretraining of

experimental participants in an associative learning and reporting task similar to those employed earlier by Ebbinghaus in his experiments on learning and memory. Then Ach varied the task so that the instructions to report resulted either in conflicts or conformity with previously learned patterns of response. Comparison of response times, for which Ach utilized the Hipp Chronoscope as well as instruments which he devised himself specifically for charting changes in will strength, revealed inferentially the presence of what Ach termed the “determining tendency,” an analog of the will, variable in strength and sensitive to the amount of resistance established by prior training (Teo 2000). The determining tendency was one of the component ideas that led to the concept of mental set. Ach conceived of the will as a goal-setting instrument which embodied free choice among the narrow ranges of possible alternative responses. He also observed that feelings of pleasure and frustration connected with, respectively, the achievement or thwarting of determining tendencies or acts of will. Ach’s influence was quite broad: he was often cited in American texts for his conception of the determining tendency and also as a more general representative of the Würzburg School, particularly in connection with the imageless thought controversy. Kurt Lewin took Ach as a starting point in formulating his gestalt field theory of goal achievement in the face of frustrating environmental barriers (Heckhausen and Heckhausen 2006). In contradistinction to the more “pure science” approaches to psychology in Germany at the time, Ach’s will psychology expressed moral and motivational sentiments as well. Noting that will strength could improve with training in both facilitating and frustrating conditions, Ach noted that “for our daily life, a struggle wherein success and failure occur is quite favorable” (Ach 1910/2006). He also related different patterns in persistence of struggle toward goals to personality types and offered suggestions for counteracting various weaknesses of will contingent on constitutional factors. Ach eventually became one of the central figures in German psychology as it changed from an introspective laboratory affair to an applied science: he was a member, after his move to Göttingen, of the Executive Committee of the Verband deutscher praktischer Psychologen (Association of German Practical Psychologists) and

contributed to efforts in the applied area well after his retirement, editing a 1944 handbook volume on the subject (Ach 1944). He signed the *Bekanntnis der Professoren und den deutschen Universitäten und Hochschulen zu Adolf Hitler und dem nationalsozialistische Staat* in 1933, in essence a loyalty oath to the Nazi regime, and the ascent of that regime, with its focus on will and action, gave new life and, unfortunately, new depth of meaning to Ach’s psychology.

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Activation Network Theories, History of

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There are very few candidates for Grand Unified Theories of all cognition, and activation network theories qualify. Whether called cell assemblies, perceptrons, semantic networks, neural networks, connectionist models, parallel distributed processing, or other names, the common elements of these theories are (a) that knowledge is represented by networks of units and (b) that processing is carried out by activating these units. For example, units or nodes may represent the features of a stimulus, letters, words, visual images, memories, sounds, people, ideas, actions, etc. Each unit has an activation value. The more activated a unit is, the greater its impact on connected units. The impact

could be excitatory, making connected units more active, or inhibitory, making connected units less active.

The history of activation network theories exemplifies an interdisciplinary approach to theory, with three primary disciplinary threads: Philosophical/Psychological, Neurobiological, and Computational.

Philosophical/Psychological: Philosophical Associationism, beginning with Aristotle and developed by the British Associationists/Empiricists, is one thread. Locke, Berkeley, and Hume wrote about the association of ideas as the basis of a new epistemology, and described the laws of association: contiguity and similarity. Hartley attempted a physiological theory of association. In the late nineteenth century, psychologists Ebbinghaus and Calkins tested the laws of association. When Behaviorism became dominant in American psychology, association of ideas was replaced by learning as establishing associations between stimuli and responses. For example, classical conditioning was viewed as establishing an association between the conditioned stimulus and conditioned response due to contiguity.

Neurobiological: Another thread is neurobiology, from Hartley's vibratiuncles to the notion of networks of neurons connected by synapses as developed by Golgi, Ramon y Cajal, and Sherrington. An important landmark in the neurobiological and psychological history of activation network theories is Hebb's (1949) *Organization of Behavior*, which proposed cell assemblies and a learning rule as a way to integrate behaviorist learning theory and Gestalt psychology. The Hebb learning rule says that when two cells are active at the same time (contiguity), they become more efficient at making each other more active. This led to the development of mutually reinforcing cell assemblies representing higher level organized entities: perceptual wholes or gestalts. Konorski (1967) similarly advanced a neural network theory, with hundreds of modules composed of about four layers of cells. Within layers, cells laterally inhibited each other, while between layers, connections were generally excitatory.

Computational: The twentieth century brought advances in the study of computation, especially the work of Turing, which also had an impact on activation network theories. McCulloch and Pitts' (1943) biophysical and computational analysis showed that networks could be constructed that were equivalent to

a Turing machine in computational power: able in principle to compute any finite logical expression. But not every network can compute every function, and even networks that can compute the same function may differ in completion time and/or efficiency. Some of the computational limitations on simple networks for learning were explored by Minsky and Papert (1969) in *Perceptrons*.

Cognitive Science – Interdisciplinary Research: Collins and Quillian (1969) brought Quillian's work in Artificial Intelligence to a psychological audience with reaction time studies of an activation network theory of semantic memory. The 1970s witnessed a number of research programs blending psychological experiments and computer models of activation network models of memory, including later work by Collins, the LNR Research Group, and John Anderson. These theories had localized representations, with a single unit representing (for example) CAT, linked to a cat's properties, superordinate and subordinate units.

In the 1980s, localized network theories were applied in many areas of psychology outside memory: for example, visual, auditory, and musical perception, speech production, skilled typing, cognitive maps, and classical conditioning. At the same time, distributed representations were becoming more common in memory and learning theory. In distributed representations, no single unit represents CAT – instead, the representation of CAT is a particular pattern of activation across a number of units, which are often conceptualized as the features of CAT. The two volumes of *Parallel Distributed Processing* (1986) edited by Rumelhart and McClelland (1986) included both local and distributed activation network theories. A lab manual with software to run simulations of the models was also published. The major theoretical breakthroughs were methods for learning that transcended the limitations of the perceptron: the auto-associator and back propagation. The PDP books took an explicitly interdisciplinary approach, with chapters focusing on biological, psychological, and computational aspects of activation networks.

Textbooks took a while to catch up with these developments. Martindale's (1991) *Cognitive Psychology: A Neural Network Approach* filled this gap in coverage until the late 1990s, when cognitive textbooks finally began to incorporate more than just semantic

networks. Ellis and Humphrey's (1999) *Connectionist Psychology: A Text with Readings* reviewed the field and is a fitting closing for a history of activation network theories in the twentieth century.

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Adams, D. K.

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Basic Biographical Information

Born: Mar. 6, 1902; Died: May, 1971.

Donald Adams attended Yale and obtained his Ph. D. in 1927, studying with Yerkes. He was from the outset interested in the potentiality of mind in animals. In his earliest publications, he held forth for a comparative method based on rigorous self-observation to infer the existence of mind in other organisms, rather than ruling it out of hand immediately as a nonparsimonious hypothesis (Adams 1928). In his early experimental work with cats, in which he utilized many variations on puzzle boxes and other problems, he criticized the views of Thorndike that cats lacked sophisticated mental functions. Instead he conceptualized cats' behavior in terms of "foresight" and "practical ideas" (Adams 1929) and advanced the ideas and

interpretations of McDougall, Tolman, and Yerkes regarding the complexity, adaptiveness, and purposiveness of animal behavior. He held these views through his career: much later, he affirmed the view that "analogomorphic" processes similar to Gestalt perceptual mechanisms exist for perception of others' subjective states, a sort of empathic direct perception (Adams 1962). Adams was called to Duke University as chair in the early 1930s, when psychology was split off from philosophy in the department, and remained there for the rest of his career.

Major Accomplishments/Contributions

While at Duke, Adams came into conflict with J. B. Rhine, who had been brought to Duke by William McDougall during his move from Harvard. Rhine had been assisting McDougall in a series of Lamarckian experiments and had also begun an extensive program of parapsychological research. Along with his colleagues Karl Zener and Helge Lundholm, Adams successfully demanded that Rhine be removed from the psychology department to an independent institute on the periphery of the psychological enterprise at Duke (Klopfer 1999). Adams later wrote an unpublished essay in which he admitted that he wanted Rhine to fail and harbored a prejudice toward him, which discomfited him as a scientist (Adams, n. d., quoted in Horn 2009). Adams had some postgraduate experience in Germany and, with Zener, who had come into contact with Kurt Lewin during a postgraduate year in Berlin, translated Lewin's *A Dynamic Theory of Psychology*. Gestalt ideas of organization in action fit well with Adams's understanding of the logical and purposive nature of animal behavior. He was a trenchant critic of some of the reigning, non-Gestaltist behavior theories of his time. In one of the earliest criticisms of Hull's hypothetico-deductive system, Adams identified fundamental flaws in that approach, chief among which was, in Adams's view, Hull's reliance on the logical fallacy of affirming the consequent rather than adopting a procedure which would allow for falsification of hypotheses. He also criticized the large number of undefined primary terms in Hull's system (Adams 1937). Later, Adams (1948) also critiqued Guthrie and Horton, noting that the graphic results of cats' behavior in their otherwise superior puzzle boxes did not allow

disambiguation of purposive from accidental behavior. On the other hand, Adams was magnanimous in his estimation of McDougall, for whom he wrote an obituary (Adams 1939). He did not gloss over McDougall's Lamarckism, but at the same time he commended his purposivism and mentalism, which he saw as ahead of its time. Indeed, Adams took over McDougall's idea of "sentiment," an organized system of emotional dispositions relative to objects, and placed it at the center of his writings on personality in the early 1950s. Adams was a participant in the 1953 Kentucky Symposium on Personality (Adams 1954b) and expressed the view that interconnected sentiments, all instrumentally focused on a central idea or aim, connoted an integrated personality (Adams 1953). A strong Lewinian influence regarding the valency of situations and the theoretical importance of conflict was evident in Adams's views (Adams 1954c). Adams also suggested that personality, conceived as a unique adjustment to the world through learning, might be a property not only of humans but of any organisms that learn (Adams 1954a). In the mid-1940s Adams served as Chief Clinical Psychologist at a Veterans Administration Branch Office alongside his professorship at Duke: his *Reflections from a Branch Office* (Adams 1947) is a pointed observation of the impediments facing psychologists entering the medical environment of the VA under emergency conditions at the end of the Second World War. At the close of his career, Adams cofounded the Field Station for Animal Behavior Studies at Duke and spent a sabbatical at Seewiesen, Bavaria, with Konrad Lorenz. Among the many species represented at the station were Adams' favorite, wild turkeys (Klopfer 1999).

See Also

► [Lewin, Kurt](#)

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Adler, Alfred

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Basic Biography

Alfred Adler was born on February 7, 1870, in Penzing, Austria. His early childhood was plagued with disease, including rickets and pneumonia, which heavily

influenced his decision to become a physician. In 1895 he received his medical degree from the University of Vienna, where he met his wife, Raissa Timofeyewna Epstein, a Russian student who was also an intellectual and social activist.

Starting out as an ophthalmologist, he quickly switched to primary care. His clientele came from the lower strata of society, including workers from the combination amusement park and circus close to his office. In 1902 he met Sigmund Freud and became part of the psychoanalytic movement he had created, rising to become President of the Vienna Psychoanalytic Society in 1910. However, since his ideas were often at odds with Freud's, a year later Adler and his supporters formally broke with the psychoanalytic school. Adler believed that the exterior or social realm was as important as the interior realm.

Shortly thereafter, Adler published a book titled *The Neurotic Constitution*, in which he promoted the idea of individual psychology. Linking this concept with that of holism, a subject dear to his heart for many years, Adler developed an approach to psychotherapy that emphasized the patient as a whole, rather than a collection of subcomponents such as the id that required separate analysis. Moreover, the patient was considered not in isolation, but rather in the context of family, work colleagues, and society. This approach became known as the "school of individual psychology."

Adler's ideas were further shaped by his brutal experiences as a physician in the Austrian Army in World War I and later at a children's hospital. He theorized that war, which engendered extreme violence, social conflict, and terrible suffering, could be viewed through the lens of individuals whose personality dysfunctions rooted in childhood perpetuated such horrors once they reached adulthood.

After the war, Adler founded a number of child guidance clinics in Vienna. His observations led him to believe that three key factors shaped a child – *pampering*, *neglect*, and *birth order*. These, he said, were responsible for children developing a story about themselves in which a series of partial truths represented the beliefs of the young child and later formed the basis for adult decision making and interaction with the world. In Adler's view, people's stories could be changed, if they were not serving them well, through a Socratic and equal dialog in which the

analyst laid bare the elements of the story for the patients to see clearly for the first time.

During extensive travel throughout the 1920s in Europe and the United States, Adler began to refine a number of concepts. For example, Adler strongly believed that birth order in a family had a profound effect on a child's belief systems, despite the lack of scientific evidence at the time for this concept. In Adler's theory, the eldest child was likely at first to be pampered and then forced to help raise younger siblings while being deprived of focal attention. Youngest children, however, were likely to be overindulged, leading to a lack of social empathy, while middle children had the best chance of being balanced, even though they might later rebel due to feeling left out. Adler also cautioned against corporal punishment and encouraged parents to walk the thin line between too much pampering and inadvertent neglect. By making children feel part of the family, Adler reasoned, they would be less likely to feel isolated and develop neurotic personalities.

In 1927 Adler became a visiting professor at Columbia University, and then took a similar position at Long Island College of Medicine in 1932. His move from Europe to the United States was hastened by the gathering power of the Nazis, who forced him to close his clinics in Vienna because of his Jewish heritage and emigrate with his family in 1934. He died of a heart attack on May 28, 1937, in Aberdeen, Scotland, where he had been lecturing.

Accomplishments

Adler was a profound communicator in his scholarly works, books, and lectures to his colleagues as well as the public, demonstrating uncommon insight into mental illness in a clarity of style that is rare today. He demonstrated uncommon insight into mental illness. He strongly believed that encouragement caused individuals to feel capable and appreciated, thus leading to positive and cooperative behaviors. Discouragement, he claimed, caused withdrawal, excessive competition, or quitting altogether. Most important, Adler maintained that one's relationship and behavior toward the world are dominated by a schema developed in childhood, a belief system that is created from childhood experiences such as constant neglect, one's "station" within the family, or traumatic/humiliating events. His student and then

colleague Rudolf Dreikurs popularized and extended these concepts after Adler's death.

Of the three great Viennese influences over modern psychology (Freud, Jung, and Adler), Adler has probably had the broadest and longest-lasting impact. For example, the noted psychologists Erich Fromm, Abraham Maslow, Rollo May, and Karen Horney have all been influenced by his ideas. Today many schools follow his teachings, including the Adler School of Professional Psychology in the United States.

In the Adlerian approach, one's style of life is the "master plan" from which thoughts, emotions, and behaviors can be understood. When a person is balanced, the personality dynamic is one of striving toward socially useful significance or superiority in the face of difficulty; in the case of mental health disorders, in contrast, it is subverted toward an exaggerated significance or a goal of superiority over others. If the sum of childhood experience is one of inferiority, the individual is pushed toward compensatory behaviors designed to bring about success and future security. By analyzing birth order (and its consequences), repeated coping patterns, and traumatic incidents in childhood, therapists are able to characterize patients' goals and lead them into fuller understanding. Then patients can be directed toward a sense of connectiveness and more socially beneficial paths, thus counteracting feelings of insecurity. This is accomplished through a Socratic dialog in which patients' current beliefs, attitudes, behaviors, and feelings are first examined and then challenged. Modifications take place through encouragement, which brings about possibilities for change, the development of confidence and growth, and a feeling of fulfillment. As they replace self-protection and self-enhancement mechanisms with avenues for more socially desirable goals, individuals can become more integrated into society.

In addition to his own life experiences, Adler was influenced by the philosophies of Kant, Nietzsche, and Virchow, as well as the statesman Jan Smuts, who created the concept of holism. Although a proponent of Marxism, he tended to focus on the social idealism embodied in this movement, stressing the importance of community and social interest (*Gemeinschaftsgefühl*) in which actions are taken for the common good. He was also an advocate of parent, teacher, and social worker training that could enhance child development,

so that children could learn to reason and exercise power within the framework of cooperation with others. In addition, Adler supported feminism to the extent that feelings of superiority or inferiority could be perceived as gender related and possibly cause problems for women. While he was opposed to homosexuality in his early career, regarding it as an inferiority complex toward one's own gender, there is some evidence from his later years in New York that his feelings on the subject might have changed into a *laissez faire* attitude, except for those patients who actively sought help in changing their sexual orientation.

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Adorno, T. W.

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One of the most important and influential thinkers in the twentieth century, Theodor W. Adorno was an influential philosopher, psychologist, sociologist, and musicologist in Germany before and after World War II. His influence is based largely on the interdisciplinary quality of his research and writing within the circle of the Frankfurt School of Critical Theory which was a seminal group of intellectuals with Marxist orientations that continues to exert influence on contemporary thought in much the same way that the famed Vienna Circle did in Central Europe after World War I.

Apart from his intellectual activity, which consisted principally of philosophical critiques and analyses of

Western scholarly traditions, he is best known for his radical Marxist dissections of contemporary Western societies built upon liberal/conservative capitalist foundations.

Theodor Wiesengrund Adorno was born in Frankfurt to a wealthy German wine merchant of assimilated Jewish background. His mother, Maria Calvelli-Adorno was Catholic and was also an accomplished singer-musician. His education was elitist; he studied music composition under Allan Berg and social philosophy with Siegfried Kracauer (Adorno 1992; Adorno and Tiedemann 1998, 2003). In 1931 at the age of 28, he received his doctorate in philosophy at Goethe University, on the aesthetics of the Danish philosopher, Soren Kierkegaard under the supervision of the theologian/philosopher, Paul Tillich. Two years later Adorno was expelled from Goethe University by the Nazis along with other Jewish professors and others espousing left-wing views. Thereupon, he changed his father's surname into a middle initial and adopted "Adorno," his maternal surname by which he became known (Kelly 2007).

The Institute of Social Research: The Frankfurt School

The agenda of this intellectual think tank focused on Marxist Scholarship and its understanding of political economy. While the Institute never produced a unitary social theory, many of its distinguished members shared a critical view of modern capitalism but did not embrace Soviet Communism as a derivative political model of Marxism. Eventually, the school's cultural critiques and eclectic theories of mass society inspired by the works of Adorno and Max Horkheimer deeply influenced the new left during the 1950s and 1960s (Jay 1984a; Martin 1996).

When Germany found itself submerged in the Nazi ideology and the European war, the Frankfurt school went into exile with Adorno and Horkheimer working and teaching in American universities. At Columbia University in New York, Adorno worked with Paul Lazarsfeld, an important sociologist who laid the groundwork for modern communications research that is so vital in retail commercial activity, opinion surveys, and contemporary electoral political polling. The experiences in the USA – particularly with the Princeton University Radio Research project – enabled

Adorno to articulate his ideas about the "culture industry" and what he called, the "administered society" (Adorno 2002b, g).

After returning to Frankfurt in 1949, Adorno resumed teaching and research in the revived and reformed Institute of Social Research located in Goethe University.

The history of the Frankfurt school would be woefully inadequate and shortsighted if it failed to accord major significances to Freud's ideas in the development of Critical theory – the main intellectual thrust of the Frankfurt school's institute (Rainer 1994). Freudian thought played a central role in the works of Horkheimer, Marcuse, and Habermas, but none was more influenced by him than Adorno. In some ways, Adorno was an orthodox Freudian: Early on, he supported instinct theory, in contrast with the psychoanalytical revisionism of Erich Fromm and Karen Horney who objected to Freud's biological determinism. He challenged the views of some leading American proponents of sociological functionalism such as Talcott Parsons of Harvard, who sought to integrate psychoanalysis into a more comprehensive socio-psychological theory of "social action" that Parsons and his influential circle in Harvard were developing (Alvin 1972; Cook 2005). Yet Adorno, always the closet Kantian, parted ways with some of Freud's views believing that Freud tended to collapse or reduce external reality into a purely psychological universe. Still, not withstanding his reservations with some of Freud's views, he remained impressed with the Freudian methodologies and the epistemological mechanics of Freud's metaphysical orientations. For Adorno, Freud did not seem to fully appreciate the issue laid out by Kant in his *Critique of Pure Reason* as to what the requirements had to be (if knowledge were possible at all) that would enable us to acquire knowledge (Adorno 1959, 1965). Adorno saw Freud's psychological atomism as mistaken because it minimized the importance of social factors in shaping the meanings attached to sensate experience which represents the initial steps of knowledge production in the experiential stages of cognitive growth and consciousness (Adorno 1990). Indeed, as he later argued in other works, under advanced capitalism, individuals can be reduced to isolated monads. Freud, ironically, appears to be right even when he was wrong (Adorno and Horkheimer 1947/2002).

Though Marxism is deeply suffused as intellectual data throughout Adorno's works, the main features of his version of critical theory can be said to be Freudian. He did not lose sight of the fact that every object is the product of history and that the subject plays an active role in the acquisition of knowledge. This idea fits well with psychological thought which, while inheriting some principles of nineteenth century empiricism and materialism, is fully hermeneutical in its clinical application and in the way in which it adheres to a nonpositivist conception of truth. For example, rather than prescribing a neutral analyst, some types of psychoanalytical practice require an active intervention on the part of the therapist. The idea is that some objectivity about the patient's emotions and mental states is best achieved through interactions in the clinical sessions. Getting a closer picture of the patient's emotional and mental conditions is best achieved intersubjectively. Likewise, in Adorno's notions of Critical theory, the object is observed from an immanent, interior viewpoint, not from a transcendent perspective like that adopted in the positivist-oriented sociology of knowledge. And this is Adorno's point of view about some of the elemental conceptualizations of psychoanalysis, where it attempts to make conscious the social determinants of individual pathologies by seeking to discover or unravel the complex dynamics of those determinants not in the external world but rather through the imprints they leave on the mental and emotional life of the patient (Whitebrook 1995).

Another comparison that illustrates the conceptual convergences of Adorno's Critical theory – which may be generally described as a sociopolitical, cultural critique of social institutions – and Freudian psychoanalysis can be found in the principle of nonidentity. The view here is that under extant social conditions (capitalism) no synthesis can unite subject and object, particular and universal – or put more concretely, what disparate, inherently conflictful are the individual's aspirations to happiness and the unforgiving imperatives of society (Herbert 1955). The critiques of culture and personality Adorno developed were based on two psychoanalytic categories: projection and identification. The affinities between the two and Adorno's overarching sociological schemas owe much to Freud's thinking.

Through identification (or the socialization process described by many social psychologists and symbolic interactionists such as Erving Goffman (Kelly 2007) within societies with nuclear-type family structures that are typical of Western societies, the individual is acculturated into its customs, folkways, and social norms. In projection, the individual protrudes, expels into the larger social world, impulses, emotions, and ideas. Identification is essential for an individual's social integration, and projection is a necessary requisite for the individual's acquisition of cultural knowledge, which occurs as the individual reacts to societal demands and adjusts his affective behavior and ideas accordingly. In the social models elaborated within the complex sociocultural maze ways characteristic of Western societies, they may appear to tolerate greater autonomy, but are likely to produce false identification, where individuality may be effaced. Similarly, with real projection, the subject can acquire knowledge of the real world by processing the social data that socialization skills make available; while with false projection, the subject perceives an illusory reality that portrays his or her inner emptiness (Adorno 1983).

The two components of Adorno's theory – the critique of culture and the theory of personality – are transparently complementary. His critique of culture is focused on advanced, industrial societies with a close scrutiny to their institutional mechanisms for stabilizing and reproducing themselves at the expense of the mental or emotional health of its members. Institutional survival is achieved by creating psychological states conducive to rigid conformity. Social psychological studies in the USA in the 1950s described some of these conditions. David Reisman's *The Lonely Crowd* and his other works offer dynamic descriptions of the alienation of modern Americans in the 1950s – a postwar period of enormous urban and industrial/corporate development (David 1952, 1954). Adorno developed his perspectives using conceptual tools borrowed from Freud (Harkheimer and Adorno 2002). Perhaps today Adorno's reliance on Freud may seem anarchistic, but then, his discussions revealed the power of analyses that utilize a mix of disciplines to achieve a deeper understanding of the impact of society on individuals.

The Authoritarian Personality

In the post–World War II years, Adorno and his American colleagues at the University of California, Berkeley, conducted studies that addressed questions concerning personality structure and attitudes about social and political problems (Adorno et al. 1950). These investigations drew much of their intellectual energy and perspectives from Freud. A study was designed as an empirical survey that would explore a complex of issues about personality and beliefs as these related to particular social and political issues. The concept of an “authoritarian personality” constituted the principal orientation of the study. It was to focus on parental authority, child rearing, and personality development within the nuclear family unit. The concept was rooted in the practical realities of everyday family life in the postwar 1950s milieu.

What did Adorno and his colleagues hope to show in the survey of American family life about the authority of parents and significant others on the personality formation of children? Another issue concerned the prevalence of a certain type of child rearing apparently prevalent in working class and lower-class families that were beleaguered by poverty, lack of occupational opportunities, and poor education backgrounds. Adorno probably did subscribe to the view that the family was a miniature of society and its culture. But what kind of family did Adorno have in mind? Was it mainly urban, somewhat literate, but hard-pressed, or more middle class, comfortably situated in a decent physical environment with all the requisite accoutrements of acceptable schools, parks, transport, etc.? Were the families in the study to be not too prosperous but not too impoverished; typically working class and lower middle class? The issues of demographic sampling in the study would haunt its reliability for many social scientists that agreed with the basic premises of the work but were concerned over the viability of its databases.

The Authoritarian Personality sought to undercover what Emile Durkheim called a “collective or common conscience” – beliefs and customs acting upon one another; habits rather than institutions that animate social processes rather than social structure, which may be construed as a determinate system that has its own life, that is diffused throughout a society (Emile 1975).

Adorno’s sociopsychological portrait of American family life promised to be a valid picture of the materialist character of the prosaic American family. However, this collective image of family moral geography that he sought to discover proved to be fugitive and elusive. It turned out that the work appeared to lack “objectivity”; it was not perceived as a disinterested analysis of socialization and child rearing into the cultural values that influenced American family dynamics. Like its forerunner, *An American Dilemma* (1944) produced by the Swedish sociologist Gunnar Myrdal who examined the causes and consequences of racism in American society, *The Authoritarian Personality* was advertised as a deep diagnosis of the culturally deformities of family life in a society dominated by a capitalist political ethos. The psychological ramifications of a capitalist system promoted in the authors’ views, a proto-fascist personality. Adorno and his colleagues set about to measure and delineate the dimensions of this personality disposition or syndrome.

According to Adorno and his colleagues, authoritarianism is a personality type that is a result of childhood experiences defined by at least nine traits clustered together. It was hypothesized that excessively harsh and punitive parenting lay at the base of the syndrome which predisposes individuals to destructiveness, cynicism, aggressiveness, toughness, and submissiveness to authority figures – all characteristics of a pre-fascist personality. The authors led by Adorno developed the study’s “F” scale that personally identified the key dimensions of the pro-fascist personality. The battery of questionnaires was administered to nearly 100 respondents who were randomly selected for the study. The methods of the study and statements about authority would display, it was believed, characteristics of this personality type. Respondents were asked to agree or disagree with assertion such as the following: “obedience and respect for authority are the most important virtues children should learn” (an indicator of submissiveness); “homosexuality is a particularly rotten form of delinquency and ought to be severely punished” (aggression and sex).

In addition to the measures of proto-fascist tendencies in *The Authoritarian Personality* (TAP), other research techniques were utilized to measure ethnocentrism; the researchers also administered thematic

appreciation tests in which subjects were asked to react to pictures of others; also the research relied upon clinical interviews that resembled psychotherapeutic sessions. Clearly, the research project sought to be thorough. However, critics of the study found numerous flaws in the methodology. For one, sampling the population of respondents was virtually nonexistent. The questionnaires were filled with inexact, flawed wording; long open-ended interviews were loaded in schedules that were too subjective. What subjects reported about themselves could not always be verified. The F scale in short lacked coherence and firm empirical grounding. Further, a prominent sociologist from the University of Chicago wondered if one could write meaningfully about the psychological phenomenon of authoritarianism by focusing exclusively on the political right. It was pointed out, based on historical studies, that an analysis that failed to recognize that the extremists of left and right ideological orientations were similar in their authoritarianism could only be factually flawed.

Despite such short comings, Adorno and associates insisted that a clinical account of those personality traits that predisposed individuals toward rigidity in beliefs and judgments, that demonstrated a lack of tolerance for others who were different racially, religiously, ethnically, politically, and different in terms of educational background, and evening aesthetic tastes was needed in order to be able to construct corrective therapies. Clearly, individual treatment would need to be supplemented by significant reorientations in the social units – principally the nuclear family – that nurtured extremist tendencies in personality formation. A modification of the family was only the initial step in massive social reconstruction.

Adorno and his colleagues drew some radical conclusions about their findings. They believed that in order for democracy to protect itself better against political extremism, the social structure and organization of society would have to be changed. However, Adorno concluded that the tendencies of authoritarian personalities are too rigid to change, to be significantly altered by the technique of psychotherapeutic interventions. The authoritarian personality was a product of the total organization of society; Adorno and his colleagues concluded that the authoritarian personality was an expression of the cultural deformities of late capitalism.

A central psychological idea of *The Authoritarian Personality* derives from Freudian psychoanalytic theory with its emphasis on early childhood experiences as the driving force of personality formation. In its general form, psychoanalytic theory suggests that young children internalize the values of the significant others in their lives, including their biological parents and members of their nuclear family and even members of family groups. In the case of punitive parents, children who are exposed to them are bound to acquire some of their traits and coping strategies. For Adorno, the collaborative efforts that produced *The Authoritarian Personality* (TAP) furnished much intellectual satisfaction despite the negative criticisms concerning research techniques, population samples, and interpretations of the data. However, he wrote that if TAP did anything it was not to be found in the conclusions or methodologies and measurements in the study, but rather in the conception of the problem. Following these groundbreaking efforts, other projects emerged seeking to empirically test psychoanalytic theorems. The intent behind TAP, according to Adorno, resembles the scientifically oriented impulses driving psychoanalysis as a practice: to determine the origins and bases in the psychic structure of opinions and dispositions. Adorno and his colleagues were interested in the fascist potential; this was a central motif in the project. Practically speaking, in order to confront that dangerous potential, the researchers believed it was necessary to understand what clusters of factors contribute to the emergence of the authoritarian personality syndrome. Adorno and his coworkers conceived of their efforts as a pilot study – more of an exploration of possibilities than a collection of irrefutable results. Nonetheless, he believed the results were significant enough to justify the conclusions (Adorno 1998). Adorno's use of Freudian theory in *The Authoritarian Personality* illustrates the power and relevance of Freud's ideas in areas of research that go beyond the constrictions of conventional psychotherapy.

Yet, Adorno parted ways with Freud in some respects: he believed that Freud tended to collapse external reality into a pure psychological universe or space. But even here, Adorno continued to respect Freud. Though he thought Freud's psychological atomism mistaken because it tended to minimize the importance of social factors as a force shaping behavior and

personally, Adorno still thought the Freudian project basically correct in the practical terms of everyday life. Under advanced capitalism, however, he believed humans were reduced to isolated social and psychological monads – in modern terms, isolated, alienated, often angry persons gripped by the fear that they are alone in a frightful world. Thus, Freud was right even when he was wrong (Sheratt 2002).

Though Marxism also motivated Adorno's thought, the main structures of his critical theory are Freudian. Adorno's social constructivism never loses sight of the perspective, which argues that all sense data are historically conditioned and that the agency of the individual, the subject, plays an active role in the acquisition and assessment of knowledge. Such a view squares well with classical psychoanalytic thought, which while inheriting some principles of nineteenth century empiricism and materialism, is fully hermeneutical in its clinical applications (Ricoeur 1985).

Freud's relevance extended well beyond his psychotherapeutic insight, themes, and methodologies. Some of the more profound views of Freud concern how civilization itself, produces its dialectical opposite – anti-civilization. Adorno believed that the “popular” essays like *Civilization and Its Discontents* and *Group Psychology and The Analysis of the Ego* deserved the broadest dissemination. If barbarism itself is inscribed in the principle of civilization, then there may be something rather desperate in attempts to use against it. Auschwitz, the symbol of genocide, cannot therefore be dismissed as an aberration, as a superficial or fortuitous phenomenon to be disregarded when compared to the dynamic progress of the Enlightenment and the supposed growth of humanitarianism that it fostered. Indeed, for Adorno, genocide resurrected itself under the guise of nationalism at the end of the nineteenth century when the full swing of robust nationalism was strengthened by a toxic alchemy of progress and science that took root in Western Europe and that seemed initially to be both politically and economically liberating (Adorno 1967, 2003).

Since the possibilities of changing these objective, historical conditions are limited, we are left with attempts to works against the repetition of Auschwitz – meaning in a contemporary context, genocide. Unfortunately, appeals to eternal values and humanistic impulses are ignored by those inclined to mass murder

who merely shrug their shoulders. What is always doomed to failure are appeals to spare the victims. The roots for change, according to Adorno, must be sought in the persecutors themselves, not in the victims (Frantz 1959). This point is powerfully made in Frantz Fanon's books on the appalling brutality of colonialism. In general, one must come to know the mechanism that enables people to become capable of such deeds such as mass murder, torture, and systematic violence. Adorno believed in the findings of depth psychology that argued that all personalities, even those who commit atrocities in later life, are formed in early childhood. Thus, the possibility of hope for change is real if formative qualities permeate the psychic structures of persons.

Freudian Theory and Fascist Propaganda

In *Group Psychology and the Analysis of the Ego* Freud foresaw the rise and nature of fascist mass movements in purely psychological categories. Adorno has a high place for Freud's ideas given the dramatic growth and expansion of mass politics in fascist contexts that was neither foreseen nor ignored by orthodox Marxists. Adorno's principal interest in psychoanalysis was its delineation of social trauma that broadened the range and flexibility of psychotherapeutic practice and which made emotional stress a social health issue that could be treated – as Fanon was able to demonstrate in his psychiatric practice among oppressed natives in the colonial settings of Algeria after World War II. The focus on social trauma constituted a step forward toward the healing of the individual within society, to the extent that diagnosis precedes cure. This is not to suggest Adorno's interest was with psychoanalytic therapy per se, which addressed the individual psyche and whose healing or curative process was not applicable to the social whole – which would constitute the central object of interest of a sociologically oriented social scientist and philosopher. While the diagnosis Adorno sought was social not individual, the specific detail of individual psychosis elaborated by Freud and his collaborators could in turn inform a broader, collective social diagnosis. As he put it in the Dedication of *Minima Moralia* “society is essentially the substance of the individual” – a classic Durkheimian idea (Adorno 2002c). He also believed with Marx that the

inexorable outcome of the fetishism of commodities is the nightmare of a world congealed into products. Inexplicably, benign men who have subjugated themselves into the malignant grip of capitalist oppression have compounded the ensuing immiseration of the masses. In this Marxist gloom of economic enslavement, Freud seems like a lifeguard poised to rescue his disconsolate patients in order to restore their equanimity from the squalls of anxiety, depression, and the alienation that dehumanizes them. Adorno, Marx, Freud, and even this nineteenth century novelist William Thackeray are kindred roles in this regard: each has attempted to show not so much the way in which the individual enters history, but the way in which history – accidentally, fortuitously, calamitously, and unpredictably – enters the individual.

In his political writings, Adorno focused on fascism and its destructive ideologies seeing them as a bizarre mix of hocus-pocus, preposterous conspiracy theories, simplistic interpretations of Nietzsche, and violent anti-Semitism. Nor did he not ignore some of the pathologies associated with the politicized versions of Marxism – including the Leninist contempt for the decadent West, for Jewish merchants, for traditional religion, for the “backward” peasantry. He understood that both Nazi and Bolsheviks experienced World War I as a kind of apocalypse, an event that proved that Christian morality had failed, and that something totally new had to be put in place. As a result, violence and radicalism were more common in the 1920s and 1930s Europe than we choose to remember.

Music and Psychology: The Poetic Fallacy

Because musical genius may be found among political monsters such as Richard Wagner, that does not mean that the intrinsic quality of their cultural products may be so tainted that they need to be censored. Or does it? For example, some American liberal culture publications persist in treating Stalinist terror with a measure of equivocation that Nazi terror does not permit. Stalin killed more Ukrainians than Hitler killed Jews, but music celebrating Hitler will not be performed in New York anytime soon. Doing so would transgress a moral line.

Adorno believed that time might very well erode that line and alter how music is heard, or how pictures

are perceived, or books read, so that art glorifying, say, Assyrian tyrants, French despots, or American robber barons may eventually strike us as beautiful because we have come to accept, tacitly, or unconsciously, some moral acquiescence that time and opinion have eroded (Adorno 2002a). But cultural historians still have a professional and ethical obligation to point out where the line against sordid art once was.

In various writings, musicologist Richard Taruskin claims that most musicians and music listeners are inclined to turn a blind eye on morally and politically dubious aspects of serious music (Taruskin 2006, 2007). This implies that the main legitimate object of praise or censure in art is the quality of its production. Sustaining a work in the categories of high art may have little to do with the political predilections of the author/composer and more to do with an ambivalence or an enthusiasm for it dependent upon specific artistic contexts. The artistic context constitutes a presentational format for a work and not only is it crucial in a work’s performance but also in its appreciation no matter what circumstances affects its provenance.

Adorno’s attitude toward Wagner’s art is particularly relevant because it reflects a profound change of heart (Adorno 2002d). In a poignant essay, he declares that Wagner no longer possesses the boundless authority of earlier times.

Even the stormy applause a listener may encounter following a performance of *Die Meistersinger*, there is still something about it of the old virulent evil. With some apprehension, in strained, convoluted language Adorno makes the point that Wagner’s music speaks the language of Fascism (Adorno 1984). With uncharacteristic candor, Adorno declared: “as the National Socialist potential continues to smolder within the German reality, now as then, so it is still present in Wagner. The question of whether and how Wagner should be performed can be separated only wrenchingly from the acknowledgment of such demagoguery. At an earlier time I attempted to localize this demagoguery precisely in the purely musical-aesthetic form. But if I am allowed to express myself so personally, perhaps my criticism has now earned me the right to emphasize what has outlasted it. The position of consciousness toward Wagner that I experience as my own whenever I encounter him . . . is . . . deserving of the appellation ‘ambivalent’” (Adorno 2002e).

Furthermore in another version of the essay: “The attitude toward Wagner. . . is ambivalent. [Like] a pendulum swinging between attraction and repulsion” (Adorno 2003).

Adorno steps aside from consideration of moral responsibility in art. Perhaps what is worse is Adorno’s appearance of sentimental complacency regarding Wagner’s mixture of genius and rabid anti-Semitism. Though Adorno obfuscates the issue in his essay and its revision on Wagner published a year later by his executors, the painful question remains: are we not debased and diminished, as artist and human beings, by commitment to “abstract” musical worth? Can art inflict harm? Is it simply morally blameless? Might totalitarian regimes control art because they believe it to have significant political and psychological consequences? In modern times, the Taliban in Afghanistan and Pakistan certainly believes this and not because they are ill-advised or artistically churlish; perhaps we are historically blind or sanctimonious in thinking that classical music is indispensable and culturally superior. Short of morally indicting himself over Wagner, Adorno preferred to live with the tensions induced by his aesthetic dilemmas.

Adorno’s assimilation of Freud’s psychology into his social theories functions as a shield against the unexpected use of fascist mass politics which was largely underestimated and unforeseen by many otherwise prescient orthodox Marxists (Jay 1984a). In point of fact, Adorno’s primary interest in psychoanalysis was its brilliantly elaborated delineation of socially induced trauma. It makes good intellectual sense that after Marx’s powerful descriptions of the baneful effects of capitalism on social organization, that Freud would depict the emotional consequences and pernicious costs of these omnipotent socioeconomic systems on the psychic life of the individual. One might say that to identify and analyze social trauma and its particular features constituted a step forward in the healing of the individual within society to the extent that diagnosis precedes but does not presume a cure. This is not to suggest that Adorno held more than an abiding interest with psychoanalytic therapy which addresses the individual psyche and whose healing remained at least theoretically distinct from the social whole. The diagnoses Adorno sought in Freud was social not individual, though the specific details of individual psychosis

could in turn inform social diagnostics. As he put it in *Minima Moralia*, “society is essentially the substance of the individual.” (Adorno 1978) Adorno’s social psychology is much governed by studies of the family as a kind of sociopsychological middle ground between the individual and the larger society. More importantly, Freudian psychoanalysis which is primarily a historical and based on a biological premise nonetheless “expressed, at best metaphorically one aspect of the nonidentity of man in an unreconciled totality (Martin 1985).

Freud’s intellectual career as a gifted and important psychological researcher and therapist was launched by the publication of *The Interpretation of Dreams* at the turn of the twentieth century. It was a groundbreaking meditation and exploration of parts of the psychic life labeled under the rubric of “dreams.” During his lifetime, Adorno was fascinated by his dreams and transcribed those he could recall. His book, *Dream Notes* (Adorno 2007) contains his select writings on dreams that cover the later decades of his life. Unlike his other works on philosophy, music, culture, and social theory, those writings are very subjective, frank, and often uninhibited accounts of his inner, emotional life, presented without the ornamental apparatus of high-powered, lofty philosophical prose, or scathing polemic filled with speculative gusto and dialectical fireworks for which he was well known. Nor is there any attempt at hermeneutical interpretation enveloped in his famous rebarbative density; nor was it a psychoanalytically oriented self-analysis. He mundanely asked whether dreams might simply be fictitious, or autobiographical, or psychic activity seeking to capture a pre-rational, mythic slate of consciousness. No clear answer emerges from these considerations. Freud’s intellectual career as a gifted and important psychological researcher and therapist was launched by the publication of *The Interpretation of Dreams* at the turn of the twentieth century. It was a groundbreaking meditation and exploration of parts of psychic life labeled under the rubric of “dreams.”

Adorno’s critique of culture and the personality theories had intellectual consistency. The cultural analysis reported in such works as *The Culture Industry* (2001) shows that his work was neither pure philosophy, sociology, or psychology, but belonged rather to a class of sociopsychological reflection on society and

the self to be found in the works of Eric Fromm and Herbert Marcuse whose intellectual taste was also Marxist and Freudian.

For a writer with wide-ranging interest, the essay form was suited to Adorno because it permitted spontaneity and intellectuals play that in their own form, replicate the spirit of emancipation and function as a magnifying glass (Adorno 2002f; NicholSEN 1997).

Adorno's critique of culture focused on postindustrial society and its numerous mechanisms, institutes, organizations, and agencies for stabilizing and reproducing itself on both cultural and psychological levels. At the core of his theory of personality is a kind of human being that postindustrial society requires and sustains in order to perpetuate itself. In the explanatory essay and works describing and analyzing the processes of the phenomenon, Adorno utilized conceptual tools borrowed from Freud. Today, in the twenty-first century, exclusive references to Freud, may appear anachronistic in terms of contemporary thought, but even here, such references and deferences to the intellectual fecundity and authority of psychoanalysis in the body of works or important social thinkers like Adorno certifies the importance of Freud in coming to grips with the social dynamics and conflicts of modern society.

When Adorno returned to Frankfurt University after World War II to resume his work there, he observed that his American exile was notable for the culture shocks it induced. His life was molded in Germany before he became an émigré, just as his alienating years in America reshaped his sojourn back to Germany (Jay 1984b).

The musical dimensions of Adorno's life and career are too often neglected in considering his importance as a political commentator. Of his entire oeuvre (20 volumes) comprising 10,000 printed pages, more than 4,000 concern music. Adorno wrote long monographs on his former teacher/mentor, the composer Allen Berg, Gustav Mahler, and Richard Wagner; he left unfinished at the time of his death a career-long project on Beethoven (Adorno 1984, 1988, 1991, 1998). Musically, his concerns were almost exclusively Western European, and he rarely investigated music prior to Bach. Even his philosophical and political admirers in this regard have often noted Adorno's eurocentrism (Said 1991). He worked to revise the Institute of Social

Research, which housed the bevy of intellectuals and professors engaged in the production of "Critical theory." The criticism of the theory's lack of a social agenda to organize, institutionalize, and drive the theories of social change and justice ahead were epitomized by George Lukacs who wryly observed that Adorno and his colleagues enjoyed the good life in the comfortable insulation of the ivory tower/institute they inhabited savoring the pessimism and disjointed social unrest they triggered by their descriptions of the misery they recognized. This led to a chorus of similar critiques insinuating that Adorno and his crowd took up residence in the "Grand Hotel Abyss" – a beautiful hotel, equipped with every comfort, on the edge of an abyss, of nothingness, of absurdity" (Georg 1971).

It seems odd that the student movement protest that Adorno and his colleagues should have vigorously supported were, oddly, largely ignored by the "radical" professors in the Institute. The public critique of Critical Theory and Adorno occurred in 1966–1967 when student protests focused on federal school reform. The first point of violence occurred when a student was killed by police in a Berlin demonstration protesting against the visit of the Shah of Iran. Shortly thereafter, Adorno demanded a public inquiry but left his intervention in the affair to that benign gesture of demanding a hearing into the events. It was seen as an ivory tower response, or, worse, a betrayal of the ideals underlying Critical Theory which had in the past furnished students with the intellectual training in social justice and culture. Critical Theory seemed to fail in practice.

In the face of students' attacks on what they regarded as Adorno's quietism, he wrote a brief essay at the end of his life where he staked out one last time the argument that valorizes that aesthetic qualities of life as the foreground for happiness. This failed to please people shaped by the thoroughly saturated raw politics of the Cold War and its aftermath along with a century of global mass culture imperiously linked to the modes and values of advertising, as Adorno himself pointed out so powerfully in his books. He died of a heart attack in 1969, perhaps heart broken that he could not reconcile with his students and critics. However, his appropriation of Freud and psychological theory into the perspectives of cultural and sociological

theory has deeply enriched the conceptual vigor of social science.

Epilogue

In 1967, Adorno wrote an essay titled “Education After Auschwitz.” In it, he argued that the moral corruption and ethical despair that made the holocaust possible remained, or as he put it, “largely unchanged” and that “the mechanisms that render people capable of such deeds, must be uncovered, examined, and critiqued through education”. Schools had to teach more than skills. They had to teach values. If they failed to do so, another Auschwitz was always possible.

“All political instruction should be centered upon the idea that Auschwitz should never happen again.” He went on to say that:

- ▶ This would be possible only when it devotes itself openly, without fear of offending any authorities, to this most important of problems. To do this, education must transform itself into sociology, that is, it must teach about the societal play of forces that operates beneath the surface of political forms (Adorno and Tiedemann 2003).

If we fail to grasp the “societal play of forces that operates beneath the surface of political forms,” we will be cursed with a more ruthless form of corporate power, one that does away with artifice and the seduction of a consumer society, and wields power through naked repression.

Adorno knew that radical evil was possible only with the collaboration of a timid, cowed, and confused population such as existed in Germany; with a system of propaganda and mass media that offered little more than spectacle and entertainment – also such as existed in Germany in the 1930s and 1940s, and an educational system that did not transmit transcendent values or nurture the capacity for individual conscience – these were the ingredients for mass deception, repression, and genocide. He rightly feared a culture that banished the anxieties and complexities of moral choice and embraced a childish hyper masculinity. “This educational ideal of hardness, in which many may believe without reflecting about it, is utterly wrong” Adorno wrote. “The idea that virility consists in the maximum degree of endurance long ago became a screen-image for masochism that, as psychology has

demonstrated, aligns itself all too easily with sadism” (Adorno 1959, 1965).

Does sadism, as Adorno implies, dominate the culture? Intuitively, one could sense that it runs like an electric current through reality T.V. and trash-talk programs; it is at the core of the multi-billion dollar pornography business, and fuels the compliant, corporate collective. Corporatism – a longtime fetish-like preoccupation of many social scientist and political writers – is laced with the emotional energies of sadism insofar as it is about crushing the individual capacity for moral choice that diminishes the individual forcing him or her into the conformity and silence of an ostensibly harmonious collective.

The logical fruition of the hypermasculinity is Abu Ghraib; not Monday night Football, but the wars in Iraq and Afghanistan, and our lack of compassion for our poor, mentally and physically ill, and the unemployed.

The crux of this problem for Adorno is educational: the political and economic forces which were not as mature and powerful as they are today are mediated by educational forces. We have bought hook, line, and sinker into the idea that education is about training and success defined in terms of dollars, prestigious status, and the other accoutrements of material success.

The corporate state holds up as our ideal what Adorno called the “manipulative character.” (Adorno 1959, 1965, 1990) With the notion of the manipulative character, one thinks of C. Wright Mills’ descriptions of the power elite in this connection and their superb organizational skills who nonetheless seem unable to have authentic human experiences. He or she is an emotional cripple. The manipulative type is a systems manager trained to sustain the corporate structure which may explain why our elites wasted huge amounts of public tax levies on large finance corporations.

It especially difficult to fight against it, wanted Adorno, because manipulative people who are incapable of true experience, for that very reason show an unresponsiveness that makes them seem to the psychologically trained somewhat mentally ill or psychotic. Much of this is discernible to the sociologically and anthropologically sensitive observer like C Wright Mills. An examination of their backgrounds and educational experiences reveals that the insulated status groups elites inhabit plus their specialized

educations has a tendency to perpetuate the extant social stratification that is widespread across society and harmful in that opportunities and occasions for contact and communication across class boundaries are restricted. Elite power has a blind belief in a decaying political and financial system that has nurtured, enriched, and empowered it. As Adorno realized, the elites with their authoritarian bluster cannot solve our problems.

“The mindless tasks imposed by authoritarian culture on the subject classes can be performed only at the cost of permanent regression. Their formlessness is, precisely the product of social form” (Adorno et al. 1950).

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Ainsworth, Mary D.

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Mary Ainsworth was a researcher, experimenter, author, and prominent contributor to the field of personality and developmental psychology. She is most recognized for her involvement in early emotional attachment, and her development of the Attachment Theory.

Basic Biographical Information

Mary Ainsworth was born into a strong and supportive family in Glendale, Ohio in 1913. Her mother and father both had educational degrees, and her father received a promotion which required the family to move to Canada when Ainsworth was 5 years old. Ten years later, at age 15, Ainsworth read a book entitled *Character and the Conduct of Life*, by William McDougall, which changed her life forever, setting the path for her career in psychology.

In 1935, Mary Ainsworth graduated from the University of Toronto, along with honors in psychology. In 1936, she earned her master's degree, and finally her Ph.D. in 1939 all from the same college. She met Leonard Ainsworth in 1950, and they married and moved to London. Around this time, Ainsworth met John Bowlby, who was the director of a research team in England where Ainsworth enrolled. She quickly became involved in a project he was conducting that sought to discover the effects of early separation from a mother on children's personality development.

Mary Ainsworth furthered her research when her husband accepted a job position in Uganda in 1954. Ainsworth went with him, where she had the opportunity to study how mother and infants acted in their natural settings. From her findings, Ainsworth came to the conclusion that several attachment patterns form between a mother and a child. Later on, Ainsworth

wrote that the type of pattern, whether it is conflicted or secure, all stems from the affection and attention that mothers showed their infants in the first few months after their birth.

Major Contributions

From the information Ainsworth gathered, she coined the term and developed the procedure called "Strange Situation" in 1960. Still used today, the goal is for the researcher to be able to evaluate differences in the reactions of infants to several separations and reunions with their mothers. The researcher needs to create an environment that an infant would feel comfortable enough to explore in, and one that would generate the need for security. The child is taken to an unfamiliar room filled with toys, and is left alone with his or her mother. The researcher then enters, and minutes later the mother is told to leave. The mother returns a little later, and the researcher records how the child reacts to both this separation and return. From the "Strange Situation" procedure that Ainsworth conducted, she was able to observe four major different types of reactions, which were all included in her Attachment Theory.

The first category in the theory is called "secure attachment." The type of children that would fall under this category would be those that explore the room without fear. When the stranger enters the room, the child is not scared to engage with the researcher. When the mother, or primary caregiver, of the child leaves, the child becomes distressed and stops interacting with the researcher. Upon return of the mother, the child no longer withdraws and goes back to exploring.

The next category is titled "anxious-resistant insecure attachment." Even though the caregiver of the child is in the room when the stranger enters, the child is still troubled by the presence of the stranger. He or she stays close to their mother in the first few minutes, and when she leaves becomes highly distressed. The child becomes even more upset when the mother returns, acting in an indignant way, and rejecting her closeness.

"Anxious-avoidant insecure attachment" is the third category. In this stage, a child will be indifferent to the environment and people present. The mother, caregiver, and researcher will not receive any attention

from the child. When the mother both leaves and returns, the child shows little or no interest. Mary Ainsworth noted that this is the category children belong in when a detached relationship between mother and child is present.

Finally, the last category is the “disorganized/disorientated attachment” stage. Although not originally noted by Mary Ainsworth, she later approved her colleague, Mary Main, to add it to the theory. Here, children have mothers that have gone through some sort of traumatic experience after the birth of their baby. The mothers were depressed, effecting the emotional development of the child. Around strangers, the child is upset and confused. When the mother leaves, the child will cry, but upon return the child will freeze or fall.

During the years Mary Ainsworth was researching, she and her husband went through a rough divorce. She became depressed, and began to become interested in Sigmund Freud after participating in psychoanalytic therapy. Regardless of her painful divorce, her love for teaching and exploration never stopped. She taught as a psychology professor at John Hopkins University for many years, and in 1975 transferred to the University of Virginia to work as a teacher and to continue her developmental research. Mary Ainsworth also wrote and printed many articles and books, the most well-known ones being the 1965 book *Child Care and the Growth of Love, Infancy in Uganda* in 1967, and *Patterns of Attachment* in 1978.

During the 1970s, Mary Ainsworth was a member of the American Psychological Association (APA), the British Psychological Association, the Virginia Psychological Association, The Eastern Psychological Association, and from 1977 to 1979 was the head of the Society for Research in Child Development.

From the 1980s all the way to the late 1990s, Mary Ainsworth began to become recognized and awarded for her important role and work in psychology. The APA awarded her the G. Stanley Hall Award in 1984 for her work in developmental psychology. She was awarded again by the APA in 1987, when she received the Award for Distinguished Professional Contribution to Knowledge, and again in 1989, with the Distinguished Scientific Contribution. Her biggest achievement was in 1998, when she was honored with the Gold Medal for Scientific Contributions by the American Psychological Foundation.

One year after her last award, in 1999, Ainsworth was still a professor at the University of Virginia. That year, she also passed away at the age of 86, leaving an inerascable and significant mark on the world of psychology.

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Allport, G. W.

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Basic Biographical Information

Gordon Willard Allport was born November 11, 1897, in Montezuma, Indiana. His father was a country physician who was of English descent, his mother of German and Scottish heritage. He was the youngest of four sons. One of his brothers, Floyd, who was a student at Harvard University, was influential in Gordon's seeking admission to Harvard University. He referred to his home life as, “marked by plain Protestant piety and hard work.” In the context of the American demographic profile of 1897, there was nothing especially uncommon about Gordon W. Allport's family background. By the time of his death on October 9, 1967, however, in the context of mainstream American psychology of the first two thirds of the twentieth century there was everything quite uncommon about the psychology proposed by Gordon W. Allport.

Crucial to his development as a psychologist were what Allport described in his autobiographical essay (1967) as “two intellectual dawns.” The first dawn was

his experience at Harvard University, an ongoing experience beginning with undergraduate days there, through Harvard's conferral of the Ph.D. in psychology on him in 1922, and subsequent years totaling to a 50-year association with the university. In his autobiographical essay (1967), Allport refers to his association with Harvard as, "a deep attachment . . . an infatuation." Despite the oxymoron inherent in this description, the long-lived character of Allport's association with Harvard University evidenced itself in that association lasting until his death in 1967.

The second intellectual dawn occurred with the awarding of the Sheldon Traveling Fellowship that enabled Allport to study for 2 years abroad. He spent the first year in Germany where he was attracted to the new Gestalt school. He spent the second year in England where Frederic Bartlett provided facilities for him to work. With his return to the USA, in 1925 he married Ada Lufkin Gould whom he had met at Harvard. Ada worked in the field of clinical psychology. Robert Bradlee was born 2 years later. The son eventually became a pediatrician.

The two intellectual dawns that Allport experienced, the one of intellectual inquiry in Harvard and the other of experiencing different intellectual perspectives in Europe, occasioned a stretch in the formation of Allport's maturity as a psychologist. The European dimension of the second dawn, specifically, was a sensitization to social contexts and to new schools of psychology. Allport's research psychology with its insistence on the priority of personality and social psychology had, perhaps, its origins from the life experiences of these "dawns."

Major Accomplishments/ Contributions

Allport's interests in personality and social psychology were reflected early on in his dissertation, "An Experimental Study of the Traits of Personality: With Special Reference to the Problem of Social Diagnosis." His commitment to these areas of psychology was further reflected in his editorship of *The Journal of Personality and Social Psychology* for 12 years and then from 1949 until his death in 1967 in his associate editorship of that journal.

Allport's two major publications on personality were *Personality: A psychological interpretation* (1937)

and *Pattern and growth in personality* (1961). With respect to personality and the psychoanalytic theory on development and the unconscious, in his autobiographical sketch Allport famously recounts an anecdote of an encounter with Sigmund Freud that took place in Vienna in 1920, when Allport had stopped off there at the invitation of his brother Fayette who was a member of the USA trade commission in Vienna. Allport describes the encounter with Freud almost as a confrontation with orthodox psychoanalytic theory, in which theory "manifest motivation" (i.e., conscious motivation) is accorded less consideration than unconscious factors. Allport's dissociation from psychoanalytic theory with respect to personality formation, as well as his dissociation, to a considerable degree, from the natural science approach in mainstream psychology, insured for him an idiosyncratic place in American mainstream psychology.

With research experience as proximate occasion and with the motivation deriving from his two "dawns" as remote antecedent, Allport articulated personality and motivation concepts such as functional autonomy, proprium, and propiety striving. He also promoted discussion of traits and personal dispositions. Allport was coauthor of the Allport-Vernon-Lindzey Study of Values (SOV) personality test, whose value categories are based on Eduard Spranger's (German philosopher and psychologist) typology. He advanced the distinction between idiographic and nomothetic approaches to research – a distinction sorely needed in a discipline so heavily influenced by a tradition of natural science concern with, and prioritization of, participant samplings with *N*s greater than one that are then available to statistical treatment.

Allport's work and interest in social psychology were of a significance not far from that of his work in personality. Topics of concern to him were attitude, rumor, religious beliefs, and intergroup prejudice. These topics continue to receive prominent attention in social psychology texts years after Allport's presentation of them.

Allport's work in personality and in social psychology, with his special interest in the topics referred to above – all established a position for him in American psychology that humanistic psychologists would claim theirs as well. Gordon W. Allport is considered one of the first strong representatives of the humanistic psychology school in modern psychology.

Allport's courage of intellect and exposition of that which is important though novel to psychological research found expression in his *The Use of Personal Documents in Psychological Science* (Allport 1942). Allport insisted, "If you want to know something about a person, why not first ask him?" His influence was considerable. Among his doctoral students were, for example, Alfred Baldwin, Jerome Bruner, Hadley Cantril, Gardner Lindzey, Thomas Pettigrew, Leo Postman, Brewster Smith, and Philip Vernon.

Despite positions he took that were not always aligned with mainstream psychology, Allport was acknowledged for the important contributions of his work. He was, for example, president of both the American Psychological Association and the Society for the Psychological Study of Social Issues. In 1963, he received the Gold Medal of the American Psychological Foundation. Gordon W. Allport's work in psychology, indeed, stands out as uncommon.

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America, History of Popular Psychology in

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Introduction

On April 19, 2000, the death of a child made front page news in Colorado. Candace Newmaker was 10 years old and weighed approximately 70 lb. On the day she would die, she was wrapped tightly in a sheet and laid on the floor while four so-called trained therapists, *not one of whom was licensed by the State of Colorado to*

provide any form of mental health service, used pillows and their own bodies – 670 lb of adult bodies – to press down on her. The “therapy” session lasted 70 min and when the sheet was removed, Candace was dead (Mercer et al. 2003).

Candace had been adopted and, according to her adoptive mother Jeane, was a problem child who had not accepted her as her new mother. Jeane read about a condition called “attachment disorder” which led her to discover the practice of “rebirthing therapy,” an unlicensed and unresearched therapy technique whose proponents claimed would establish normal parent–child attachments. Jeane paid the sum of \$7,000 in advance for the treatment. Part of the therapy was a “rebirthing” procedure in which the child was wrapped in sheets and blankets while the therapists pressed down on her, forcing her to struggle through the “birth canal” and be born again. During the therapy Candace said that she could not move and was having trouble breathing. The “therapists” told her to struggle harder. She said that she had vomited, which in fact she had done. As conditions got worse for Candace, she begged to be released, saying that she was dying. One of the therapists said to her, “You want to die? Okay, then die. Go ahead; die right now.” And she did (Crowder and Lowe 2000, p. 2 M).

Rebirthing therapy is one of hundreds of untested, invalid psychotherapy programs offered to uninformed people, often desperate in their search for cures for themselves or their loved ones. Most of these bogus therapies likely do little damage other than stealing money from the clients. Yet clearly, some of these treatments are dangerous, even deadly. These therapies are not the treatments used by licensed psychiatrists or psychologists in their efforts to ameliorate psychological problems. Instead, they are part of the domain of popular psychology, a psychology of the public that exists outside the boundaries of the science of psychology and the psychological practice that is based, in part, on that science.

These pseudo-therapies have likely been around since humans developed language. In the beginnings of human history when individuals faced a life beset with hardships and dangers that could hardly be imagined today and perhaps a life expectancy of 30 years, these early people were no doubt in need of human comfort, reassurance, empathy, and guidance. And

where there is demand, there is supply. There must have been individuals who provided services of a psychological nature to their fellow humans. These early therapists practiced their craft under a variety of names such as sorcerer, wizard, charmer, shaman, medicine man, enchanter, seer, and priest. Their trade involved a combination of medicine, religion, and psychology. Although they often held positions of authority and respect within their tribes, they could lose that social standing, and indeed their very lives, if they were judged to be incompetent or ineffective in their healing arts. With the passage of centuries, specialization occurred leading to separate professions of medicine, religion, and psychology, although it can be easily argued that these three remain linked in various ways in modern practice. And in the realm of popular psychology, both today and throughout its history, it is often the case that religion and medicine play important roles in the public's psychology.

Who Owns Psychology?

The question "Who owns psychology?" reflects the tension between scientific psychology, what psychologists regard as the "real" psychology, which is the validated principles and phenomena of an experimentally based discipline, and popular psychology, which is regarded as pseudoscience and psychobabble by psychologists, yet is embraced as the psychology of the lay public – a popular psychology. This tension is evidenced in an experience that has occurred for anyone who earned a doctoral degree in psychology and, indeed, for most students who at some time majored in psychology. When in casual conversation between two people one person says "I am a psychologist" or "I am studying psychology," the other individual replies, "Oh, I bet that you can read my mind." Such a comment reflects the public's association of psychology with paranormal practices such as mind reading, foretelling the future, reading personal auras, causing objects to move by mental powers, and communicating with spirits.

Popular psychology is rampant in twenty-first-century American life and has been for nearly 200 years. Today it is manifested in many forms. It is the mainstay of television, particularly in talk shows, soap operas, and so-called reality programs, but also is paramount in news programs, situation comedies, and

dramatic programs. Psychology is the stuff of the internet, radio, plays, country music, movies, novels, sports, newspapers (especially the tabloid versions), magazines, and churches. Stories on human behavior and misbehavior are ubiquitous. The public's interest in human nature seemingly knows no bounds. Imagine two events occurring on the same day. One story involves the economic collapse of the banking industry. The other story reveals the sexual indiscretions of a popular golfer. Which story will the network and cable news channels lead with? It would be no contest. Although one could argue that the banking industry collapse is a psychological story as well, perhaps the result of unmitigated greed, such national and global events will rarely eclipse the interest value of "who shot who" or "who cheated on whom."

For the public there is no popular psychology or public psychology, there is just psychology. It is psychology as they understand it. It is their psychology. *They own it.* Psychologists regularly lament this fact, wondering why the public would not embrace a more scientific psychology. Why the public cannot distinguish between "real" psychologists and those who claim to have psychological expertise yet have no formalized education and training in psychology? Consider the issue of information about romantic relationships, especially about how to have a successful marriage. On this subject many Americans have turned to the advice of John Gray, author of *Men Are from Mars, Women Are from Venus* (1992), a book purported to be a guide to helping couples improve their relationships. Gray identifies himself as being a Ph.D., which was earned via correspondence from Columbia Pacific University, an unaccredited college. Gray has no scientific background whatsoever nor has he done any scientific research on couples. Contrast him with John Gottman whose Ph.D. in psychology was earned at the University of Illinois and who has spent his distinguished academic career studying couples' relationships, especially marital satisfaction. Gottman has offered practical advice based on his work and on the work of other scholars in the field in several books written for the public, including *Why Marriages Succeed or Fail* (1994). The books often differ in their advice about what makes marriages work, Gottman claiming that his prescriptions come from years of exacting longitudinal research with couples, whereas

Gray's advice comes from intuition and observation. As of 2010, Gray's Mars-Venus books – there are 16 of them now – have reportedly sold more than 40 million copies, whereas Gottman's several marriage books have sold fewer than 100,000 copies. Some of Gray's key advice to couples is in direct opposition to the findings from psychological science. Acknowledging this paradox, Marano (1997) has written that "Gottman is the gold *standard*, while Gray is the gold *earner*. Gottman creates top psychology, while Gray mines pop psychology" (p. 28). Science and academic credentials aside, the public has voted with its pocketbook. Gray is the marriage guru.

Who owns psychology? The public does. And the public is not likely to look to psychological science for answers to psychological problems. As a result pop psychology flourishes via the books, seminars, tapes, cruises, DVDs, newsletters, Web sites, and radio and television broadcasts of John Gray, Melody Beattie, Wayne Dyer, Dr. Phil (McGraw), Tony Robbins, Dr. Laura (Schlessinger), and many others, all of whom are willing to share their psychological expertise with the public, a "calling" that has earned each of them millions of dollars.

Origins of Popular Psychology

A search of internet sources on popular psychology finds evidence of the lack of a sense of history. Popular psychology is often characterized as having its origins in the 1960s, associated with what has been called the human potential movement, an outgrowth of the humanistic psychology of Abraham Maslow, Carl Rogers, and Rollo May. The 1960s was clearly a decade of considerable social upheaval and change, a time in which the very fabric of American life was questioned. It was a decade of war, race riots, psychedelic drugs, and changing sexual mores, a decade that defined the concept of generation gap. Thus the 1960s can easily be identified as a decade in which psychological issues were of seminal importance; nevertheless, there is a public psychology that predates it by more than a century.

Although the Civil War would tear America apart in the middle of the century, the nineteenth century was largely one of optimism, if not prosperity, for many Americans, at least those of European origins. Many had come to the New World in search of a better life

and many had found it in the abundant opportunities of agriculture, commerce, and the trades. Land was still cheap for those adventurous enough to push westward, and dreams of great fortunes to be made were reinforced by tales from the great cities of the East and from the goldfields of the West. Of course there was much poverty and human misery as well, particularly in the cities, but this was America, the land where dreams of riches and success sometimes did come true. In pursuit of their dreams, Americans put their faith in religion and education as a means for personal and financial betterment. Yet other institutions offered hope as well, including a host of practitioners of varying pseudosciences that offered personal counseling promising health, happiness, and success.

Whereas popular psychologies are as old as written records, the first half of the nineteenth century was an especially productive era in which several "systems" of psychology became part of popular culture in Europe and America, producing practitioners who promised a better life. These public psychologies included phrenology, physiognomy, mesmerism, spiritualism, and the New Thought or Mind Cure Movements that gave rise to mental healing and self-improvement. Practitioners in these psychologies were engaged in exactly the kinds of psychological activities in which professional psychologists are engaged today. They sought to assist people in enjoying a better life. One can argue about the validity of their methods, and certainly there was little science as underpinnings. And no doubt some of these practitioners were charlatans whose treatments were a sham intended only to line the pockets of the practitioner. Yet there were many whose motives were laudable, who sought to meet the psychological needs of their clients.

Phrenology

In nineteenth century America, "having your head examined" was big business, largely due to the enterprising efforts of two brothers. Having your head examined meant phrenology, certainly the best known of the applied psychologies of the nineteenth century. Phrenology originated with a German physician and anatomist, Franz Josef Gall (1758–1828), who argued that different parts of the brain were responsible for different emotional, intellectual, and behavioral functions. He believed that talents and defects of an

individual could be assessed by measuring the bumps and indentations of the skull caused by overdevelopment or underdevelopment of certain brain areas. Phrenology was popularized in Europe and America by Johann Spurzheim (1776–1832), who collaborated with Gall on anatomical research on the brain and later promoted his own brand of phrenology consisting of 21 emotional faculties and 14 intellectual ones. Spurzheim died in Boston in 1832 on a lecture trip popularizing phrenology. His work was continued by a Scottish lawyer turned phrenologist, George Combe (1788–1858), whose 1828 book, *The Constitution of Man*, established him as the leading voice of phrenology. Combe continued Spurzheim’s American lecture trip, selling his books, and establishing phrenological societies in the major cities of his travels. Although by 1832 there were critics of the scientific legitimacy of phrenology, Americans, by and large, accepted it, and its proponents, particularly Combe, were praised for the practical benefits to individuals and society that phrenology offered.

Combe (1835) adhered to the categorization of 35 faculties as described by Spurzheim. In describing the basis for his practical phrenology he wrote:

- ▶ Observation proves that each of these faculties is connected with a particular portion of the brain, and that the power of manifesting each bears a relation to the size and activity of the organ. The organs differ in relative size in different individuals, and hence their differences of talents and dispositions. This fact is of the greatest importance in the philosophy of man. . . . These faculties are not all equal in excellence and authority . . . Human happiness and misery are resolvable into the gratification, or denial of gratification, of one or more of our faculties . . . Every faculty is good in itself, but all are liable to abuse. Their manifestations are right only when directed by enlightened intellect and moral sentiment. (pp. 54–56)

What phrenology offered was not only the cranial measurement that identified the talents and dispositions but, more important, a course of action designed to strengthen the faculties and bring the overall complex of emotional and intellectual faculties into a harmony that would ensure happiness and success. This was practical phrenology, that is, phrenology applied.

In the United States, no one was more strongly identified with applying phrenological “science” than the Fowler brothers, Orson (1809–1887) and Lorenzo (1811–1896), who opened clinics in New York, Boston, and Philadelphia in the late 1830s. They franchised their business to other cities, principally through the training of phrenological examiners, and provided phrenological supplies to the examiners such as phrenology busts for display and teaching, calipers of varying sizes for measurements, display charts for the wall, manuals to sell to the customers, and, for the itinerant phrenologists, carrying cases for tools and supplies. They began publication of the *American Phrenological Journal* in 1838, a magazine for phrenologists and people interested in phrenology, which enjoyed an existence of more than 70 years. For years its masthead carried the phrase “Home truths for home consumption.”

Some historical accounts have stated that the Fowlers were unconcerned with the arguments over the scientific validity of phrenology, and instead simply accepted it as valid. Their magazine, however, was filled with articles and testimonials intended to attest to the scientific basis of their subject. The Fowlers and others dedicated to phrenology recognized that it was not an accepted science, and there were some efforts aimed in increasing its respectability. For example, several of the phrenological societies, with the support of the Fowlers, sought to have phrenology taught as one of the sciences in the public schools and offered as a subject in colleges. Such efforts were not successful. The rejection of the scientific community notwithstanding, the Fowlers never doubted the validity of phrenology, at least not in public, and they promoted the subject as divine truth, selling its applications. They “did a thriving business advising employers about employees, fiancés about fiancées, and everyone about himself” (Leahey and Leahey 1983, p. 64). Their business also included public lectures; classes in phrenology for those wishing to take up the profession, but also classes for ordinary curious citizens, including children; and countless publications including books, pamphlets, and magazines.

Giving examinations or “readings,” as they were often called, was the business of the phrenologist. Some operated from clinics where clients could make appointments for their examinations. A phrenologist might test a potential suitor at the request of an anxious father. Parents also sought out help for raising children,

especially children who presented behavioral problems. Couples contemplating marriage might be tested for compatibility. Individuals could be tested for vocational suitability. Businesses might use the phrenological clinics as a kind of personnel department, matching individuals to jobs or selecting workers with managerial skills or sales skills. In areas where clinics did not exist, there were traveling phrenologists who advertised their arrival in advance and rented space for the duration of their stay.

A lack of scientific respectability notwithstanding, phrenologists were not without skills. What they may not have been able to judge from their cranial measurements, they likely determined from their powers of observation, honed by the examination of many clients. In the best empirical tradition, they used the knowledge of their senses to inform their diagnoses and their counsel. Regarding their powers of observation, historian Michael Sokal (2001) has written:

- ▶ After all, they had great opportunities to practice these powers on the individuals they examined. They spent a fair amount of time with their subjects, often in close physical contact. They spoke with these clients – and, especially, listened to them – as they introduced themselves and took in their accents and use of words. They shook their hands and felt their calluses. They observed their dress, and noted its style, cleanliness, and usage. They observed their subjects' carriage as they entered and walked about the examining room and read their "body language." They stood over and behind them as they moved their hands about their heads. And in a less clean age, they especially noted their subjects' odor. (pp. 38–39)

Thus there was much that could be learned about a client from a discerning phrenologist. Such observations likely improved the quality of the phrenologist's counsel while at the same time raising the client's confidence in the skills of the phrenologist. That confidence was important in gaining greater client compliance with the recommendations of the examiner and, of course, in creating good word-of-mouth advertising for the examiner's services.

Although phrenology came under increasing attack from the scientific community, it remained popular in America throughout the nineteenth century as a kind

of counseling, clinical, and industrial psychology. By the beginning of the twentieth century its popularity had declined considerably, as it was being replaced by other methods, many of which were being drawn from the new science of psychology.

Physiognomy

There are, no doubt, many people today who would profess to being able to judge a person's character by looking at the person's face. The origins of that belief surely date back thousands, perhaps tens of thousands, of years. The system of judging a person's character from facial features is called physiognomy (sometimes referred to as characterology), and its invention, at least in modern times, is attributed to a Swiss theologian, Johann Lavater (1741–1801). Lavater's book, *Essays on Physiognomy*, was published in 1775/1789. It was thus a precursor to Gall's work, although there is no evidence that it influenced Gall. Lavater's system emphasized the eyes, nose, forehead, and chin as the chief indicators of intelligence, morality, and many other characteristics. For example, about the nose, Lavater wrote:

- ▶ Noses which are much turned downward are never truly good, truly cheerful, noble, or great. Their thoughts and inclinations always tend to earth. They are close, cold, heartless, incommunicative; often maliciously sarcastic, ill-humored, or extremely hypochondriac or melancholic. When arched in the upper part they are fearful and voluptuous. (Lavater, as cited in Wells 1866, p. 36)

Lavater's book, which contained more than 800 illustrations, some of them taken from famous artists, was exceptionally popular. Originally published in German, the book was soon translated into virtually every European language. Physiognomy's popularity ranged from its use as a parlor game at fashionable gatherings to its claims as the science of determining character. It spread over Europe in the late eighteenth century and to America shortly thereafter. Its popularity continued into the first half of the twentieth century as American businesses used physiognomy in hiring and promoting employees.

The Fowler brothers were also marketers of physiognomy, giving lectures on the subject, including many

articles about it in their phrenological magazines, and publishing books and pamphlets on the topic. One of the more successful books was authored by Samuel Wells (1820–1875), a partner with and brother-in-law of the Fowlers. Wells's book, which appeared in 1866, was entitled, *New Physiognomy or Signs of Character as Manifested Through Temperament and External Forms and Especially in the Human Face Divine*. Wells's "New Physiognomy" was an adaptation of a system proposed by James W. Redfield, a New York physician. The system identified 184 separate areas of the face, each corresponding to a different character or trait, for example, kindness, eloquence, sympathy, inquisitiveness, cheerfulness, patriotism, and perseverance.

In addition to being the science of character, physiognomy, like phrenology, was used to "validate" and thus perpetuate ethnic and racial stereotypes. For example, in describing the "Jewish nose," Wells (1866) wrote, "it indicates worldly shrewdness, insight into character, and ability to turn that insight to a profitable account." Other facial features led Wells to the following summary of a Jew. "He is religious; he is fond of trade; he is thrifty; he is unconquerably true to his racial proclivities; he is persistent in everything he undertakes. He is the type of stability and permanence – the model of steadfastness; but at the same time he is prejudiced, bigoted, stern, stubborn, irascible, exacting, secretive, and unrelenting." The sub-Saharan African nose was described by Wells as a "snubnose," a nose of "weakness and underdevelopment." He wrote, "Such a shortened and flattened proboscis can not . . . have made any legible mark on the records of the world's progress. Its wearers have never conquered realms and enslaved nations, like the owners of the royal Roman nose, or built magnificent temples and adorned them with works of high art, like the Greek-nosed children of genius" (p. 196).

The eyes of devout Roman Catholics were said to indicate humility and penitence. Scots were characterized as economical, sensitive, and religious. The Irish were described as patriotic, fond of sport, witty, combative, and generous. The French were said to be vigorous and friendly, but low in moral standards. Spaniards were viewed as cunning, vindictive, and sullen, but also brave, noble, passionate, and courteous. All of those characteristics were, of course, supposedly

observed from the features of the face, at least they were observable for anyone who believed in the "science" of physiognomy.

Reading Wells and other similar treatises on physiognomy would allow you to learn that hazel-eyed women were more intelligent than romantic, that large mouths indicated more character than small ones, that coarse lips were a sign of strength and power, whereas fine lips were a sign of mental delicacy and susceptibility, and that murderers always had big necks. The last example ties physiognomy to criminology, a linkage that has a long history, especially in the work of Cesare Lombroso (1835–1909), but will not be covered here (see Lombroso 1911; Lombroso and Ferrero 1899).

You may find yourself wondering how people could have believed in the tenets of physiognomy. To understand that system and phrenology, you must understand them in the context of their times. Science was a relatively new enterprise in the nineteenth century and most people did not have a clear basis for distinguishing science from nonscience. Surveys of scientific literacy today show that many people still cannot make such a distinction. And even if they could, whether these systems were validated by scientific research was not a concern for the great majority of consumers. People had needs, whether it was to find a suitable marriage partner, choose an occupation, hire a worker, or raise a child. They looked to experts for help, and like today, it was not easy for people to make judgments about who was or was not an expert.

Whereas phrenology was organized around the nucleus of the Fowlers' operations that controlled the *American Phrenological Journal* and had formal ties to phrenological clubs and societies around the country, there was no such nucleus for physiognomy, which instead operated as a number of independent systems. Likely that is why physiognomy, although in vogue for more than 100 years in the United States, never attained the popularity and visibility enjoyed by phrenology. In addition, phrenology had greater status because it could at least lay claim to some neuroanatomical basis because mental and moral faculties were identified with specific brain areas. No such neural or anatomical claims were made for physiognomy.

Mesmerism

Franz Anton Mesmer (1734–1815) was an Austrian physician who in 1774 discovered that he could relieve a number of medical and psychological symptoms in his patients by treating them with magnets. He named his procedure animal magnetism, although later it would be better known by the eponym mesmerism. In treating his first patient with the magnets, Mesmer described a kind of fainting spell, a crisis state, that lasted for a brief time, after which the symptoms abated for several hours. The spell was likely a hypnotic trance. In treating subsequent cases, Mesmer would tell his patients what they would experience, including this trance state, and many of them complied with his suggestions, thus going into a trance. Mesmer believed that the fluids in the human body were magnetized and that they could get out of alignment. The purpose of passing the magnets over the body was to move the fluids around and thus restore harmonious alignment to the body. Soon he abandoned the magnets altogether and just passed his hands over his patients' bodies, inducing trance states and affecting cures. He assumed that he was now serving as a powerful magnet and could produce the cures without need of the magnets.

Mesmer had become quite the sensation in Paris in the early 1780s, holding group sessions that allowed him to treat a dozen or more people at once (which allowed persons in the group to watch the behavior of others and thus see what they were “supposed” to do) and still charge outrageous fees. His treatments were for the wealthier citizens, and Mesmer found himself ensconced in Parisian high society. Animal magnetism became very popular as other practitioners began to practice this healing art. And, of course, there were those who opposed mesmerism as fraudulent. These opponents, mostly from the medical community, brought pressure on King Louis XVI to appoint a group to investigate its validity. The blue ribbon commission appointed by the king in 1784 included, among others, Benjamin Franklin, as president of the commission; the famous chemist Antoine Lavoisier; and a French physician, Joseph Guillotin, whose invention of the guillotine would soon be used in France's Reign of Terror to remove the heads of many in the aristocracy, including the head of Lavoisier. The commission's report was quite damning. It argued that no animal magnetic fluids existed, nor was there any

healing due to magnetic forces. The report did not result in any formal actions by the French government and so the fallout was mostly Mesmer's bruised ego.

Mesmer's work is generally viewed as the starting point for the history of modern hypnosis, although one can find written accounts of hypnotically induced states that precede Mesmer. It is not our purpose here to discuss the history of hypnosis. Instead we have presented this discussion of Mesmer because of the popularity of mesmerism in nineteenth century America and because of related treatments that involved magnetism and suggestion. Many of these approaches were directed at medical ills, that is, physical ailments, but psychological problems and needed behavioral changes figured prominently in the work of the mesmerists as well.

Mesmerism came to the United States in the 1830s. One of its practitioners was Charles Poyen, a French physician who traveled throughout the northeastern United States in 1836 giving demonstrations of its powers. The following year Poyen immigrated to the United States, settling in Providence, Rhode Island. He was a charismatic figure who drew a large number of converts to mesmerism. He began publication of *The Psychodinamist*, a magazine for mesmerists in the United States.

What did American mesmerists do? In general they were involved with healing and encouraging self-improvement. They lectured widely in America, promoting their science and offering demonstrations of the effectiveness of their methods (Schmit 2005). They relied on techniques that in some way attempted to create a trance state during which suggestions would be made by the mesmerist. Suggestion can be a powerful force. No doubt many clients went to mesmerists, not in a skeptical mood, but with expectations that they would be helped. After all, they often paid considerable fees for that help. Clients went to mesmerists for many different reasons: family problems, problems in the workplace, health problems. After the sessions the clients often confessed to feeling spiritually invigorated. They possessed a new energy and a will to solve the problems that had been plaguing them. Clients often reported that they had been set free by their treatments. Psychologist Philip Cushman (1995) described it this way: “Mesmerism was first and foremost an ideology of personal, *inner* liberation. It emphasized the inherent

goodness of the inner self and led to the development of practices that were designed to expand, revitalize, and finally liberate the natural spirituality” (p. 119). Of course the Fowler brothers would get into this act as well. Toward the end of the nineteenth century they began to promote lectures and courses in “personal magnetism” that promised a pleasing personality; the cultivation of success; how to succeed in love, courtship, and marriage; how to prevent disease; how to build character; and how to become a great power in the world (see, for example, Dumont 1913).

Mesmerism became quite popular in America in the last half of the nineteenth century and persisted as a lesser force into the early twentieth century. Its impact on other nineteenth- and twentieth-century pseudosciences was considerable. It has even been regarded as the beginning of psychotherapy in America. Cushman (1995) wrote, “In certain ways, mesmerism was the first secular psychotherapy in America, a way of ministering psychologically to the great America unchurched. It was an ambitious attempt to combine religion with psychotherapy, and it spawned ideologies such as mind-cure philosophy, the New Thought movement, Christian Science, and American spiritualism” (p. 119).

Spiritualism

In the 1850s in a darkened room, people sat around a table, hands joined, with each other and with the individual serving as the medium who was the conduit to the other world, that is, to persons in the afterlife. There would be mysterious sounds – sometimes noises, sometimes voices – and ghostlike forms would appear, and the table would move on its own, and the windows would rattle, and the medium might have a seizure or at least would go into a trance state. These séances were the modus operandi of the practicing spiritualists, and they were part of the psychological scene in America during the last half of the twentieth century. Among those interested in spiritualism was William James (1842–1910), arguably the most important figure in the history of American psychology. James wrote one of the most influential books in psychology’s history, *Principles of Psychology* (1890), and he established the psychology program at Harvard University. Although he was prominently identified with the new science of psychology, he had other intellectual interests that

proved to be an embarrassment to many of his psychological colleagues (see Coon 1992). For more than 25 years, James studied paranormal events in an attempt to provide scientific evidence for a number of psychical phenomena including the actions of spiritualist mediums. In 1885 he met Mrs. Leonore Piper, a famous medium, and over the next 25 years he frequently attended séances she directed. In the initial séances Mrs. Piper is said to have told James and his wife intimate details about their lives, details that the Jameses felt sure no one could have known but them. Such revelations convinced James that Mrs. Piper had paranormal abilities but he was never able to satisfy himself about the origin of those abilities, that is, did her information come from the spirit world, from some kind of exceptional sensory skills, or from mental telepathy? James was apparently convinced that there was no trickery involved in the performances of Mrs. Piper, but that was not the opinion of several other scientists who visited her séances (Murphy and Ballou 1961).

Interestingly, the origin of spiritualism in America can be defined both in time and place – March 31, 1848, at a farm near Hydesville, New York – under what can only be called extraordinarily bizarre circumstances for the beginnings of a movement with such religious overtones. Two young sisters, Margaret (age 13) and Kate Fox (age 12), discovered that they could make weird noises by cracking the joints in their toes, and they used this ability to trick their superstitious mother into believing that a ghost was present.

- ▶ After several days of this mild poltergeisting, they tried questioning the “spirit” and ascertained that it was the ghost of a peddler who had been murdered in the vicinity of their cabin before they had moved in. Word of these amazing events soon spread. So many visitors came to their cabin that the older sister, Leah Fox Fish, noticed the financial possibilities of going into the ghost business. (Leahey and Leahey 1983, p. 162)

Leah took her two younger sisters to Rochester, New York, where they set up a shop, holding séances, acting as mediums, bringing forth spirits of the deceased to communicate with the paying customers who were eager to make contact with lost loved ones. Initially the spirits were manifested by rapping noises on tables or by movements of the séance table. As those techniques lost their appeal, mediums added a board

(the planchette, a forerunner of the Ouija board) that could be used to spell out the messages of the spirits, megaphones for spirit voices, and the spirit cabinet, a large piece of furniture from which sounds could be heard and from which visual apparitions would appear (and in which confederates could sometimes hide).

With so many Americans dead as a result of the Civil War, there were thousands of loved ones who longed to make contact once more. The demand for mediums rose and there were plenty of willing individuals, mostly women, ready to assume the role. In 1888, Margaret Fox confessed her chicanery and that of her sister, an action that diminished interest in spiritualism. Yet there would be another resurgence of interest in 1918 after World War I and the influenza epidemic had taken so many lives. Although the bread and butter of mediums was contact with the dead and the relief and joy that connection could bring to their clients, they also provided other psychological services as counselor and adviser to their clients who might be suffering depression, anxiety disorders, difficulties in marriage, problems in the workplace, and troubles with their children.

Spiritualism was not connected with any specific religion although it may have seemed religious in nature because it was predicated on a belief in an afterlife. Yet organized religion opposed spiritualism and argued that belief in spirits was an act of heresy. “By claiming to produce empirical evidence of survival [after death], Spiritualism denied the need for faith. By claiming that there was no hell, and that a pleasant afterlife was in store for everyone, it denied the fear of God and of hellfire on which organized Christianity depends” (Leahey and Leahey 1983, p. 166). Spiritualism did not diminish in popularity because of the opposition of organized religion in America. Its demise in the 1920s was due, no doubt, to multiple causes, perhaps chief among them that many of the professional mediums were eventually exposed as frauds. Of course spiritualism did not disappear entirely. There are seers, mystics, and mediums working today who offer the promise of contact with the dearly departed. And there are many others – some trained in science and some not – who offer the other counseling psychological services.

New Thought Movement: Mental Healing and Self Improvement

What is generally referred to as the New Thought or Mind Cure Movements began in New England in the 1850s. Its mental healing origins are attributed to a clockmaker, Phineas Parkhurst Quimby (1802–1866), who, after studying and practicing mesmerism for a decade, formulated his own theory and method of mental healing. Quimby believed that many diseases had causes that were wholly mental and that other diseases were exacerbated by mental conditions. His experiences with his own illnesses and his treatment by physicians left him convinced of the inadequacy of medical practice. Indeed, Quimby believed that physicians did as much good by what they said to patients and the way they said it as they did through medicines or surgeries.

Quimby was a keen observer and evidently had great powers of concentration. He listened intently as his clients told him about their problems. He established a close rapport with them from the beginning, something that he felt was crucial to affecting a cure. Quimby believed that many physical and psychological problems were caused by negative thinking and that those negative thoughts were often induced in individuals by physicians. Quimby’s task was to help clients see the “truth,” to achieve wisdom about their lives, and to reach a spiritual healing. Quimby believed that disease was:

- ▶ due to false reasoning in regard to sensations, which man unwittingly develops by impressing wrong thoughts and mental pictures upon the subconscious spiritual matter. As disease is due to false reasoning, so health is due to knowledge of the truth. To remove disease permanently, it is necessary to know the cause, the error which led to it. The explanation is the cure. (Anderson 1993, p. 40)

In essence, Quimby believed that cure resided within the mental powers of the individual and not in the medical practices of physicians. Individuals could cure themselves if they could be shown the way to right thinking.

In 1859, Quimby moved to Portland, Maine, where he spent the last 6 years of his life dedicated to his mental healing practice. He is said to have treated

more than 12,000 individuals (Caplan 1998). Among those he cured was a woman who became one of his early disciples. Her name was Mary Baker Eddy (1821–1910), who in 1879 founded the Church of Christ, Scientist, better known today as Christian Science. Eddy was not only cured by Quimby but she was greatly influenced by his views on illness and healing. They maintained a frequent correspondence until Quimby's death in 1866.

The growth of mental healing spread throughout the United States in the 1860s. There were many different schools of the “mind cure movement” including Eddy's. “The movement enlisted the support of tens of thousands of American women and men. Literally hundreds of books and pamphlets in addition to scores of periodicals proclaimed the dawning of a New Age in which mind and spirit would achieve domain over matter and crude materialism” (Caplan 1998, p. 69).

Mental healing was part of that new age, also called the New Thought Movement, that emphasized the power of mind. Another component of the movement encouraged self-help, stressing especially the power of positive thinking for self-improvement. Scottish author Samuel Smiles (1812–1904) is often cited as the chief impetus of this movement following the publication of his widely popular book, *Self-Help; with Illustrations of Character and Conduct* (1859). The book sold over 20,000 copies in its first year and was translated into many languages making Smiles an international authority on self-improvement (Richards 1982; Travers 1977). Emphasizing the paramount value of self-help, Smiles (1859) wrote:

- ▶ Heaven helps those who help themselves' is a well-worn maxim, embodying in a small compass the results of vast human experience. The spirit of self-help is the root of all genuine growth in the individual; and exhibited in the lives of many, it constitutes the true source of national vigour and strength. Help from without is often enfeebling in its effects, but help from within invariably invigorates. (p. 1)

Smiles's book had considerable influence on the New Thought Movement in America, principally through the writings of Orison Swett Marden (1850–1924). Orphaned at the age of seven, Marden's life was one of bare subsistence and prospects for a grim future.

That changed when he discovered a copy of Smiles's *Self-Help* in an attic. Smiles's proscriptors for self-improvement changed his life. Marden eventually earned a medical degree from Harvard University in 1881, but his achievements were in publishing, both as an author and editor. His first book, *Pushing to the Front* (1894) added his own ideas about how to achieve success to those of Smiles. And he followed that with a dozen other books touting the powers of positive thinking for self-improvement and success, such as *How to Succeed or, Stepping-Stones to Fame and Fortune* (1896) and *Every Man a King or, Might in Mind* (1906). He founded and edited *Success* magazine in 1897, which is still published today. Marden wrote that he wanted to be the American Smiles, and he likely achieved that, inspiring a self-help industry of books and magazines in twentieth-century America. He is often dubbed the father of the modern self-help movement. Several of his books are still in print today, and his writings are frequently cited in contemporary works on positive thinking, self-help, and salesmanship (Connolly 1925; Parker 1973).

By 1910 the craze of the mind-cure movement had largely ended, although mental healing continued, both in organized religion, such as Christian Science, and in home clinics where mental healers practiced. As mesmerism can be thought of as a precursor to contemporary psychotherapy, so too were the mind cures important in establishing belief in the importance of what today would be called the therapeutic relationship or therapeutic alliance, key concepts in evaluating the effectiveness of psychotherapy today. The self-improvement industry of Smiles and Marden continued to prosper throughout the twentieth century as a part of the public's psychology.

The New Psychology

In the universities, psychology had been a subfield of philosophy for centuries. With the rise of British empiricism, beginning with John Locke in the 1600s, psychology would coalesce as an academic discipline labeled mental philosophy, a discipline that covered topics such as sensation, perception, attention, learning, memory, reasoning, consciousness, imagination, emotion, and will, subjects that are still discussed in contemporary introductory psychology courses (Fuchs 2000). In the

late nineteenth and early twentieth centuries, this empirical psychology would be replaced by an experimental psychology – the “new psychology” – imported from the German university laboratories in Berlin, Göttingen, and especially Leipzig under the direction of Wilhelm Wundt (1832–1920). This new psychology would bring the methods of neurophysiology, sensory physiology, and psychophysics to bear on the questions explored in mental philosophy. Psychology was, by the 1880s, a science that many of the early pioneers hoped would join with the natural sciences in seeking to reveal the secrets of the human mind (Benjamin 2007).

American psychology laboratories were in existence only a few years after their European counterparts with the first psychology laboratory appearing at Johns Hopkins University in 1883 and others following shortly thereafter at Indiana and Columbia Universities and the Universities of Wisconsin, Kansas, Nebraska, and Pennsylvania. By 1900 there were approximately 40 psychology laboratories in North America, and most of those offered doctoral degrees in the new science (Benjamin 2000).

In an effort to educate the American public about the nature of the new science, psychologists organized an exhibition at the Chicago World’s Fair in 1893 and followed that with a smaller public presence at the 1904 World’s Fair held in St. Louis. These early experimental psychologists were all too aware of the public psychology that associated the term psychology with mind reading, phrenology busts, hypnosis, séances, and mental healing (Coon 1992). These public exhibitions were a concerted effort to change the public’s view of psychology, to get the public to acknowledge psychology’s scientific status and university-based psychologists as the arbiters of psychology, and to reject the false claims from the pseudosciences that had long been the mainstay of popular psychology. The new psychologists published their experimental work in newly founded journals that were not really for public access. Yet they also wrote magazine articles, books, and newspaper columns as a means to translate their experimental work for public understanding or to offer their opinions as psychological experts (see, for example, Hall 1901; Jastrow 1900; Münsterberg 1908). No one did this with greater frequency or with greater controversy than Harvard University’s Hugo Münsterberg

(1863–1916) who became America’s best known psychologist as a result of his frequent appearances in the popular press.

Münsterberg’s role as a media darling began following his publication of an 1898 *Atlantic Monthly* article in which he argued that the new experimental psychology had nothing to offer the field of education. This article created a firestorm with his psychologist colleagues but garnered a great deal of public attention for Münsterberg (Benjamin 2006). As a writer, he stirred interest and emotions, a fact that led editors (including *McClure’s Magazine’s* Willa Cather) to invite numerous contributions from his pen. For the rest of his life, Münsterberg was a frequent contributor to the popular press through numerous magazine articles, newspaper columns, and a series of popular books. These publications established him as America’s psychological expert, and it seems that he never found a topic on which he felt unable to comment. Invitations for public lectures, inquiries from the press, and consulting opportunities in business increasingly came his way. Münsterberg had a knack for sensationalism and he was often quoted in the press, partly because of his willingness to say outrageous things. In essence he was what reporters call “good press.”

In a span of fewer than 20 years Münsterberg wrote on a multitude of popular subjects such as the personality of Americans, school reform, hypnotism, women as unacceptable jurors, lie detection, criminality, democracy, native Americans, African Americans, political parties, the Monroe Doctrine, the Philippines, journalistic inaccuracy, motion pictures, psychotherapy, art and artists, communicating with the dead, murderers, gambling, prohibition, Christian Science, beauty, nervousness, vocational choice, bookstores, patriotism, coeducation, home economics, insanity, the subconscious, and being a scientific expert. Not surprisingly some of these articles and interviews angered and dismayed his colleagues, but Münsterberg loved the public attention and evidently was willing to endure the wrath of his fellow psychologists. At times Charles Eliot, President of Harvard University, probably felt he needed a press secretary just to deal with the trouble caused by Münsterberg’s utterances. He reminded Münsterberg that he should not feel compelled to comment on every question he was asked. In a 1909 letter to him Eliot wrote:

- ▶ You seem to me to work with too much intensity and too constantly, and to work on topics which are peculiarly stirring and exciting. I hope you will moderate your rate of work and of publication, and will take up some systematic course of interesting out-of-door exercise, with frequent absences from Cambridge between Friday night and Monday morning for change of scene and change of thoughts. (Eliot 1909, April 30)

In addition to translating their science for the public, these pioneering psychologists, such as G. Stanley Hall, John Watson, James McKeen Cattell, and Münsterberg, also openly challenged the pseudopsychologies extant at the turn of the twentieth century. Consider, for example, a physiognomic system that enjoyed popularity in early twentieth century American businesses.

Katherine Blackford was an American physician who marketed her system to businesses, principally as a selection measure for employees. Blackford wrote several books in the first quarter of the twentieth century, almost all directed at personnel issues for business (Blackford and Newcomb 1914, 1916). This was a time in America in which there was great interest in vocational guidance. The urbanization of America, new waves of immigration, industrialization that created more factory jobs, changes in labor laws protecting children, and advertising and marketing strategies that were national in scope changed the nature of American business, creating a greater diversity of occupations. Thus occupational choice had a meaning that it had not possessed before. Frank Parsons' landmark book on vocational guidance, *Choosing a Vocation*, appeared in 1909; the National Vocational Guidance Association was established in 1913; and the National Vocational Education Act was passed in 1917, a law designed to ensure better guidance counseling in public schools. Vocational aptitudes and vocational choice were not new issues; they had been a chief part of the phrenologists' business success in the nineteenth century. In the early twentieth century, however, there was widespread public concern that young people have access to quality vocational guidance and thus there was widespread interest in America regarding career choices. Blackford wrote that her books were intended "to add our voice to those of many others in calling for more scientific vocational guidance of the

young. . . [and] to arouse interest among all thoughtful people, and especially among parents, employers, teachers, and workers, in the possibilities of character analysis by the observational method" (Blackford and Newcomb 1914, p. vii). Blackford's methods were very popular judging by the number of reprintings of her books. She caused concern among psychologists who noted her appeal to businesses and were dubious of her techniques. Yet for many American businesses in the early twentieth century, the science of psychology didn't hold any more authority in solving the problems of business than did the "science" of characterology (Blackford's preferred label) or physiognomy. Blackford stressed the importance of the hiring decision. She claimed that businesses wasted too much time and money in hiring people who should never have been hired, or placed people in jobs for which they were ill suited. Blackford's system began by looking at the shape of the face as a whole, viewed in profile. From these profiles she identified some faces as convex, some as concave, and some as plane (meaning a flat plane). She wrote that the possessor of a convex face has:

- ▶ Superabundance of energy. . . [is] keen, alert, quick, eager, aggressive, impatient, positive, and penetrating . . . will express his energy in a practical manner. . . He will demand facts, and will act upon facts quickly and rapidly, being too impatient to wait for reasons and theories. . . [this type will] speak frankly and at times even sharply and fiercely, without much regard for tact or diplomacy. As indicated by his type of chin, the pure convex is impulsive, expends his energy too rapidly for his limited endurance, and, owing to his lack of self-control and disinclination to deliberate and reason, frequently blunders, and expends his energy uselessly or unprofitably or even harmfully. (Blackford and Newcomb 1914, pp. 154–155)

The concave face is, of course, the opposite. This individual would be characterized by mildness, slow thought, careful-thinking, reason-seeking, sometimes daydreaming, deliberateness, determination, and persistence. "What the convex wins or gains by his aggressiveness, keenness, and superabundance of energy, the concave wins or gains by his diplomacy and unwavering persistence and endurance" (Blackford and Newcomb 1914, p. 156). The plane face was

a balance of the other two and was the most common of the three types of faces.

For Blackford, these faces defined different types of people, and that information could be put to good use in hiring, or what Parsons had preached as the first law of vocational guidance, matching the person's talents with the job requirements. Thus a businessperson might want to hire an aggressive person for a sales job but not for a customer service job. So for Blackford, individuals with blond hair, because they were more likely to have convex faces, were to be preferred for sales jobs, where their qualities of aggressiveness, impulsiveness, persistence, and high energy would pay off. Blonds and brunettes also figured in Blackford's views on criminal physiognomy:

- ▶ Prison statistics show that the blond is most frequently guilty of crimes of passion and impulse, crimes arising from his gambling propensities and ill-considered promotion schemes; while the brunette is more likely to commit crimes of deliberation, specialization, detail, such as murder, counterfeiting, forgeries, conspiracy, etc. Because the blond is healthy, optimistic, and naturally good-humored, he eliminates anger, hatred, melancholy, discouragement, and all other negative feelings . . . easily. . . . Because he is naturally slow, cautious, conservative, and inclined to be serious and thoughtful, the brunette is far more liable to harbor resentment, to cherish a grudge, to plan revenge, to see the dark side of life, and often to be melancholy and pessimistic. (Blackford and Newcomb 1914, pp. 140–141)

With the rise of the status of science at the beginning of the twentieth century, pseudoscientific practices came under greater criticism. Psychology, as a science, benefitted as well from the public's perception of science as a source of validation, and practices such as phrenology, physiognomy, and spiritualism declined. As the applied specialties of the new psychology developed – clinical psychology, counseling psychology, school psychology, industrial psychology – they successfully challenged some of the public psychologies, such as Blackford's system, eventually convincing businesses to adopt some of the selection practices developed by industrial psychologists as a better means for hiring.

Psychoanalysis Comes to America

Perhaps psychologists felt they were making progress with public understanding of their new science. And then Freud came to town! Sigmund Freud (1856–1939) made his only visit to America in 1909 at the invitation of G. Stanley Hall. The occasion was the 20th anniversary celebration of Clark University where Hall was president. Freud gave five lectures at Clark on the subject of psychoanalysis (Evans and Koelsch 1985; Rosenzweig 1994). Before his arrival, few in America knew much about his work. Arguably his most important book, *The Interpretation of Dreams* (1900), had not been reviewed in any American journal, and none of his books had been translated into English. His visibility in America would change radically following his visit. Freud's Clark lectures were published in Hall's journal, the *American Journal of Psychology*, in 1910. This publication stirred considerable interest in Freud's ideas and led to English translations of his most important works including *The Interpretation of Dreams* in 1913 and *The Psychopathology of Everyday Life* in 1914 (Fancher 2000). The American Psychoanalytic Association was founded in 1911, only 2 years after Freud's visit, and the first of many American psychoanalytic journals, *Psychoanalytic Review*, began publication in 1913. Psychoanalysis was alive and well in America, even if still in its infancy. Although experimental psychologists largely rejected Freud's ideas as unscientific, the American public showed a growing fascination with psychoanalysis. A battle was underway.

Psychologist and historian Gail Hornstein (1992) has written that it was a battle to determine “which field would ultimately dictate the ground rules for a science of the mind?” (p. 254). She described the opening salvos as follows:

- ▶ Psychoanalysts thrust themselves directly into the middle of this scene, brazenly trying to supplant the new psychology at the moment of its greatest promise. At first psychologists stood aside, astonished, as the analysts, bursting with self-importance and an almost frightening zealotry, pronounced themselves the real scientists of the mind. By the time psychologists began to take this threat seriously, psychoanalysis had so captured the public imagination that even its pretensions could not be ignored. (p. 254)

As Hornstein noted, many psychologists ignored psychoanalysis, perhaps assuming that the public would reach a similar conclusion about its scientific legitimacy, and it would go the way of phrenology, losing any scientific credibility it had achieved, perhaps continuing in some marginal existence as a parlor amusement. Yet other psychologists attacked it in print, especially during World War I when anything identified with Germany was a ready target for Americans. Writing in *The Nation* in 1916, Christine Ladd-Franklin referred to the absurdities of the Freudian doctrine calling psychoanalysis “a prostitution of logic” (p. 373) and warning that “Unless means can speedily be found to prevent its spread. . . the prognosis for civilization is unfavorable (p. 374). Robert Woodworth (1917) in discussing psychoanalysis as treatment argued that not only was the treatment art and not science, but it was decorative art at that. Increasingly strident criticisms of psychoanalysis were published by psychologists in the 1920s and 1930s including books and articles by leading psychologists such as James McKeen Cattell, Joseph Jastrow, John Watson, and Knight Dunlap. Nevertheless, by the 1930s mainstream psychology found itself at odds with a popular psychology infused with dream interpretation, repression, neuroses, Oedipal complexes, and sexual frustration. There were psychoanalytic movies (*The Cultural Psychology of Motion Pictures: Dreams That Money Can Buy*), psychoanalytic plays, psychoanalytic novels, and even psychoanalytic music such as the 1925 ballad *Don't Tell Me What You Dreamed Last Night (For I've Been Reading Freud)* written by Franklin Adams and Brian Hooker.

Although psychoanalysis was a visible part of American popular psychology in the 1920s and later, it was by no means the defining system. The growth of applied psychology following World War I; the public euphoria sweeping America in the 1920s; the changing social mores of the 1920s, especially regarding sexuality; and a search for spiritual fulfillment outside of the church were all factors that saw an explosion of interest in psychology in the 1920s.

An “Outbreak” of Psychology in America

The 1920s in America were called the “Roaring Twenties,” “the Jazz Age,” and, by politicians, “the

New Era.” The economy was soaring, industrial production was up 64%, nearly six times as much as the previous decade; automobiles were more affordable than ever; after nearly 150 years as a nation, American women finally had the right to vote; Babe Ruth was swatting home runs; Rudolph Valentino and Mary Pickford were thrilling moviegoers; and booze was still available in gin joints, speakeasies, and from moonshiners, despite the 18th Amendment to the US Constitution (Dumenil 2001). In the midst of these post-war good times, everywhere Americans turned they heard the message touting the importance of psychology in their lives.

Popular science writer Albert E. Wiggam (1871–1957) was one of many individuals in the 1920s who promoted the value of psychology. In a 1928 newspaper column he wrote:

- ▶ Men and women never needed psychology so much as they need it to-day. Young men and women need it in order to measure their own mental traits and capacities with a view to choosing careers early and wisely . . . businessmen need it to help them select employees; parents and educators need it as an aid in rearing and educating children; all need it in order to secure the highest effectiveness and happiness. You cannot achieve these things in the fullest measure without the new knowledge of your own mind and personality that the psychologists have given us. (p. 13)

British historian and author, H. G. Wells (1866–1946), was similarly enamored about the prospects of psychology for the public good. In a 1924 article in *American Magazine* Wells wrote:

- ▶ The advances that have been made in psychology . . . have been enormous. The coming hundred years or so will be, I believe, essentially a century of applied psychology. . . It will mark a revolution in human affairs altogether more profound and more intimate than that merely material revolution of which our great-grandparents saw. . . and amidst whose achievements we live. (p. 190)

Psychologists too, overly impressed with the significance of their contributions in World War I, joined in the promotion of their discipline, touting the myriad ways psychology could benefit everyday life. Writing for the public in 1925, behaviorist John Watson offered

parents a guarantee on the value of psychology for child rearing.

- ▶ Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. (p. 82)

In making this promise, Watson was offering every parent the American Dream, made possible by the science of psychology. No matter ones race, no matter ones social station, no matter ones wealth, if someone had access to the right environmental circumstances, then there was no limit to what that individual could achieve. And psychology was the science that understood how to arrange the environmental conditions in such a favorable way. With messages such as these directed at an upwardly mobile public ready to secure their place in the Promised Land, is it any wonder that psychology was the subject of the hour? But not everyone was on the psychology band wagon. There were those who were wary of the promises and guarantees.

One of the doubters was Canadian humorist Stephen Leacock who, in a 1924 article in *Harper's* magazine, lamented that America was suffering from an outbreak of psychology. He wrote:

- ▶ In the earlier days this science was kept strictly confined to the colleges . . . It had no particular connection with anything at all, . . . and did no visible harm to those who studied it. . . All this changed. As part of the new researches, it was found that psychology can be used. . . for almost everything in life. There is now not only psychology in the academic or college sense, but also a Psychology of Business, Psychology of Education, Psychology of Salesmanship, Psychology of Religion. . . and a Psychology of Playing the Banjo. . . For almost every juncture of life we now call in the services of an expert psychologist as naturally as we send for an emergency plumber. In all our great cities there are already, or soon will be, signs that read "Psychologist – Open Day and Night." (pp. 471–472)

Leacock's skepticism, although offered tongue-in-cheek, was shared by a number of psychologists as well who believed that the discipline was promising far more

than it could deliver. The American public, however, was not interested in hearing from these doubters. Health, happiness, and success were just over the horizon, and psychology was the vehicle needed to get there.

Leacock was right about the outbreak of psychology in America in the 1920s. It may not have included signs advertising the availability of psychologists day and night, but it was evidenced in many other ways. For those individuals who wanted psychological training or credentials there were "schools" of psychology, short-courses, home-study courses, and bogus mail-order doctoral degrees. Popular psychology books and, especially, popular psychology magazines appeared with much greater frequency. And if you wanted to share your interests in psychology with like-minded individuals, cities all over America were establishing psychology clubs.

Popular Psychology Magazines

Popular psychology magazines began publication in the nineteenth century. There were magazines for phrenology, physiognomy, mesmerism, spiritualism, and especially for the New Thought Movement. Perhaps the first American popular magazine to have the word "psychology" in the title was *Suggestion: The New Psychology Magazine* that began publication in August, 1898. A year later *Price's Magazine of Psychology* appeared. Its masthead indicated that it was "Devoted in General to Psychic, Scientific, and Philosophic Research." Articles focused especially on spiritualism, mental telepathy, mental suggestion, and hypnosis. The editor was W. R. Price who used the magazine to promote his school of psychology located in Atlanta. The Dr. W. R. Price's School of Psychology was a mail-order business that offered courses of instruction in a variety of popular psychologies as indicated in an advertisement for the school that read as follows:

- ▶ The New Psychology, Hypnotism, Mesmerism, Animal Magnetism, Telepathy, or Mind Reading, Suggestive Therapeutics, Scientifically Explaining Christian Science, Mental Science, Spiritism, Witchcraft, Osteopathy, Divine Healing And all mysterious phenomena, teaching you how to control yourself and others by learning a profession that will enable you to make from \$2 to \$5 per day the balance of your life. (Price 1900, inside front cover).

There were other early twentieth century popular magazines such as *Mind*, *Personality*, and *The Psychogram: A Magazine of Christian and Practical Psychology*. Even though these magazines appeared after the establishment of the new psychology laboratories in America, their content did not reflect the science of psychology. That would change in the 1920s, or at least it was alleged to change.

The 1920s, a decade that James Steel Smith (1963) has labeled the “decade of the popularizers,” witnessed the publication of nearly a dozen new popular psychology magazines, many of them with the word “psychology” in their titles: *Golden Rule Magazine: The New Psychology* (which actually appeared in 1919), *Popular Psychology: The Magazine of Straight Thinking* (1920), *Herald of Psychology* (1921), and *Psychological Review of Reviews* (1923). Yet none of these magazines sought to deliver the findings of scientific psychology. Although psychology was part of their title, thus capitalizing on the growing popularity of the subject, their content was similar to the popular psychology magazines of the previous century. There was one other magazine founded in the 1920s, however, that claimed to be different. It announced to its readers that psychology was the most practical of all sciences, that great strides were being made in this field, and that the purpose of the magazine was to translate this science into language and prescriptions that would be of use to laypersons. *Psychology: Health, Happiness, Success* began publication in April, 1923, and appeared monthly, with a few exceptions until its demise in 1939. The publisher and founding editor was Henry Knight Miller (1891–1950), a Methodist minister in Brooklyn, New York, who, after realizing some popularity from his self-help sermons, decided to leave his pulpit and launch a new magazine. Miller, echoing the popular writers of his time, touted the value of scientific psychology for health, happiness, and success. He wrote:

- ▶ In *Psychology* magazine we have been applying the principles of scientific psychology to the actual problems and needs of human life. We have sought to build up a sound synthetic psychology, taking what is valid from all schools of psychological thought, simplifying it in expression and applying it to the problems of personal life. (Miller 1928, p. 11)

In actuality there was very little of scientific psychology that found its way into the pages of Miller’s magazine. Academic psychologists did not write for this magazine, nor did they write for the other popular psychology magazines of the time. They wrote articles for popular magazines, such as *Harper’s*, *Cosmopolitan*, *Atlantic Monthly*, and *Collier’s*, but not for these “psychology” magazines.

When the stock market crashed in 1929, the public euphoria of the 1920s gave way to the Great Depression that had profoundly disastrous consequences both economically and psychologically. Psychology received some negative press in the 1930s from writers who were especially critical of the field, noting that psychologists had plenty of advice to offer during the heady times of the 1920s, but now in times of trouble, they were conspicuously silent (Adams 1934; Stolberg 1930). A 1934 *New York Times* editorial criticized psychology as the only trade or profession that had not made public its solutions to the problems of the Depression (as cited in Napoli 1981). Napoli has argued that psychologists seemed content to resume their research “and watch the economists and other social scientists try to solve America’s problems” (p. 64).

One might assume that the public lost faith in psychology as well, and that the psychology magazines would disappear. Yet the message of psychology’s value for self improvement, for the betterment of one’s life, was evidently well engrained in the public’s psyche. These were times when psychology was needed more than ever. And even though two or three dollars might not be an insignificant sum for many Americans down on their luck, it was a small price to pay for a year’s subscription to a magazine that might put them on the road to economic and psychological recovery. At least 13 new American magazines began publication in the 1930s with “psychology” in the title, for example, *Current Psychology and Successful Living*, *Practical Psychology Monthly*, *Psychology and Inspiration*, and *Self-Help Psychology*.

Several of the psychology magazines of the 1920s and 1930s had ties to other entities, some real and some fictitious, yet always designed to promote the credibility of the magazine and increase its circulation. Some magazines advertised themselves as the “official organ” of some society or institute. It is likely that, in most cases, perhaps all, these societies did not exist.

These liaisons were typically announced on the magazine's cover or appeared on the table of contents pages. Thus the magazine *Current Psychology and Successful Living* was the "Official organ of the Psychology Institute of America," and the *Psychological Review of Reviews* was the "Official organ of the International Society of Applied Psychology." The home-study courses used a similar ploy.

Warren Hilton (1920), a lawyer and psychology popularizer, wrote 12 small volumes, each around 100 pages, entitled *Applications of Psychology to the Problems of Personal and Business Efficiency*. The books, intended as a home-study course in psychology, were published "under the auspices of . . . The Society of Applied Psychology" (title page) of which Hilton was president. The purchaser of these 12 books received a large certificate from the Society with the person's name added in attractive script: "This certifies that _____ has been accepted as an Associate Member of the Society for Applied Psychology and is entitled to all the privileges of such Membership."

Psychology Clubs

The other tactic employed by the psychology magazines was designed to increase circulation of the magazines and often to sell other products, typically books and pamphlets that were associated with the magazine. In the 1920s, psychology clubs emerged in cities all over America. In fact, there were some in existence in the previous decade, but in the 1920s their numbers expanded considerably. The magazines sought to establish ties with the various clubs. If all members of the club agreed to purchase subscriptions to a particular magazine, then the magazine would be sold at a discount to all members. Further, the magazine included a regular section that reported "news" from the psychology clubs, which gave visibility and publicity to the activities of the clubs while cementing the magazine-club relationship. Henry Knight Miller's magazine was particularly successful in building such relationships. Some clubs organized within states or with clubs in nearby states. For example, the psychology clubs of Texas and Oklahoma joined together in a federation. The pamphlets describing their activities announced on their covers that the magazine *Psychology*, Miller's magazine, was "Adopted as the Federation's Official Organ."

Not much is known about these clubs because about the only records that have been located are the news items that appeared in the magazines. Thus we know from the March 1924 issue of *Psychology: Health, Happiness, Success* that Bret Barber was the President of the Fort Worth, Texas Club of Applied Psychology. He reported that the club's recent programs included lectures on the effect of anger on digestion, how temperature affects mood, personality in selling, why deafness depresses, and exercises that build happiness. These topics were typical of the content of the club meetings.

Some of the larger clubs met in some kind of meeting hall, but most were small in membership and typically met at someone's house. Programs usually featured a lecture (rarely from a psychologist) and discussion, or discussion of a book or article. Miller was a great organizer of the clubs in America and often traveled to larger cities speaking at joint meetings or conventions of the clubs. Based on the entries in magazines, these clubs may have been composed equally of males and females in the 1920s, but by the 1940s, membership was likely heavily female. This trend appears to have been mirrored in Great Britain as well where popular psychology was labeled practical psychology (Benjamin 2009).

The practical psychology movement in Great Britain began in the early 1920s, partly stimulated by the organizing activities of an American, Anna Maud Hallam, who began her practical psychology program in Cleveland, Ohio, in 1921. She assisted Miller in the early years of his magazine, and her photograph appeared on the cover of his fourth issue (August, 1923). Hallam spread her practical psychology to Canada (Bengough 1923) and to Great Britain reminding her listeners that "your heritage from God is health, happiness, and success" (Hallam 1925, p. 4). The mantra that became a feature in her inspirational lectures and a rallying cry for her audiences was – You can be well! You can be happy! You can be a success! Hallam (n.d.) wrote:

- ▶ It is possible for you to learn how to make life a complete success. The reason why so many people are deficient, unpopular and failures at the present time is because they do not understand the law of life. The science of human life has not been taught in the schools, the home, the clubs, or anywhere else, and

so people have had no chance to learn it. . . I am putting into the common language of every day life the knowledge of the great university class rooms and laboratories. My Psychological Lesson Course covers everything which you need to know to enable you to live up to the perfection of your special type of personality. (p. 5)

In 1925 Hallam founded the second of the practical psychology magazines in England, a monthly magazine entitled *The Practical Psychologist*. She was the author of several books on practical psychology (Hallam 1922a, 1922b) and the founder of the International Anna Maud Hallam Clubs of Practical Psychology which gathered annually in North America for a congress. She made trips to England and Scotland in 1922 to establish clubs and made later trips to South Africa and India to organize clubs there as well. News of activities of these clubs was published regularly in the pages of the British magazines. Historian Matthew Thompson (2006) has described the clubs as a central feature of the practical psychology movement noting that these clubs “provided a site for regular lectures and meetings, libraries of psychological literature, courses of self-improvement, and perhaps even therapeutic attention” (p. 32).

It is not known how long these clubs lasted. The last reports for the American clubs appeared in the late 1940s and for the British clubs in the early 1950s. Several of the magazines that were affiliated with the clubs, including Miller’s and Hallam’s magazines, ceased publication, but the clubs continued their meetings, sometimes with new magazine partnerships. The popularity of psychology remained strong through those decades with new psychology magazines appearing in each. No doubt these clubs served a social function, bringing people together who likely were well educated and who saw in psychology a means for self-improvement. There is no evidence of the existence of these clubs in the 1960s, a decade that can be seen as one in which psychological questions were paramount.

Popular Psychology and Religion

Thomson (2001) has written that the appeal of practical psychology was that it made itself “attractive to a broad spectrum of people, ranging from convinced Christians to those looking for a wholly secularized

religiosity” (p. 121). It was thus offered as a religion to the church and to the unchurched as well. The movement’s religiosity was often veiled; it seemed secular but could also be seen as non-secular. This was a fine line that magazine editors and club organizers walked on both sides of the Atlantic (Cheshire and Pilgrim 2004). Thomson (2006) noted that practical psychology distanced itself from the clearly religious emphases of the New Thought Movement, reminding recruits that practical psychology was based on science. Hallam reinforced this position: “Applied psychology does not affect your religion. It is equally applicable to all classes of people. Psychology is a science, and as such, keeps within the bounds of demonstrable fact and repeatable phenomena” (n.d., pp. 6–7).

But the various popular psychologies of the 1920s and 1930s were certainly sympathetic to religion, and especially so to Christianity. In one of the British magazines in 1924 a columnist made the connection between practical psychology and Christianity even more explicit, describing practical psychology as the “sane exposition of Psychology from the definitely Christian standpoint as the basis upon which the whole structure of human character must rest” (Anonymous 1924, p. 3). A. Myddleton, editor of the first of the practical psychology magazines in Britain, described practical psychology’s role with respect to religion: “Modern Practical Psychology is an enlargement of Christianity to the point that it may minister to every human need both spiritual and temporal. . . The fundamental truths of Christianity were faith, love, peace, joy, power, truth, spiritual healing; and Psychology came along to show us how to turn these ideals into realities” (Myddleton 1925, p. 3). In the United States, religious messages, especially Christian in nature, were common themes in the popular magazines, and in the 1930s three popular magazines began publication whose content was popular psychology as seen in the framework of Christianity.

American society was a contradiction in religious terms in the 1920s. Immigration in that decade was heavily from Ireland and Italy, adding more Catholics to a predominantly protestant America. The Ku Klux Klan, professing their need to carry out the will of God, grew in numbers and power, opposing African Americans, Catholics, and Jews. Sexual mores loosened in a country that banned the production and sale of

alcohol. Urban centers grew in economic and political power over their country cousins. There were battles between science and religion that came to a head in Dayton, Tennessee in 1925 in the Scopes trial challenging the teaching of evolution in public schools.

A number of historians have characterized the 1920s as a decade of individualism that began long before Herbert Hoover gave his famous rugged individualism speech in 1928. Sociologist Irene Thomson (1989) has argued that the individualism of the 1920s fostered the development of “new religious movements and flourishing popular psychologies” (p. 851). The double tragedies of the flu pandemic and World War I had led many Americans to question their religious faiths. They were not ready to abandon belief in a God but they were searching for something that promised betterment of the human condition. For many, science was seen as the provider of new truths, but it could not be a godless science. The new popular psychology fit the bill in all ways. It was said to be grounded in science but despite its adherence to experimental methods and its break with moral philosophy, it had not lost its soul. Pickren (2000) has written that the early experimental psychologists, for example, Hall, James Rowland Angell, and John Dewey, took pains in their writings for the popular press to state explicitly a role for religion in their new science: “The popular press became an arena in which psychologists sought to gain support for their science, to allay public fears about its materialistic implications by emphasizing its harmony with religious faith, and to stress the moral qualities of their work” (p. 1024).

Self-improvement through Home Study of Psychology

Popular psychology promised self-betterment, arguing that the improvement of the self was a holy pursuit. Self-improvement was not a goal to be pursued for selfish reasons, for material wealth, or increased popularity. Self-improvement was about achieving ones God-given potential, about striving for perfection, about achieving a personal state of ability, purpose, and confidence that not only bettered the individual but those who came into contact with that person. Hallam promised self-improvement from her lectures and books, Miller proclaimed it as the focus of his magazine and as the central purpose of his lectures

and books. He published *Practical Psychology* (1924) a home-study course in “Human Efficiency, Health, Happiness and Achievement” in seven pamphlets, 14 lessons. The goal of the lessons was to help the reader achieve a “more abundant life” through self improvement, for example, improving memory, dealing with negative emotions, being a better parent, cultivating optimism, using constructive autosuggestions, and increasing powers of observation.

Besides Hallam and Miller, there were others who marketed their versions of practical psychology such as two attorneys, Daniel A. Simmons and Edwin C. Coffee, who, on their letterhead, identified themselves as “Psychologists, Psychotherapists, Psychoanalysts.” Their address indicated that the home-study product came from their American Institute of Psychology in Jacksonville, Florida. Their program was entitled “The Realization System of Practical Psychology.” It bore some relationship to a system by the same name that was developed by Robert Heap in Britain, editor of one of the popular psychology magazines, but it does not appear that Simmons and Coffee were using materials developed by Heap. Instead, they wrote their own lessons, distributing them first in 1921. The advertising emphasized personal happiness and success: “You can be anything you want to be, have anything you desire, and accomplish anything not in violation of natural law that you wish to accomplish” (American Institute of Psychology 1927, p. 8). The 12 lessons were mimeographed and mailed to subscribers individually with a cover letter for the lesson, culminating with a series of questions. These lessons were billed as “private lessons” indicating to the subscribers that each one had been assigned an individual tutor (Simmons 1936). Subscribers completed the tests and mailed them to the American Institute. The student papers were marked and returned to them along with the next lesson. If students had questions, including those of a personal nature or those regarding how to apply the lessons of the course, they were encouraged to contact their tutor.

One of the most successful of the popularizers, arguably the most successful, was Sidney A. Weltmer (1858–1930) who studied mesmerism as a boy, medicine as a young man, and later became a minister, hypnotist, and faith healer in Nevada, Missouri. He established The Weltmer Institute in 1886, a 17-room facility for his treatments of “suggestive therapeutics.”

The motto of the Institute was “Where every known disease is cured without medicine or surgery.” By 1901 the Institute was seeing as many as 400 patients per day, and another 150,000 individuals per year were being advised by Weltmer and his associates by mail. Notable visitors to the Institute included President and Mrs. William McKinley, Harry Houdini, Luther Burbank, and John Philip Sousa (Brophy 1997). Weltmer also developed a 16-lesson home-study course entitled “Suggestotherapy” (1921) that offered lessons on such subjects as thinking, practical healing, concentration, suggestion, prayer, and forgiveness. One source says that he awarded a half million diplomas from the Institute for his home-study graduates as well as those who attended his many seminars (Brophy 1997).

Even some psychologists got in on the home-study programs. A very ambitious course of 40 lessons was published beginning in 1932 under the editorship of psychologist William Henry Mikesell (1887-) of the University of Wichita. The course, intended for 2 years of study, was entitled “Psychology and Life,” and was published in 10 attractively bound volumes, averaging 320 pages per book or about 80 pages per lesson. The editorial board included a number of identifiable psychologists: Edmund Conklin, Adam Gilliland, Coleman Griffith, and Abraham Roback. The argument for the validity of the course contrasted the authorship of these lessons with what was labeled false psychology written by non-psychologists: “Much of what has appeared under the name of psychology in magazines and in correspondence courses takes its place alongside fake medicines sold on the street corner” (Mikesell 1932, p. 2 of preface).

The purpose of the course, as explained in the preface to the first volume, sounds no different from that of the other popular psychology offerings:

- ▶ These ten volumes present comprehensive discussions of the workings of the human mind. Anyone who reads them will have a splendid working basis for understanding himself in order to correct the inefficient elements of his mind...Every practical problem of the mind that affects the average human being is presented...This comprehensive course enables one to sweep clean the dark, ugly, and troublesome corners of the mind, and to find hope, buoyancy, optimism, and success. (p. 3 of preface)

These volumes do not constitute an introductory psychology course. They draw more heavily on the science of psychology than the other home-study programs discussed but they also offer some of the questionable psychology they criticize in other sources. Consider some of the titles of the lessons: the fulfillment of the individual’s greatest need, the fundamental need of the human being (which, according to the author, is happiness), the all around human being, how to get rid of our faults, the human being as machine, the slave driven human being, the psychology of the as if, and types of human beings (which includes poetical and practical types, endocrine types, the persevering type, the resolving type, and so forth). The intent was to sell this series to the public, and the writing style and content were consistent with that goal. This home-study program mimicked the others in another way as well. Inside the front cover of the first volume was a colorful certificate on parchment, with Mikesell’s actual signature, a space for the student’s name to be added, and suitable for framing.

In truth, psychologists who ventured into writing for the popular media were not able to stay within the bounds of their science. Consider the case of University of Wisconsin psychologist Joseph Jastrow (1863–1944) who wrote a daily newspaper column in the 1920s entitled “Keeping Mentally Fit.” His columns, more often than not, described a psychology that was indistinguishable from that offered by the non-psychologists. In a column on the sporting instinct, Jastrow (1928) wrote:

- ▶ Sport is rather definitely a masculine need. Perhaps some women take to flirtation and bargain-hunting as indoor sport. For hunting is pursuit and that is the second trait in the sporting make-up. When the business man grows tired of chasing dollars in the office because the routine of it gets dull and wearing, he takes his recreation by chasing a golf ball. (p. 220)

And another column on “The art of being happy” offered this explanation:

- ▶ You are happy when your mental or emotional going is with the grain of your make-up; when the mind machine is running free. There are some common cross-grain disturbers of daily happiness. There is fatigue, which puts you out of gas, and makes slow, jolty going to the

next filling station. There is obstruction, which is the other fellow getting in your way. There is worry, which is one of a hundred kinds of engine trouble. (Jastrow 1928, pp. 19–20)

Along with Münsterberg, who died in 1916 before the golden era of popular psychology, Jastrow was one of the psychologists most involved in translating psychology for the public. He wrote approximately 10 books on popular psychology including such titles as *Piloting Your Life: The Psychologist as Helmsman* (1930) and *Effective Thinking* (1931), many of them authored when he was retired and living in New York City. Donald Laird, a psychologist at Colgate University, produced a similar number of books, written principally for the business community on topics such as leadership, increasing personal efficiency, and supervising women in the workplace (e.g., Laird and Laird 1942).

Popular Psychology and the Great Depression

The Great Depression, the only depression that gets capitalized, marked one of the bleakest periods in American history. If you read histories of that Depression – and there are many – you will find them focused on banking policies, politics, business practices, economic theories, and agricultural production. Too often these histories omit the people in the story, the people who lost their jobs (more than 25% of Americans were unemployed at one time), lost their farms, lost their homes, lost their families, and lost their dignity and self-respect. The human cost was unlike anything anyone could remember, certainly worse than the recognized tragedies of World War I. How did the average American, if there was such a person, react to such a dramatic change in life? One view argued that:

- ▶ People were sullen rather than bitter, despairing rather than violent. They sat at home, rocked dispiritedly in their chairs and blamed conditions. Some argue that the unemployed blamed themselves for their plight. Imbued with the success ethic and the American Dream, the unemployed felt that they, not the system, had somehow failed. . . There is in the average American a profound humbleness. People seem to blame themselves. (Badger 1989, p. 38)

An opposing view argued that the conditions of the Depression produced mass rebellions among the

unemployed. These people were dismayed with failed government policies that they believed had produced the Depression and, of greater significance, they were angered by agencies that seemed not to care about the millions of people who were now disenfranchised. Some historians have written that it was the violence from the riots that “eventually coerced welfare concessions from the New Deal” (Badger 1989, p. 38). Either explanation could be seen as supporting a self-help popular psychology, although the self-blame attitude would be particularly in need of something that would promise self-betterment.

As noted earlier, academic psychology received some criticism in articles and editorials during the 1930s, principally faulting psychology for failing to live up to its many promises given the economic and psychological depression that had engulfed the nation. There is evidence (based on article counts in the *Reader’s Guide to Periodical Literature* and *Psychological Abstracts*) that during the decade, academic psychologists reduced their writings for the public and greatly increased their output in their professional journals. It seems obvious that they retreated to the safety inside the ivy covered walls. Whereas psychologists might have been reluctant to write for the public, that was not true of the popular psychologists. Their presence was everywhere in books, magazine articles, home-study courses, and lectures. Recall that there were more than a dozen new popular psychology magazines that began publication in the United States in the 1930s.

Popular psychology books that had multiplied in the 1920s continued to be a major genre throughout the Depression with a newer emphasis, perhaps, on preventing or curing psychological disorders. Leonard Bisch’s (1936) book *Be Glad You’re Neurotic* informed his readers that virtually everyone is neurotic, and it included a test they could take to find out just how neurotic they were. He urged his readers to follow five simple rules: “study yourself, stop reproaching yourself, be proud of what you are, turn your handicaps into assets, profit by your neurosis – then BE GLAD!” (p. 201). Beran Wolfe’s (1933) book, *Calm Your Nerves: The Prevention and Cure of Nervous Breakdown*, counseled the afflicted to “Grit your teeth at symptoms, and go on. Remember that the pain and the adversity of today make your happiness sweeter tomorrow. Throw

off the shackles of the past, and don't worry about the future. Live today. Live now. I give you courage, hope and the will to get well!" (p. 240). Frank Whitesell's (1932) *The Cure for Depression* warned readers that "the writings of men leave the reader hungry and dissatisfied. Only one book satisfies – The Bible. . . All who trust in Him are partakers of His Joy, and their depressions will soon be everlastingly ended" (pp. 123–124).

Still there were hundreds, no doubt thousands, of books, on self-improvement, that would have been especially attractive to those people "imbued with the success ethic and the American Dream." There were books on improving one's personality, on being more assertive (or using the language of the time, having "spunk" or "gumption"), on getting rich, on raising children, on sex in marriage, on succeeding in business, on training for other jobs, and all the other topics that had defined the core of popular psychology since its inception. There were, however, two 1930s books in the self-help genre that became popular, no doubt, beyond their authors' wildest dreams. Both are thought to have sold between 15 and 30 million copies today, and both have been continuously in print since their original publication dates. The first was a book by Dale Carnegie (1888–1955) entitled *How to Win Friends and Influence People* (1936) and the other followed a year later, Napoleon Hill's (1883–1970) *Think and Grow Rich* (1937). Both offered Depression sufferers the promise of self-improvement that could lead to a better life and perhaps to riches. These books are very much in the tradition of the New Thought Movement and what would become known as positive thinking movement, wrongly attributed to Norman Vincent Peale's (1898–1993) best-selling book, *The Power of Positive Thinking* (1952). The idea of positive thinking was at the heart of New Thought and, as noted earlier, embodied as well in the self-help writing of Samuel Smiles nearly a century before Peale (see Ehrenreich 2009, for her thesis on how positive thinking has undermined America).

Conclusion

The story of popular psychology continues into the twentieth century, of course, but is beyond the space limitations of this account. The popular psychology of today, and indeed of the past 70 years, is not very different from the versions offered in the 1920s and 1930s. The psychology clubs may have disappeared but

the other components remain in place. Popular psychology books are abundant, offering success in six easy steps, creativity in five, optimism in nine, and happiness in seven, a genre of self-help books that psychologist Leigh Shaffer (1981) has referred to as recipe knowledge. Psychology magazines still exist, with *Psychology Today*, founded in 1967, being the best known. Popular psychology is found in many other magazines as well, whether labeled psychology or not. Home-study courses have been replaced by on-line courses from legitimate universities as well as bogus ones. And sometimes it is difficult for the consumer to tell the difference. Public lectures and symposia are abundant, a billion dollar industry today, providing thousands of motivational speakers whose lectures promise to teach you:

- ▶ How to get everything you want, how to embrace your struggles and come out on top, how to project a powerful and confident image, how to be recognized and rewarded for your effort, how to score often and big, how to make yourself a valuable asset, how to overcome unforeseen challenges, how to balance your personal and professional priorities, how to rapidly expand your circle of influence, how to develop take-charge leadership, and how to have grace under fire. (*Houston Chronicle*, 2010, p. A9)

It is the public's psychology, and its general nature has not changed much in the past two centuries. People want to improve their relationships, they want to be more successful in the workplace, to be healthier, to raise their kids well, to be popular, to be optimistic, to be positive, to be happier, and to be rich. Samuel Smiles and others who promoted self-help and positive thinking established the model still used by most pop psychologists today, that of personal testimony and case study anecdotes.

Megachurches have enjoyed a phenomenal growth in America in the past several decades. They are Christian, evangelical, and boast huge congregations. Many of these charismatic pastors, like Henry Knight Miller 80 years earlier, offer a gospel of health, happiness, and success. They are among the new generation of pop psychologists. Many preach what has been called prosperity gospel, the belief that God wants his believers to be wealthy, to enjoy an elegant lifestyle. No one demonstrates that better than Joel Osteen, pastor of the

Lakewood Church in Houston, Texas, an evangelical Christian church that enjoys a weekly attendance of more than 40,000 and whose services are broadcast to millions of viewers via television in the United States and many other countries. Osteen's message is relentlessly positive – “God wants you to be happy, God wants you to be healthy, God wants you to be successful, Gods wants you to have a nice home and a fine car.” A time magazine poll in 2006 found that “17% of all American Christians of whatever denomination or church size, said they consider themselves to be part of a ‘prosperity gospel’ movement and a full 61 % agreed with the statement that ‘God wants people to be prosperous’” (Ehrenreich 2009, p. 124). And how is that prosperity to be achieved? “Not through the ancient technique of prayer but through positive thinking” (p. 124). Popular psychology and religion continue to have strong ties.

As noted at the beginning of this chapter, psychology is everywhere today. Arguably the field has never been more ubiquitous, even in the golden era of the 1920s. Psychologists today mirror their colleagues of more than a century ago by decrying the many psychologies that they see as bogus, especially all of the invalidated therapies: energy breathing, past lives therapy, primal scream therapy, facilitated communication, neural organization techniques, thought field therapy, hypnotic age regression, neuro-linguistic programming, and many, many others. Oh, and don't forget, rebirthing therapy. Labeled psychobabble and biobunk by psychologist and author Carol Tavris (2000), these therapies are a part of the public psychology that cast doubt on the validity of the science of psychology. Rarely, if ever, are these therapies endorsed by any legitimate psychologist, and, sadly, most are never broadly condemned by the psychological community. Instead, they are mostly ignored. Perhaps psychologists have concluded that they can do no harm, or that they would disappear if people would only use their intelligence, recognizing the bogus therapies for what they are.

The perceived credibility of psychology as a science was a concern for the pioneering psychologists in the 1880s who established the first laboratories in America. And it remains a concern today for contemporary psychologists who can be found as second-class

scientific citizens in their universities, housed in colleges of liberal arts or social sciences and rarely grouped with the “real” sciences of physics, chemistry, and biology. There are many examples of a lack of confidence in psychology as a science. When President Ronald Reagan assumed office in 1980 he called for an elimination of all National Science Foundation (NSF) funds for psychology, a field that he viewed as a pseudoscience (then why did he listen to his wife's advice based on her astrologer's reports?). Through some lobbying efforts, Congress was able to restore 50% of that funding immediately. But it would be years before psychology reached the level of NSF funding it had enjoyed before the Reagan presidency. In 2006, Senator Kay Bailey Hutchinson from Texas introduced an amendment to an appropriations bill that called for an elimination of all funds for psychology and the other social sciences for the NSF budget. Fortunately for psychologists (and sociologists, economists, anthropologists, and political scientists) that amendment was defeated. In another show of psychology's status in the scientific community, the year 2009 was declared “The Year of Science” in the United States. To celebrate that designation, the National Academy of Sciences featured a different scientific emphasis on its website for each of the 12 months of the year. Not one of the 12 features was about any one of the social sciences, all of which belong to the National Academy of Sciences.

The public may not be able to distinguish the science of psychology from a host of pseudopsychologies but Congress, the Executive Office, and federal agencies need to be able to do so. If psychology is to receive its fair share of federal funding, if psychologists are to be involved in national policy decisions where human behavior is a key concern, if psychology is to be a player in health care where most of the leading killers today (heart disease, cancer, stroke) have important behavioral components as part of their etiology, if we want to get people to behave more ethically, reduce violence, improve parenting, improve education, prevent and cure addictions, reduce pollution, improve communication networks, and reduce prejudice, then psychology has to be respected and supported as a science that can be a key player in the twenty-first century where so many of the problems that face America and the world are behavioral problems.

In the past decade both the American Psychological Association and the Association for Psychological Science have established programs to improve the public's understanding of psychology. But as should be abundantly clear by now, this is not an easy task. Indeed it may be a hopeless task (see Burnham 1987). Jill Morawski and Gail Hornstein (1991) have wondered why psychology has had such difficulty in "establishing themselves as the arbiters of psychological knowledge" (p. 127). Other disciplines have succeeded in becoming experts in their own fields. So why not psychology? Morawski and Hornstein suggested that:

- ▶ ...part of the problem has to do with the subject matter of psychology. People seem to feel acutely ambivalent about giving the analysis of their private experience over to outsiders, alternatively seeking and rejecting the opinions of these "experts." For psychology to succeed in garnering for itself hegemony over the psychological realm, it would have to persuade people that they were entirely incapable of understanding the conduct and meaning of their own lives. (p. 127)

So acknowledge that the public owns its psychology. Given the explanation offered above and the various reports on scientific illiteracy in America the situation is unlikely to change.

A better strategy for organized psychologists within APA, APS, and other psychology organizations would be to target the policymakers and funding agencies in government, health, science, and education, helping them understand the potential of psychological science and practice, and translating the research in ways that are useful to those and other entities. As psychologist George Miller (1969) said more than 40 years ago, "The most urgent problems of the world today are the problems we have made for ourselves. They have not been caused by some heedless or malicious inanimate Nature, nor have they been imposed on us as punishment by the will of God. They are human problems whose solutions will require us to change our behavior and our social institutions" (p. 1063). The need for psychological science is great, but there has to be recognition of its validity if it is to realize its potential. Psychologists can do something about that, and they need to do it now.

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American Mental Philosophy (1820–1860), History of

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Introduction

Between 1820 and 1860, roughly from the decade following the end of the War of 1812 until the eve of the Civil War, textbooks with the titles of *Intellectual Philosophy*, *Mental Philosophy*, or *Psychology* were written by professors in American colleges to introduce their students to the study of the human mind. Whatever the title, the study of mental philosophy was a significant part of the education of college juniors and seniors in the nineteenth century. The authors of the textbooks modified the philosophies of mind inherited from the British intellectual tradition to accord with the conclusions they reached from examinations of their own minds.

The appearance of textbooks written to introduce the study of mind to college undergraduates and students in academies (secondary schools) was a departure from the practice of the colonial and early federal periods in the United States during which students read the philosophical treatises of English and Scottish authors, most commonly John Locke's *Essay on Human Understanding* (Locke 1975) and Dugald Stewart's *Elements of the Philosophy of the Human Mind* (Stewart 1833). Stewart's *Elements*, together with Thomas Reid's *Essays on the Intellectual Powers of Man* (Reid 1857) and Thomas Brown's *Lectures on the Philosophy of the Human Mind* (Brown 1826), represented Scottish common sense realism, a position that affirmed the reality of the external world and the appropriateness of investigating it with the methods of science. That method was extended to the study of the human mind. The Scottish philosophy and the Presbyterian/Congregationalism theology associated with it provided the philosophic and religious context for the study of mind as the nineteenth century began.

The Scottish tradition was supplemented in some textbooks with German philosophy in the middle decades of the century, but prevailed relatively unaffected in others until after the Civil War. The American

professors whose classroom lectures comprised the textbooks attempted to interest and educate those students who heard their lectures or read their textbooks by providing them with what their authors hoped was a fresh, independent understanding of the nature of mind. The spirit of independent inquiry inherited from the British Enlightenment made them confident in the potential of the mind to understand the natural world, the relation of human beings to it and their Creator, and to understand the mind itself.

Although the texts varied in their approach to mind and the description of its processes, they nevertheless had a great deal in common. The textbooks shared a sense of building on the past to achieve something new, appropriate to a new nation only recently removed from colonial status. The earliest texts and those that appeared in the decades that followed were part of a general movement in the United States to match political independence from Great Britain with intellectual and cultural independence. Americans, in seeking a standing among the nations of the world in the arts, literature, philosophy and science sought to make distinctly American contributions that surpassed those of the Old World. For example, the variety of flora and fauna found in the United States challenged British and European classificatory schemes that led to additions to, and changes in, taxonomy. Organizing the results of observations of the natural world into orderly taxonomies characterized the developing sciences, such as biology, geology, and mineralogy, and was the task undertaken by the philosophers of the human mind as they identified and classified the mental processes that their examination of the mind revealed to them.

Science held a significant place in the hierarchy of American values in the early decades of the nineteenth century, such that virtually all disciplines were pursued as science, including theology and philosophy. Natural theology, the science that studied the world and its life forms as the products of creation, was pursued as a source of knowledge about the Creation and the Creator that supplemented that which was revealed in the Bible. The philosophers of mind, graduates of seminaries and trained for service as ministers, brought to their subject a similar commitment to pursue the investigation of mental life as natural science, free from past dogmas.

The science of the time was that represented by Francis Bacon and Isaac Newton. The ancient approach of the Scholastics, who sought truths through deductions from fixed principles, was replaced by induction from observations of the natural world to arrive at truths. Newton had followed this path to arrive at the laws of planetary motion and a fresh conception of a universe guided by laws, arrived at inductively. The first task facing the theologically trained mental philosophers as they began their attempt to develop their philosophies of mind was to observe the content and processes of their own minds and attempt to discern the laws that governed them. They avoided adopting any earlier philosophy of mind (although they borrowed freely from past philosophies) in favor of constructing one consistent with their own observations, supplemented with supporting evidence from many sources, such as examples from recorded history, literature, the Bible, medical and legal cases, inferences from comparisons between normal and imperfect minds, the young and old, and human and animal behavior.

Identifying and describing the processes of the mind constituted the first step in building a philosophy of mind. Just as observations of the natural world were categorized, such as separating flora from fauna and arranging for subcategories within the larger groupings, so too the processes of mind were labeled and organized into a comprehensible taxonomy. In their textbooks, the mental philosophers adopted and adapted the nomenclature for mental operations that formed the basis of the common discourse on mind as embedded in past philosophies and common language. There were many different systems from which to choose, but the textbooks, heavily reliant on the British empirical tradition and Scottish common sense realism, were nevertheless eclectic.

The phenomena of mind identified through conscious examination comprised a wide range of conscious experience, designated by commonly accepted terms: sensation, perception, images, ideas, memory, imagination, reasoning, abstraction, association, feeling, emotion, instinct, desire, will, and more, with some requiring differentiation, as with different kinds of memory, and other phenomena requiring the adoption of now less familiar terms, such as conceptions. Although some textbooks addressed the phenomena as

independent processes, others attempted to group them, as intellectual processes, different from feelings and motives. Will presented a special problem: was it subsumed under motives and determined by them, or free? And how did such processes relate to each other to produce coherence in consciousness and in conduct? In arranging the processes of mind into a workable system, differences arose among the mental philosophers, in adopting different labels for the same mental process, or assigning the same process to a different taxonomic category.

The authors of the textbooks were also mindful of Bacon's exhortation that the results of science should be useful to those who study it. Accordingly, the textbooks proclaimed the study of mind to aid in self-understanding and to be helpful in practical affairs, such as assisting parents and teachers in meeting responsibilities for shaping the minds and the behavior of those in their care. Advice was offered for engendering good habits of moral behavior as well as for the task of studying and learning, the more immediate concern of the students who read the textbooks. This further justification of the usefulness of the study of mind helped to affirm the place of the study of the philosophy of mind in the curricula of American colleges at that time and in the future.

Although a wide variety of textbooks devoted to the understanding of mind and its processes were published in this period, the present essay describes the philosophies of mind offered by only some of the more widely used and influential textbooks. They illustrate the approach to the study of mind and the resultant philosophies that were embodied in the introductory textbooks of the period. The philosophies of mind represented were shaped by the philosophical past, the science of Francis Bacon and Isaac Newton, and the theology of Protestant America. The textbooks introduced students to the issues and difficulties inherent in the study of mind, offered a substantive account of the state of knowledge of mental processes, provided taxonomies that organized these processes to reflect a coherent and unitary mind, and suggested ways in which the successful understanding of mind and its operations could be usefully applied to individual lives. As such, they constitute a survey of the processes of mental life as complete as the methods and knowledge of the time permitted.

Textbooks of the Antebellum Period

The First Textbook

Thomas Cogswell Upham (1799–1872), a graduate of Dartmouth College (1819) and Andover Seminary (1821), was appointed, in 1824, as Professor of Metaphysics and Ethics (a title later changed to Professor of Mental and Moral Philosophy) at Bowdoin College. He was well educated in philosophy, theology, the languages of the Bible (Greek, Latin, and Hebrew) and German, the language of Biblical criticism, and German philosophy. His education for the ministry prepared him to become a professor in an era when professors were generalists, before specialized graduate education in academic disciplines became the standard for college teaching.

As he completed his pastoral duties as Pastor of the First Congregational Church of Rochester, New Hampshire, he prepared lectures for his first year of teaching. His *Elements of Intellectual Philosophy* (1827; second edition, 1828) is considered to be the first American textbook offered for use in colleges and secondary schools. It embodied an eclectic philosophy of mind that borrowed ideas freely from any source, even, he confessed, using another author's own words when he thought them the most felicitous for his purpose. He avoided metaphysical speculation, emphasized induction from observations, and suggested applications of the knowledge of mind to practical affairs. He specifically rejected past allocations of mental processes into larger categories, such as *Understanding* and *Will*, or *Intellectual* and *Active Powers*, on the grounds that there was a lack of clarity in the basis for assigning processes to these insufficiently differentiated categories.

As a result, the chapters in the first two editions of Upham's textbook comprise a variety of topics without providing a coherent philosophy of mind. Topics devoted to mental processes, the senses, perception, attention, memory, simple and complex ideas, the nature of thought, reasoning, imagination, emotion and will, would be expanded and developed in subsequent editions, but other topics, such as rules for debate, would not survive. Upham continued to work toward a systematic statement of mind, sifting through his material as his system took shape. For example, one topic, language, was introduced in the

first edition of *Intellectual Philosophy* (1827) as part of his chapter on thought; language gave expression to the content of mind and permitted its communication to others. In an independent chapter, Upham addressed the origins of language, oral and written, from gestures and graphic representations to the characteristics of language and rules for translating from one language to another. In the second (1828) edition, the discussion of language was expanded into several chapters, separating language from thought. Upham did not identify language with thought, as James Rush had done, nor did he, like Rush, make it a separate department of mind (Ostwald and Rieber 1980). Rather, he treated language as an outward expression of internal thought, similar to a physical act that might be initiated by thought to serve the ends of a motive and/or the will. Chapters on language appeared within his category of intellectual processes when Upham adopted a two-part division of the mind (Upham 1831) but were ultimately relegated to an appendix in the three-volume edition of his complete system by (Upham 1840b, c). He omitted the chapters from the abridged edition of his work (Upham 1840a).

The adoption of a two-part taxonomy of mind, *Intellect* and *Sensibilities*, in the two-volume third edition of his textbook *Elements of Mental Philosophy* (1831; abridged edition, 1832) was the first step toward his complete system of mind by giving equal status to the intellect and the sensibilities (feelings and emotion) as taxonomic categories. In 1834, he wrote *A Philosophical and Practical Treatise on the Will* in which he examined the issues of the freedom and power of the will. The *Will* was added as the third taxonomic category to complete his organized system of mental philosophy to expand it beyond the narrow rubric of intellectual philosophy.

Upham was prompted to add the *Will* as his third department of mind, “the keystone that completed the arch,” by his reading of Asa Burton’s *Essays on Some of the First Principles of Metaphysics, Ethicks, and Theology* (1824). The essays of Burton (1752–1836), Pastor of the Church of Christ in Thetford, Vermont, formed the core of a course of study designed to prepare prospective ministers for their professional role. Knowledge of the principles under which the mind operated could aid a minister in his attempt to comprehend and cope with the behavioral vicissitudes

of members of his congregation and assist him to guide them to appropriate moral behavior. Moreover, Burton believed that because the mind of human beings, like their physical form, was created in the image of God, understanding the human mind presented the possibility of understanding the mind of the Creator.

Each of Burton’s three faculties represented a capacity, or preparedness, of the mind to perform an operation, such as perceiving (the operation of *Understanding*), feeling (the operation of *Taste*), and volition (the operation of *Will*). Previous classifications had subsumed *Will* under *Taste*; freeing *Will* from *Taste* enabled Burton to argue for the liberty of volitions, guided, but not strictly determined by, feelings or motives, so that that human beings, obligated to choose between good and evil, were held responsible for choices made.

The final form of Upham’s system reflects his reading of Burton, although the development of his tripartite taxonomy of mind went beyond Burton in its development and thoroughness. Upham’s three “departments” of mind represented different modes of activity in which a unitary mind acted. He was skeptical of popular phrenology and the divisions of mind on which it was based, not only because of the materialism represented by the assignment of specific operations of mind to localized parts of the brain, but also because he rejected the notion that an immaterial mind could be subdivided into independent units. The task of the philosopher was to identify the many processes of mind revealed in consciousness, distinguish among them, place them within the appropriate department of mind, describe how they operated within consciousness to determine human behavior, while recognizing that the mind functioned as a whole.

Within the *Intellect*, the senses provided conscious experience of a real world outside the mind. Auditory, visual, olfactory, tactual, and gustatory sensations formed the basis of perception. Mental contents of external origin constituted one division within the *Intellect*; external stimulation produced knowledge of the world outside the mind and shaped awareness of it. Internal processes inherent in the *Intellect* provided knowledge through reasoning, suggestion and the laws of association (e.g., resemblance or contrast) that govern relations among mental contents. The sensory and perceptual experiences provided by the senses

included conceptions (images) of preexisting sensations or perceptions, or dreams that arise from stimulation during sleep, as when cold feet may generate a dream of walking in snow. The processes of internal origin (e.g., doubting, or belief, or certainty) provide knowledge that does not rely directly on the senses. The notion of the mind itself is considered by Upham to be suggested by our experience of its various feelings and operations, including a sense of personal identity. Other processes originating from within the mind itself include attention, reasoning, memory, and the laws of association that regulate the train of conscious experiences.

Upham also divided the *Sensibilities* into two components: (1) the natural sensibilities of emotions, desires and instincts, and (2) the moral sensibilities, emotions of moral approval (conscience), and feelings of moral obligation. The distinction recognizes the emotional and motivational processes of mind (e.g., instincts, appetites, and desires) that are shared with animals. Emotions vary in strength and in kind, joy and grief, for example, and more complex emotions as well, while desires include instincts and appetites. Feelings attributable to conscience, however, are presumed to be uniquely human, part of the moral nature of the human mind provided by the Deity, and capable of being strengthened through moral and religious education. As moral agents, human beings are held responsible for their actions. It is in this division between natural and moral sensibilities that Upham provides the essential basis for choices presented to the operation of will.

The *Will* represented the final mode in which mind operated. Its sole mental process was that of volition, a mental state that varied in power (like other mental states) and is manifest in the capacity of the mind to direct attention, control passion, and persist in the face of obstacles and to carry out complex plans. Acts of will have some object or purpose, are future oriented and related to mental acts, such as, for example, directing attention, or behavior, as in catching a ball. In Upham's model of the mind, behavior originates when an intellectual process, of either an external or internal source, stimulates an emotion, natural or moral, that prompts the will to put forth a volition. The primary issue concerning the will is whether it is free.

For Upham, to assert that the will was completely free seemed to contradict the universality of the natural

law that governed the world as Divinely created. He argued that ideas of God imply prescience and foresight; prediction of future acts in Biblical prophecy is evidence of foreknowledge, and hence they demonstrate lawfulness. In human affairs, the prediction of future events and the reasonableness of expectations are possible only if events follow a law or principle that regulates behavior. Being able to carry out plans, the apparent consistency and predictability of the future actions of individuals and groups, in at least some spheres of activity, imply the operation of laws governing the operation of will.

At the same time, Upham also argued, the evidence of consciousness suggests that the will is free; its freedom is implied in the moral nature inherent in human beings, consistent with ideas of right and wrong and the sense of moral obligation that is part of conscious experience and essential to moral accountability. To the argument that will is governed by the strongest motive, and therefore not free, Upham replies that it is a mere tautology to suggest that will is governed by the motive by which it is governed. He suggests that the freedom to choose among motives is the essence of the freedom of the will. Yet, law and liberty go hand in hand, and without the regulation of law, human behavior would be capricious and chaotic. Thus, Upham concludes, the will is both governed and free, but how this can be possible may be beyond the comprehension of the human mind, a mystery that nevertheless represents the reality of the human condition.

Finally, in addressing the mental processes that he described and cataloged, he noted, with evidence from direct observation and his reading of legal and medical sources, instances of imperfect and disordered mental functioning. Seeing apparitions, for example, suggested a disorder of perception; excessive appetites or immoral actions evidenced disorders of the natural or moral sensibilities; an inability to resist impulses to immoral action or acts of depravity indicated an imperfect or disordered will. The causes of mental disorders, Upham suggested, were to be found in the mind, body, or the connections between them. Bodily effects on mind were apparent in the decline of the senses in advanced age that resulted in the decline of sensory experience, perception, and/or memory; drugs and noxious gases might produce temporary mental disorders.

The effects of mind on the body might be found in disturbed behavior or overheated blood from an excess of passion or excited imagination. Explanations of disordered mental action did not simply invoke materialism and the action of the central nervous system. Although he was willing to accept the possibility that insanity was wholly a result of a physical condition, Upham also suggested that extreme disorders of mental processes might be the result of secret impulses of the interior nature of mind itself that were not available to conscious experience. Treatment alternatives included the medical practice of bloodletting, for example, for a case of a body overheated by passion, or education and moral suasion to strengthen a defective will. Any measures that might restore or improve the health of the body, especially the central nervous system, or mental training to correct imperfections in mental processes were thought to be useful in treating an imperfect mind. Upham published the chapters from his text in a small volume addressed to the general public, the first attempt outside medical treatises to consider problems of mental disorders: *Outlines of Imperfect and Disordered Mental Action* (Upham 1840d). In the same year, he published the three-volume *Elements of Mental Philosophy* (Upham 1840b, c) that represents his completed system (an abridgment of his system under the same title containing the three departments was published by Harper's in 1869).

The German Influence

Upham's text was widely adopted in colleges and universities during the nineteenth century (it was in print and advertised as late as 1892). It was a thorough and comprehensive examination of mind carefully considered that evolved from his first textbook of 1827 to the completed system of 1840. In that year, *Psychology; or, A View of the Human Soul, Including Anthropology* (Rauch 1840) was published, the first American textbook to have "psychology" in its title. Its author, Frederick Augustus Rauch (1806–1841), a graduate of the University of Marburg (1827), was on the point of being promoted, while still in his mid-twenties, to a professorship in metaphysics at Heidelberg when he was advised to emigrate because of his criticism of policies of the government. In the United States, he taught music and German at Lafayette College, for 1 year, qualified for the ministry in

the Reformed Church, and became Professor of Biblical Literature in the German Reformed Theological Seminary in York, PA. When a classical school was added to the Seminary and, later, chartered as Marshall College in 1836, Rauch was named its first president (Marshall College was merged in 1853 with Franklin College to become Franklin and Marshall College).

Rauch's textbook, the published version of his lectures to the Junior Class, was also addressed to members of the general public who, like his students, stood to benefit from a greater understanding of the mind and its role in their lives. In his textbook, he sought to unite German and American mental philosophies, in part by bringing psychology and anthropology together as complementary disciplines in the study of mind. Psychology examined mind in relation to itself, while anthropology examined the connection of mind to body and their reciprocal influences. Immanuel Kant had argued that psychology could not become a true natural science because mental events could not be measured or weighed and, moreover, introspection distorted the mental events being observed. To improve its status as science, Kant suggested that psychology adopt the methods of anthropology and observe human activity in realistic settings as public, observable manifestations of mind as a supplement to the results of introspective explorations of mental processes. Rauch embraced Kant's suggestion, as the title of his textbook makes clear.

Like the other theologically trained authors of textbooks, Rauch approached his analysis of mind from a Judeo-Christian perspective. Human beings, as descendants of Adam and Eve, constituted the common subjects of both psychology and theology; without religion, human beings are merely animals. More than other textbooks of the era, Rauch defended the special status for humans as created in God's image and used the comparisons between human beings and animals to introduce anthropology as a discipline that could aid in understanding the nature of mind. Animals, he argued, have sensations and perceptions, but in animals, one sense tends to dominate, while in humans, all senses are used with equal facility. Cognitive awareness of objects not immediately present (i.e., having a mnemonic image) characterizes humans, who alone are capable of apperceptions or thoughts that involve making judgments and drawing conclusions. And while

animals may feel pleasure or pain, they are incapable, Rauch believed, of the distinctly human feelings of hope or joy. Animal instincts reveal the prescience of the Creator in providing animals with operations analogous to reasoning for their survival, which they accomplish without reason or self-consciousness (the awareness of their own mental activities).

In examining the connection between mind and body, Rauch suggested that the mind was influenced by such physical characteristics as race, including the effects of the environments in which different races originated and resided and the effects of differences between the sexes. Transient influences on mind, such as age, sleep, and dreaming, and states induced through animal magnetism (hypnosis) represent temporary mental conditions. Temperaments, such as those imparted through physical characteristics, as induced by bodily humors (e.g., a choleric temperament as a result of an excess of blood) also shaped mind and conscious experience. Rauch's discussion of these influences, and the examples and anecdotes that he employed as evidence of them, reflect the state of knowledge, beliefs, and opinion of the time. For example, he repeats nineteenth-century views on the relation of differences in physical structures between men and women to differences in the minds of each sex and to the roles in social life to which these mental and physical attributes of women and men fitted them. The effects of age on mind are described in terms of changes from childhood to maturity and the eventual decline of mental powers in old age.

In discussing the effects of mind on the body, he accepted anecdotal accounts of the effects of experience, such as an instance in which severe fright to the mind of a mother produced a physical disfigurement on a developing embryo, or the supposed effects of a wicked heart on the physiognomy of an adult. He leaves open the possibility, suggested by phrenologists, that the power of the mind, in exercising its capacities, can enlarge parts of the brain and have the effects of its exercise known through the shape of the skull. In pursuing the study of mind in the context of anthropology and addressing external influences on the mind–body relationship, Rauch placed those influences into greater focus than many of his contemporaries, who noticed them, if at all, in passing, as they discussed their primary concerns, viz., the operations of mind itself.

Psychology, as distinct from anthropology, examined the internal operations of mind by looking inward to examine itself, to recognize the difference between the sensations produced by an object and the external object itself (through attention and judgment), and to comprehend that an individual object may represent a general class of objects. Such operations within consciousness are not considered by Rauch to be faculties, but, like Upham and his contemporaries, he rejects the notion that mind consists of a bundle of separate, mechanical operations, each with a distinct consciousness: he is at pains to emphasize the operation of mind as a whole. Although he approaches an understanding of mind through discussions of *Reason* and *Will*, he emphasizes that the two are essentially one: *Will* is *Reason* with a “practical tendency.”

Rauch's discussion of *Reason* begins with the consciousness of feelings and sensations that depend upon the senses and constitute the origin of knowledge. Conceptions are images of past sensations that may be connected by the laws of association (e.g., cause and effect, contrast or resemblance); images may be modified through imagination to construct images of things never before seen. Images are connected to words, and words to images, through memory; in this, Rauch may be considered a pioneer in semeiotics (Roback 1952). Ultimately, however, what the mind makes of the contents and products of consciousness depends on pure thinking, a process that is more than abstraction and generalization, but a contentless process (pure thought, not images) that seeks the true nature of things, as exemplified by, for example, Isaac Newton, and is not necessarily engaged in by everyone. Pure thinking is characterized by comprehension, judgment, and syllogism/conclusion (thus making pure thinking akin to, if not the equivalent of logic, as taught in the texts of his day). The activities of mind that he describes are those common to the texts of the descendents of the British philosophers, available to common experience and embodied in language. The consideration of pure thinking bespeaks the influence of Kant and the German philosophers.

Will, in Rauch's analysis, encompasses the emotional and motivational contents of mind, such as passion, many kinds of desires and love, and complexities of emotions. But the emotional–motivational states are related to *natural*, as distinct from *moral*, will.

The latter operates with respect to law, moral obligations, rights and duties. Natural will is governed by motives and emotions and accomplishes for human beings what instinct does for animals. The moral will, however, is free to choose. In this way, Rauch attempts to resolve the problem of the debate between the freedom of the will and determinism, in that, for him, freedom of action is possible only with respect to moral choice.

Finally, Rauch concludes his textbook by considering the relation of human beings to their Creator. He argues that religion rests on faith, a gift of God. Heathen religions, he holds, are created by the minds of human beings, perhaps through superstition and imagination, but a true religion connects God to those to whom He has given faith. In concluding his text with this discussion of religion, Rauch reinforces his general view of the place of human beings and their mental life in a theological context, in which anthropology and psychology may aid in the understanding of the influences on the operations of mind, but that these sciences are part of a larger understanding of the place of human beings in the world as created.

Rauch's textbook, with its attempt to unite German and British philosophical traditions in the philosophy of mind, was not alone in reflecting the influence of German philosophy. Laurens Perseus Hickok (1798–1888), born in Bethel, Connecticut, approached the study of psychology from a perspective influenced by his reading of the German philosophers and of Rauch' textbook. He graduated from Union College in 1820, studied theology, was ordained, served as Pastor to two Connecticut congregations and was appointed Professor of Theology at a college in Hudson, Ohio, that later became part of Western Reserve University. In 1844, he was appointed Professor of Theology at the Auburn Theological Seminary where he published his first book, *Rational Psychology; or, The Subjective Idea and the Subjective Law of All Intelligence* (1848; revised edition, 1861). He was called to his *alma mater*, Union College, as Professor of Mental and Moral Philosophy and Vice President of the College where he published several books, most notably, for his place in the history of psychology, *Empirical Psychology; or The Human Mind as Given in Consciousness* (1854). After he retired in 1868, he moved to Amherst, Massachusetts where, with his nephew, Julius Seelye, President of Amherst

College, revisions of his *Empirical Psychology* (Hickok 1882) continued in print through the end of the nineteenth century.

Hickok's *Rational Psychology* attempted to establish an epistemology for psychology by identifying the principles and laws that make experience possible and intelligible, principles and laws that transcend experience. In his *Empirical Psychology*, in contrast, he attempted to ascertain the facts of conscious experience and arrange them in an orderly system. He contrasts the rational vs. empirical approaches to psychology with an analogy to astronomy: the laws and principles under which the solar system operates is akin to a rational psychology; gathering facts about the system and the stars and planets within it is akin to an empirical psychology. The laws of gravitation require that the solar system *be as it is* (the rational underpinning of the system); describing the system *as it is* represents the empirical science. In applying this distinction to psychology, Hickok devoted 700 or more pages of his *Rational Psychology* to describing the principles that dictate that the experiences of consciousness *must be* as they are. His *Empirical Psychology* describes the facts of experience as they *are*, as revealed in consciousness. Empirical psychology describes the mental phenomena and their interrelations as observed in the clear light of consciousness, which he described as a "psycography" of mind, rather than a philosophy of it, with no claim to being a pure science.

The description of mind that Hickok offered in his *Empirical Psychology* was little different from the facts and organization of mind to be found in the textbooks by his contemporaries. However, Hickok was more sensible of the difficulties that faced the philosopher of mind in collecting and arranging the facts of mind. He noted, for example, that turning attention inward, away from the customary attention to the external world, to identify and label fleeting and nonmaterial mental events, is an unaccustomed activity that might, as a result, lead to superficial examinations of consciousness. He also pointed out that errors can arise by mistaking the spurious for the real, through the ambiguity of language: the use of terms appropriate to the physical world to describe the mental world could result in erroneously ascribing qualities of the physical world to conscious experiences, a problem that would persist into the last quarter of the nineteenth

century (Richards 2004). Similarly, physical laws that govern the external world might be mistakenly applied to operations of the internal world of the mind, whose laws and operating principles are inherent in it and not necessarily the same as, or analogous to, laws that govern the physical world. Despite these difficulties, Hickok argued that the facts of mind must be found in each individual's consciousness and he warned against trusting too readily the testimony of others. He counseled that practice in shutting out the external world and focusing the senses on the internal world of consciousness was requisite to develop the habit of introspection necessary to a reliable account of the nature of mind.

Introspection was difficult, but not impossible, as a means to arrive at a philosophy of mind; it required a methodology through which the inner sense might provide a picture of the facts of mind that another could verify by a similar investigation. Investigations of mind focus on single facts, such as a thought, or emotion, or volition; each fact requires completing a detailed examination of it before another fact is examined. Considering each fact carefully is the basis for comparing facts, for noting their similarities and differences, and for ascertaining the relations among them. Facts of mind, so gathered, require classification based on their characteristics as revealed in consciousness. Although the validity of the facts of consciousness and their classification rests on each individual consciousness, disputes about them that may arise may be resolved by appeals to common consciousness, common sense, the evidence provided by history and/or by language. Hickok was attempting to make the method of observation (introspection) as reliable as observations of the events of the world outside consciousness. In recognizing the potential pitfalls of introspection and in suggesting a method to avoid those pitfalls, Hickok anticipated later attempts to make introspection a method for the rigorous examination of consciousness in psychological laboratories of the late nineteenth and early twentieth centuries.

Like Rauch, Hickok began his account of psychology by considering the significance of anthropology for the study of mind, especially with respect to the influences of the body on the mind. Hickok, also like Rauch, described the physical variations of race that arose from the environments in which each evolved,

but he attributed no particular mental differences among the races to those environments or to inherent differences among races. Differences in the minds of men and women were described in ways that accorded with differences in the stereotypical roles according to each sex in Hickok's era and individuals were held to differ in varying degrees with regard to temperament (sanguine, melancholy, choleric, or phlegmatic). Because the mind develops to maturity as the body does, the quality of mind varies with age. Other influences of the bodily constitution on the mind that Hickok noted include transient influences such as sickness, the sleep-waking cycle, and the incitement of strong emotion. His account is much like that of Rauch (1840).

Hickok laid the groundwork for his empirical psychology by describing what he termed the general and primitive facts of mind. The former included such characteristics of mind as its permanence (its persistence through time) and its ability to distinguish itself from its experiences. The mind is self-active, set in motion by its Creator, and unchanging through time. Consciousness is not the same as mind, but constitutes "an inner illumination." The primitive facts of mind include consciousness, sensation, and the mental states that form the basis for knowing (Intellect), feeling (Susceptibility), and choosing (Willing), and constitute the three divisions in which the facts of mind are considered. The first function of the Intellect is *Sense*: knowing, feeling, and willing come into play when sensory impressions blend with an emotion, which, when further blended with a purpose, might result in an act of will. For example, the sight of a rose in bloom excites pleasure, which, when joined with the purpose of smelling it, might lead to the act of walking toward the rose to take in its fragrance. The *Intellect* receives impressions from the external world through the sense organs by actively observing and focusing attention on objects in the world. Information about the quality, quantity, and location in space of objects is provided by sensation and attention, which together combine to form a perception. An internal sense, parallel to the external senses, provides the capacity for knowing the inner workings of the mind in its different modes.

The second function of the Intellect *Understanding*, through which the observation of an individual object may be integrated into a conception, such as

the general notion of “house,” as opposed to a particular house. Memory, as part of the understanding, constitutes representations of phenomenon previously represented in consciousness and organized through the laws of associations (e.g., contiguity, similarity, etc.) by which they may be recalled to consciousness. Reflection constitutes the ability of the mind to turn in on itself to examine conscious mental events at, perhaps, greater leisure than the initial experience of those events might have allowed; association may bring past events to mind, but reflection allows for the examination of the relations among memories more closely. Judgments represent the processes of forming connections among objects and experiences, through analysis, synthesis, the use of syllogisms, and induction and deduction. Finally, imagination forms part of the Intellect; in forming images of objects previously seen, it is reproductive imagination, and of something wholly original, it is productive imagination. Imagination differs from fancy, which refers to the capacity of mind to conjure mental images in the absence of external sensory stimulation, as in daydreaming, or phantasms of sleep, or the extremes of *delirium tremens*.

The third function of the *Intellect* is *Reason*. Were the Intellect to be confined to the sense, it could not move beyond its own perceptions; with the addition of the *Understanding*, the Intellect might employ judgment to assess the connections among its perceptions and engage in logical processes or abstract thinking. Through *Reason*, the *Intellect* is able to study its own mental operations and develop insight into both sense and understanding, philosophize about the process of knowing and what is known, and thus approach knowing as science. Reason may modify the processes of sense and understanding and in that way raise humans above brutes.

The *Susceptibility*, the second category of mind, encompasses the range of feelings that the mind is capable of experiencing, including subjective motives that prompt voluntary action. Feelings may derive from organic sensations prior to conscious awareness or subsequent to conscious awareness, as in emotions. Hickok is clear about the need to distinguish among feelings and motives with regard to the will and voluntary action, especially with regard to moral responsibility, and so he divides Susceptibility into Animal, Rational, and Spiritual Susceptibilities.

Animal Susceptibilities include sensations that he categorizes as blind feelings, antecedent to conscious awareness that produce impulses to action in a particular direction: in short, instincts. Rational Susceptibilities are of a higher order, and involves emotions categorized as Aesthetic, the love of the beautiful, as manifest in the fine arts; Scientific, the love of truth; Ethical, the basis of conscience; Theistic, the recognition of the existence of a personal Deity. Finally, Spiritual Susceptibilities represent the moral character and disposition of the mind as it experiences religious feelings of a mind connected with a Christian God.

The third division of mind is the *Will*. The distinguishing characteristic of the will, that which differentiates it from the Intellect and the Susceptibility, is that it is confronted with alternatives. Will is a capacity to choose between or among alternatives. That the will is free to choose is attested to by consciousness itself. The sense of responsibility that is part of the mind argues that choices are not governed merely by the motives and passions of animals. In acts of will, there is always an alternative in kind, a different end, than the one chosen. This awareness of the freedom of the will is acknowledged in history, in human language, and the common consciousness of mankind.

Hickok concludes his examination of the mind by asking what the mind is *for*. Its purpose, Hickok contended, is to counter the animal portion of our being to achieve spiritual worthiness. In this way, the mind can attempt to overcome the sinful nature of mankind, engendered by Adam’s fall and the resultant original sin. Hickok was not sanguine that it was possible to achieve spiritual worthiness, but the purpose of the mind was to make the effort to do so. In the later editions of *Empirical Psychology* published with Julius Seelye, this section of the book was omitted and a discussion of the role of psychology as an open door to philosophy was substituted instead. Editions of *Empirical Psychology* (Hickok 1882) published with Seelye as coauthor after the Civil War removed much of the theological concerns from the book, shortened it considerably, and attempted to make it more accessible to, and accepted by, the students and teachers of the last decades of the nineteenth century.

In all its iterations, Hickok’s psychology is of a piece with other attempts of his era to use an examination of conscious experience as the basis for a scientific

understanding of mind. In the decade that followed the 1840 appearances of the textbooks of Upham and Rauch, Haven's *Mental Philosophy* (1857) was published. Joseph Haven (1816–1874) graduated from Amherst College (AB, 1835; MA, 1838), studied at the Union Theological Seminary and at Andover Theological Seminary, was ordained and, after a brief career as a minister, was appointed Professor of Mental and Moral Philosophy at Amherst College in 1851. His textbook was translated into Japanese in 1875 and, in 1889, into Chinese, the first western textbook in that language (Kodama 1991). Haven adopted a tripartite division of mind: *Intellectual Faculties*, the *Sensibilities*, and the *Will*, noting that the arrangement had come into use earlier in America, had been generally adopted as well in Europe, notably in France and Germany, and was well supported by the reasons advanced for this division by Professor Upham. His textbook, like Hickok's *Empirical Psychology* evidences indebtedness to Rauch and German philosophy as well as to Upham and the British philosophical tradition.

Because the subject of mental philosophy had often included other disciplines (e.g., economics, sociology anthropology), Haven proposed that the term *psychology* be employed for the philosophy of mind as a more definite designation for the discipline. Even so, he retained the title *Mental Philosophy* for his textbook; “psychology” did not become commonplace in denoting the study of mind until later in the century, despite its earlier use by Rauch (1840). By whatever name it was to be ultimately known, mental philosophy was, for Haven, like his contemporaries, a natural science that gathered facts of mind from experience, observation, and employed induction to arrive at the laws under which the mind operates. Observations of our own mental phenomena, reports of the observations by others of their conscious experience and inferences from behavior were the sources of information about mind. Its study was important for its own sake and for the practical benefits that might result from knowledge gained to such widely diverse fields as education, oratory, medicine, theology, and other areas of human activity.

The three divisions of mind into which Haven organized mental processes represented modes of mental activity in which the mind operated as a whole. The awareness of its operations and of its

contents constitutes consciousness, a general property of mind that includes attention and conceptions, all of which underlie the operations of the faculties. Haven defended his choice of these terms and the meanings that he gives to them, contrasting his position with those who held different views and noting those whose positions were consistent with his own. The system that he proposed covered the same ground as other textbooks of the time, as competing introductory textbooks in psychology do now, but provided different terms, emphases, and allocated operations to the three modes somewhat differently.

The *Intellectual Faculties* included four properties that Haven termed “powers” of the mind. The *Presentative Power* included the senses and the perception of sense, an awareness of objects and their properties external to us, “presented” to consciousness by the several senses. The *Representative Power* encompassed memory and imagination, in which the mind becomes aware of representations of objects previously sensed or perceived; the representations, or conceptions, may be connected through suggestions, as governed by the laws of association. The *Reflective Power* included the power to make generalizations from particular objects or instances to form a classification that includes all such objects or instances. Similarly, the *Reflective Power* included the processes of abstraction and judgment, as well as the analytic process, or reasoning, operations of the mind that provide the basis for rational thinking and rational behavior. Finally, the *Intuitive Power* is that by which the mind has contained within it primary truths and conceptions, such as ideas of space, time, identity, cause, ideas of the beautiful, ideas of right. Haven finds no clear line between Upham's ideas of internal and external origins, but observes that all depend upon experience, the external source of which may be clear and obvious in some instances but obscure in others.

Before proceeding to his next division of the mind, Haven addressed two issues as “Supplementary Topics.” The first of these, following Rauch, was the nature of the difference between the intelligence, or mental capacities, of humans and animals. The nature of the mind of the latter can only be inferred; the mind of animals is considered in relation to the concept of instinct, understood to be an innate law of action prompted by blind impulse. Animals are not moral

beings and not therefore accountable to a higher power; reason, memory, and other intellectual powers are either absent or present to a lesser degree than such powers in humans, who retain their status as the special creation of God. The second supplementary topic addressed by Haven is that of the influence of states of the nervous system and brain on the mind, with the aim of rescuing this topic from the physiologists to ensure that the study of mind is not merely a series of cerebral activities (materialism). The phenomena so addressed included sleep, dreams, somnambulism, and disordered mental action. He rejects theories that suggest that the powers of mind are suspended in these states, but, as evidenced by dreaming, active, but without the action of the senses and the will. This concern, like the distinction between humans and animals, is ancillary to cataloging and classifying mental processes, but serves to defend the traditional status of mind as independent of the activities of the nervous system and the materialistic interpretation of mind.

Of the 583 pages of Haven's text, 391 are devoted to the discussion and analyses of the *Intellectual Faculties*. Only 123 pages are devoted to the *Sensibilities*, states of mind that may be categorized as agreeable or disagreeable (feelings), and separate from the *Intellectual Faculties* as feeling differs from thinking in conscious experience. Three categories of mental processes are subsumed in the category of the *Sensibilities: Simple Emotions*, (instinctive emotions, the joys and sorrows of everyday life, and rational emotions, aesthetic and moral feelings); *Affections* (benevolent feelings, or the manifestations of love, and malevolent affective processes, manifestations of hate; passions, more intense feelings, are included here as well); *Desires* (those arising from the physical constitution such as animal appetites, and those arising from the rational, or mental, constitution, such as the desire for knowledge). These processes are interdependent with processes of the *Intellectual Faculties*, in that, for example, the power of feelings may overwhelm judgment or rational thinking, and memories may initiate feelings. Haven makes no claim to have exhausted describing all the subtleties of feelings that might be included within the *Sensibilities*, but declared his analysis sufficient to his purpose.

In approaching the faculty of the *Will*, the shortest section of his book (69 pages), Haven recognized the ways in which discussions of the will were embedded in

philosophy and theology, especially with respect to the question of the freedom of the will. He addressed the will as the third category of mind purely in terms of psychology (but added a historical sketch of the relation of the concept of will to philosophy and theology to the conclusion of his book). Haven concludes that the will is free when specific actions are not hindered, as when an individual is not hindered in putting forth volitions, or when an individual is free to do as that individual pleases. He notes the universality of belief in the freedom of the will, the consciousness of the freedom to act, the implication of that freedom in the moral nature of human beings and cites the opinion of many philosophers of mind who support the opinion that the will is free. The opposite of freedom, fatalism, implies the denial of moral obligation and accountability; remorse, for example, can only arise from the realization that one had been free to act differently, and therefore argues for the freedom of the will. The freedom of the will, for Haven, lies not in the physical act that may rest on a volition but in the putting forth of that volition freely, as we choose, to please ourselves. The power of the will varies in strength among individuals; although its power may be part of our natural endowment, education and the development of habits and strength of purpose in life's activities may strengthen the will.

Haven's textbook provides suggestions for reading the philosophers of the past and the textbooks that were contemporary with his own. In considering the categories of mind and the processes that he assigns to each, he provides not only his reasons for the categories and the processes included in them, but also cites authors that agree or disagree with his position. In that way, Haven's textbook provides a convenient and accessible source for assessing some of the differences that were abroad in mid-nineteenth century as the mental philosophers *cum* psychologists wrestled with describing and understanding the nature of the human mind, its contents and processes.

Scottish Philosophy Redux

The tradition established by the Scottish philosophical tradition of the previous century remained alive and well in textbooks until late in the nineteenth century. A late nineteenth-century textbook representative of that tradition, not influenced by German philosophy,

was *Elements of Intellectual Philosophy* (1854) written by Francis Wayland (1796–1865). Wayland graduated from Union College in 1813, apprenticed to become a doctor, and attended medical lectures; in 1816, however, he experienced a religious conversion that prompted him to enter Andover Theological Seminary. After 1 year, he left to serve briefly as Tutor at Union College until he accepted a call to become the minister of the First Baptist Church of Boston, where he was ordained. He became prominent in Baptist circles, was awarded an honorary degree by Brown University in 1822 and was elected Fellow of the Corporation in 1825. In 1826, he was chosen to be the fourth president of the University, a position he held until his retirement in 1855.

Presidents were also professors. Wayland's lectures, read to his students and published as his textbook, were devoted to eight faculties of the *Intellect*. The *Perceptive* faculties reveal the external world to the mind; consciousness makes the mind aware of its own operations and reflection, made possible by an act of volition, focuses the intellect on a continuous thought. *Original Suggestion* connects individual acts of perception or ideas through the mind's intuitive nature. *Abstraction* is the power of the mind to move from the individual instance to the general concept. *Memory* consists of the retention of ideas from the past that may be recalled in the present. *Reason* is that power by which the mind makes use of the knowledge obtained through the other faculties to proceed to new knowledge. *Imagination* is that power to form, at will, new and complex mental images. These seven faculties are those to which Dugald Stewart's *Elements of the Philosophy of the Human Mind* (1833) is devoted. Wayland added an eighth chapter, *Taste*, because he believed the acquisition of knowledge by the faculties of the *Intellect* to be intimately associated with feeling, and *Taste* is the sensibility by which we experience pleasure or pain from nature or art. Although Wayland noted that the soul possessed other powers, namely, a conscience, a will, emotions and motives, his references to these powers, if they occur at all, were made only in the explication of the operation of the intellectual faculties.

Evidence of Wayland's early interest in, and preparation for, the medical profession can be seen in his descriptions of the physiological mechanisms of the

individual senses of the perceptive faculties, from the excitation of the organs of sense to the stimulation of the brain. But Wayland is no materialist. The senses are those with which the Creator has endowed the mind, not the brain; it is the mind that senses, perceives, thinks, and carries out intellectual functions. Sensory impressions of a single quality become perceptions when combined with other qualities to form an awareness of something external to the mind. The knowledge that there *is* an external world is provided spontaneously by the senses of sight and touch, but how the material excitation of the nerves and brain is conveyed to the immaterial soul or mind is, to Wayland, beyond the limits of the mind's understanding.

The mind, for Wayland and his contemporaries, was so created that there is an inherent belief in the truth conveyed by the senses, unless, as in the case of illusions, the beliefs are shown to be false. When an object is no longer perceived, the mind may still retain a *conception* of it, that is, a representation of it that is formed when it is an object of thought. The term *conception* implies more than mnemonic images; abstractions, such as mathematical axioms, and acts of imagination are also conceptions. An act of will may direct attention to a perceived object or to a conception in the mind and, in this regard, Wayland encourages students to develop habits of exercising attention and reflection as they experience the world around them, to reflect on those experiences and, especially, to write about mental experiences as an extension of the habit of reflection. As a further example of his earlier interest in medicine, he also admonishes students that these faculties function best in a healthy body, so he encourages good diet and the avoidance of harmful indulgences.

The perceptual faculties provide evidence of the external world; the resultant mental contents are connected through *Original Suggestion*. Cause and effect relationships are not sensed, not derived from experience, but arise from the intuition that is part of the mind's constitution. The intuition that change is dependent upon some cause is the basis of scientific thinking and experimentation to determine cause and effect relations. *Suggestion* also provides the idea of God as cause, not experienced or sensed. When suggested ideas are combined with emotions, experiences of the beautiful, the sublime, and ideas of morality may result.

Abstraction refers to the intellectual power to analyze, to form generalizations and abstractions. Abstraction forms the basis for the sciences, in systems of classification and the formation of general principles that underlay scientific laws. Abstraction also serves the imagination in the creation of works of art, in poetry or sculpture, for example. Perceptions and conceptions may provide the raw materials, but abstraction moves beyond those to make achievements in the arts and sciences possible

Memory provides the basis for trains of thought, organized by the laws of association (e.g., resemblance, contiguity, contrast, cause and effect) and based on the retention and recall of past events. Memory also is the basis for personal identity, in that the recall of the past in the present implies the continuity of experience of an individual. Memory varies in degree and kind among individuals, changes with age, disease, and injury; such effects on memory, Wayland suggests, deserve further study. Students are urged to strengthen their faculty of memory through practice in recalling past events, or information that they want to remember, to pay attention to events to aid in their later recall, to utilize the principles of association to connect events to time and/or place, and to seek methodological arrangements to facilitate recall. In a concluding note, he conveys his judgment that artificial mnemonic systems do not work.

Reasoning is that impulse, endowed in the mind by God, which uses knowledge acquired by other faculties of the intellect to arrive at new knowledge. The faculties considered prior to reasoning observe, feel, generalize, classify, and remember, but it is reason that uses the data provided to the mind to seek and find new truths. The model for reasoning is that of geometry, in which, from observations of basic elements, reason arrives at larger truths embodied in axioms and general principles. Reasoning moves from the known to the unknown, with certainty in the example of mathematics, or probable certainty in the more practical affairs of life. Deductive logic in syllogistic reasoning exemplifies the manner in which reasoning is carried out, proceeding from accepted truth to new truths.

Imagination is that faculty that takes simple conceptions, changes and combines them, to arrive at complex wholes or images. Abstraction moves from individual conceptions to a general concept, while

imagination creates a singular, individual conception (e.g., the former may create a general conception of a horse, but the artist creates a conception of a particular horse), as the poetic imagination combines individual images into new, original images. Philosophical imagination starts with general truths or laws of nature and combines them into more complicated, complex, more general truths. The poetic imagination is connected with taste or feeling, while the philosophical imagination is connected with understanding, and with scientific truth, often with questions that yield “yes or no” answers. To improve in the use of philosophical imagination, Wayland advises a thorough acquaintance with the known, as a clue to the unknown, in nature.

The use of the intellectual faculties is inevitably accompanied by feelings of pleasure or displeasure. It is through the sensibility of *Taste* that we experience feelings in response to the beauties or deformities of nature and art. *Imagination* may create art, but taste decides on its beauty. Feelings are also involved in the emotions that accompany judgments of right and wrong in matters of conscience. Wayland notes that taste in art and nature changes with time, but also that taste may be improved by acquaintance with, and the study of, the classics, not to copy them, but to emulate them.

The description and analysis of the mind that Wayland presents does not differ in its essentials from that offered by Stewart in his *Elements* of 1833. As a textbook written for undergraduates, it leaves more complex philosophical issues for the supplementary readings suggested at the end of each chapter. In avoiding substantial issues associated with the relationship of faculties of the *Intellect* to those of *Taste*, or attempting to address the role of *Will*, free or determined, in relation to other mental processes, he offers only a partial view of mind. The textbook, in addressing the intellectual processes of mind, provides students with an emphasis most relevant to their role as students, with suggestions designed to aid them in their pursuit of education. Although Wayland had hoped to address other components of mind in subsequent editions of his textbook, he failed to do so. As it stands, Wayland’s textbook testifies to the persistence of the influence of the Scottish common sense realism throughout the nineteenth century.

Summary

The mental philosophers of the antebellum period in the United States approached the study of mind as a science that proceeded inductively from observations organized into taxonomic categories, much as the natural sciences of geology and botany had proceeded in their early periods of development. They buttressed their taxonomies of mind with evidence of the manifestations of mind in human activity, as in the behavior of those afflicted with imperfect or disordered minds, or as recorded in history, literature, or the annals of law or medicine. Their textbooks were designed to provide their students and other readers with a comprehensive catalog of the facts of mind, suitably arranged, to suggest useful applications for improving the mind and behavior.

The pursuit of the proper taxonomy of mind through introspection was supplemented by examining external influences on mental processes and their development, in passing in some texts and at somewhat greater length in others. These “anthropological” concerns raised a number of issues regarding the origin of mind, the relation of mind to the brain, and the differences between the minds of human beings and those of animals. These issues prompted a defense of the special creation of the human mind (as well as the body), the superiority of the human mind over that of animals, and the denial of the materialist position that equated the mind with the brain. These issues broadened the concerns of mental philosophy as the name of the discipline became more frequently designated as psychology.

Postscript

In the aftermath of the American Civil War, many Americans traveled to Europe to expand their horizons through an immersion in European culture and the pursuit of graduate studies not yet available in the United States. Professors of philosophy and theology at German universities had achieved renown and attracted many concerned to advance the study of mind. In the sciences, great strides had been made in physics, chemistry and, especially, in the physiology of the special senses, an area of keen interest to students of mental philosophy. American students were introduced to, and became enthusiastic champions of, the new laboratory experiments introduced to advance the science of mind. They were led, inevitably, to reflect on

the contrast between what they found in the heady atmosphere of the European universities and the colleges that they had left behind. Their conversion to the new psychology facilitated their rejection of the old mental philosophy

The textbooks of the antebellum period continued to be assigned in colleges and universities in the United States after the Civil War. Transitional textbooks, such as Noah Porter’s *The Human Intellect* (1868) incorporated aspects of German idealist philosophy and the new physiological knowledge. James McCosh (*The Cognitive Powers* 1886; *The Motive Powers*, 1887) welcomed the results of the physiological laboratory and incorporated them into his textbooks, but preserved the philosophical tradition of common sense realism and affirmed for his readers that *The Cognitive Powers* was not a textbook of physiological psychology.

G. T. Ladd, trained in philosophy and theology, gathered results produced by the new psychology laboratories for his *Elements of Physiological Psychology* (1888), written from the “physical and experimental point of view” in the service of the older philosophy. He gave credit to the mental philosophers for having identified the mental processes that provided the basis for further progress in psychology, but saw the past attempts to arrange them into taxonomic categories a “barren task” that described, but did not explain, the mental phenomena they so carefully categorized.

G. Stanley Hall, like Ladd, trained in philosophy and theology, returned from Germany to play a significant role in the development of the new psychology in America. He criticized (Hall 1879) the continued use of the insular, old-fashioned, out-of-date textbooks by Upham, Haven, Hickok, Wayland, and others in American colleges and universities. For Hall and his contemporaries, these were the philosophies of the past; the philosophy of the future (Hall 1878) had arisen in the physiological laboratories that provided the basis for a new and invigorated psychology. Similarly, John Dewey (1884) welcomed the new psychology as the dawn of a new age. The old philosophies, in classifying and pigeon-holing mental processes had exhausted the possibilities for discovering new facts about mind and its operations. Science had moved past the stage of taxonomies of mind to raising questions for which experimental trials could be devised to discover new mental facts. Adopting the method of science to the

philosophy of mind meant quantification, replication, and the hope for scientific laws. The experiments of the laboratory had become the *sine qua non* of science.

The new psychologists saw in the methods of the laboratory an opportunity to develop a science that could answer both old and new questions about the nature of mind. Introspection under laboratory conditions was pursued as a valid and objective method to replace the “armchair” analyses of mind characteristic of the “old” psychology while also devising measures of responses that would explicate aspects of behavior and performance that might address the questions of the influences on mind and its functions.

In the last decade of the nineteenth century and the early decades of the twentieth century, psychologists astonished their philosophical brethren with their assault on the citadel of the mind with their brass instruments and laboratory procedures. Psychology gradually emerged during the twentieth century from its academic home within departments of philosophy to an independent academic discipline in a new academic department. Psychologists carried the subject matter of mind and the terms designating its content and processes from the old, mental philosophy to their new laboratories; the methods had changed but the mind had not. The mental processes identified by the introspective examination of consciousness by the mental philosophers of the past constitute many of the chapter headings of contemporary textbooks in psychology, and the investigation of their nature and operation form the content of those chapters.

See Also

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- ▶ [Dewey, John](#)
- ▶ [Hall, G. Stanley](#)
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Analytic Psychology of Carl Jung

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Carl Jung was one of the most important theorists of the Classical period during the growth and proliferation of

dynamic theories of personality (Taylor 2009). The way the psychoanalytic historians tell it, however, and according to Freud's official biographer, Ernest Jones, as well as even the most contemporary article in the encyclopedias, is that Jung was a student and disciple of Freud. Nothing could be further from the truth. Jung himself had said that his Complex Psychology had been in place long before he met Freud (Jung 2009, p. 196). Jung did acknowledge his debt to Freud for introducing him to the symbolism of the hysteric, but Freud was only interested in the content of the image and how that can be traced back to early childhood sexual memories, while Jung wanted to know what function it served in the larger psycho-spiritual life of the person.

In this quest Jung had already gained important clues during the years of his scientific study of the word association test, which he had developed working with schizophrenics. He had designed it after studying the works of Francis Galton, Wilhelm Wundt, and Gustav Aufschafftenberg on the suggestion of Eugen Bleuler, for whom he worked at the Burgholzi Asylum. Bleuler hoped that it would have some diagnostic value, but Jung soon discovered that it was a valuable tool for exploring the patient's unconscious. A list of 100 common words was given to a subject, who was asked to respond with the first word that came into his mind. A stopwatch was used to see how long it took for this response to occur. The response words with the longest latencies turned out to tell a coherent story about the subject's current unconscious mental life in symbolic form, oftentimes to the complete surprise of the subject. What was revealed were the subject's unconscious complexes at work in the immediate moment.

At the same time, Jung eventually took the method of symbolism much further into the mythic dimensions of the Collective Unconscious. In fact, Jung scholars have already established that Jung may have been the twentieth-century exponent of the symbolic hypothesis, but his ideas regarding consciousness derived from the late nineteenth-century psychologies of transcendence around such figures as William James, F.W.H. Myers, Theodore Flournoy, Pierre Janet and the French experimental psychology of the subconscious (Taylor 1996).

What Jung later called his Complex Theory, otherwise known as Analytical Psychology (Jung v.d.), derives from this earlier tradition. Jean Martin Charcot

had demonstrated that under hypnosis a physical symptom such as a paralyzed arm could be induced through posthypnotic suggestion by implanting an idea in the subconscious. Hippolyte Bernheim then demonstrated that this method had both diagnostic and therapeutic applications in the treatment of hysteria (Bernheim 1889). Pierre Janet, Charcot's pupil, with whom Jung worked in the winter of 1902–1903, had demonstrated earlier in 1894 what came to be called the psychogenic hypothesis. Here, the idea was buried in the form of an image, which Breuer and Freud later corroborated (James 1894). The buried idea was the result of an unintegrated fragment of the waking state, such as an unacceptable traumatic experience that had been cast into the subconscious, where it floats around, autonomously acting according to laws of its own, drawing similar experiences to it. When it accrues enough energetic power, the complex can then burst forth into the field of waking consciousness as a physical or mental symptom, or even appear as a full-blown alternating personality (Janet 1894).

Jung, following the reigning dissociation theory of the era, posited that the average person is beset with numerous such complexes as a normal occurrence, for as William James also maintained, each of us has not one but many selves (James 1890). Pierre Janet, Alfred Binet, Theodore Flournoy, and others all subscribed to this theory. The complex becomes a psychic center with its own physiology; it disrupts the emotional apparatus and disturbs a train of thought or action; it acts just like an independent ego, because, as Haule points out (2011 p. 119), the ego itself is just another complex; complexes show themselves in hallucinations, and, finally, they completely victimize the insane. Later in his career, Jung would show how dealing with one's unconscious complexes through a confrontation between consciousness and the unconscious could lead to the spiritual transformation of personality.

Though he died in 1961, Jung, himself, began as a man of the nineteenth century. Named after his grandfather who had been a physician and alleged illegitimate child of Goethe, he was born in Kesswil, Switzerland in July 1875 and raised outside Zurich. His father, a minister and scholar of Semitic languages, was a *seesorg*, appointed to a local asylum, and had a library of both religious and psychiatric texts, while his mother, who came from a well-to-do Swiss family,

was prone to visions and promoted the reality of spiritualistic phenomena among her extensive family members, many of whom showed a similar gift of psychic second sight. One was Hélène Preiswerk, or Helly, as she was called, daughter of her sister and the subject of Jung's medical dissertation.

Jung's decision to become a physician pushed him in the direction of the medical sciences, but in 1898, when he was considering what specialty to enter, he was drawn to psychiatry because he thought it would address some of the burning questions he had been pondering about the dynamics of human consciousness, to which he had already been exposed. The true question for Jung was to become, "where did personality get its motivational force?" (Bair 2003, p. 45).

At first, he was somewhat hesitant, as psychiatry was in the grip of the lesion theory of disease, where all mental symptoms were believed to have an underlying organic cause, and all mental disorders were quickly being reduced to Kraepelin's new psychiatric classification, which later became the foundation for the DSM. The only sources for a truly dynamic psychology of personality he found in Passavant, DuPrell, Swedenborg, and others, eighteenth- and nineteenth-century authors dealing with the interior life of the mind and especially in Swedenborg's case, not only psychopathology but also the spiritual transformation of everyday consciousness (Taylor 2007). *Dreams of a Spirit Seer* (1899), Kant's attack on Swedenborg, first published in 1766, was particularly influential in Jung's thinking. Then Jung read Richard von Krafft-Ebing's *Psychopathia Sexualis* (1892) just before his state examination granting medical certification in 1900. Led by these influences, Jung committed himself to the course in psychiatry.

Immediately after passing his exam, Jung reported to the Burghölzli, the cantonal psychiatric hospital associated with the University of Zurich, to become an assistant to Eugen Bleuler (1857–1939). Bleuler practiced *Anstaltspsychiatrie*, institutionalized treatment characterized by a close relationship between patient and physician. Thus, the entire regime at the hospital was over regulated with regard to daily examinations and reports. Every physician was expected to know everything about every patient. Inmates also participated in the governance of the hospital. The psychotherapeutic treatment of the psychoses became

Bleuler's specialty, in which he emphasized not only contact, but the establishment of rapport, in delivery of therapy to patients who had experienced a complete break with reality. Bleuler had studied with Charcot and Magnan in Paris and Bernard von Gudden in Munich and developed the approach called *affektiver*, rapport, or emotional connection to the schizophrenic patient. But Bleuler was chiefly known as a student of August Forel, the former superintendent. A world-class myrmecologist and brain neuropathologist, Forel had, during his tenure before Bleuler, established the Burghölzli as a world-class institution and at the same time participated as a major player introducing Swiss psychiatry into American psychotherapeutic circles (Bair 2003).

In his new position, Jung spent his first 6 months without going out once. He was introduced to the association experiments of Wundt and Galton, and the recently published *Interpretation of Dreams* (1900) by Freud, although he paid scant attention to Freud's ideas at the time. He was more interested in séances and mediumistic trances and to his surprise, was encouraged by Bleuler, who was also interested in the subject. Out of this interest, Jung began to summarize a year of séances he had held with cousin Helly, which became the core of his dissertation, *On the Psychology and Pathology of so-called Occult Phenomena* (1901).

Jung began this dissertation with a summary of research on the topic by William James, before he turned to Charcot, Flournoy, and Bleuler. He then presented Hélène Preiswerk as his single case study. His position was that psychic powers are perfectly normal accompaniments of certain states of consciousness and do not derive from the supernatural. He believed the investigation of the séance would be transformative for experimental psychology, as it would lead to the development of a more mature psychology of the unconscious. As the Jung scholar Sonu Shamdasani has put it, Jung's medical dissertation focused on the psychogenesis of spiritualistic phenomena, and, agreeing with William James and Theodore Flournoy, Jung believed, regardless of their veracity, that the investigation of psychic phenomena "enables far reaching insight into the constitution of the Subliminal, and hence into human psychology as a whole" (Shamdasani, in Jung, 2009, p. 195). It was approved by the medical faculty in 1901 and published in 1902.

After launching his experimental studies on The Association Test at the Burghölzli (Jung 1906), Jung also engaged in the psychotherapeutic treatment of psychotic patients and summarized his research in *The Psychology of Dementia Praecox* (Jung 1907). Bleuler had assigned him to read Freud's *Interpretation of Dreams*, which he went back and reviewed, and when Jung's book on *Dementia Praecox* came out, he wrote to Freud offering him a copy, also praising Freud, remarking where in the new text Jung had cited him. Freudians later took this as a Freudian text but that was a misreading and also part of the Freudo-centric impression Freud's disciples gave to the early history of psychoanalysis, as if nothing had come before Freud except Charcot. In 1907 Jung traveled to Vienna with his friend and colleague, Ludwig Binswanger, and met Freud in person for the first time. They spent the good part of a day talking, in which Jung described all that he was into, suggesting that Freud never heard anything at the end of their relationship that he had not heard at the very beginning. Myers had died by then. Jung had already studied with Janet, James had passed off into philosophy, and Flournoy was aging. Freud was the only new voice on the horizon, so, despite many differences Jung became absorbed into the psychoanalytic movement. Freud and Jung corresponded frequently, and their letters were preserved in published form by William McGuire, (McGuire 1974). A close reading of their exchange reveals a relationship that might be characterized as a *folie à deux*, a case of mutual excessive projections in which the identity of each was absorbed into the other. Jung was 20 years younger than Freud, but often Freud would subsume himself under Jung, while in later letters Jung would subsume himself under Freud. The point is, that from this vantage point, one cannot call Jung Freud's disciple or even his student, as later analyst-turned-historians have tried to do.

Jung soon was appointed to positions of power and authority, and rose quickly to a position of favor with Freud, such that Jung was declared by Freud as the heir apparent to the psychoanalytic movement. Jung persisted in this vein from 1907 to 1912, without publishing any original research of his own, until he produced *Wandlung und Symbole der Libido* (1912). In my opinion, this was Jung's attempt to accept the mantle Freud had offered him and to do it by producing his own statement deepening and expanding on the

depth psychology of the era and widening the purview of Freud's own version of psychoanalysis.

Jung, as also interpreted by Adler, understood psychoanalysis to be a general rubric that applied to an international movement that had many branches. There was the Zurich School of Jung, the Adlerian School, and the Freudian school of Vienna, for instance. What these independent members of Freud's inner circle failed to comprehend, however, was that they had associated psychoanalysis with a general movement, when in reality, according to Freud, the term belonged to Freud alone, as if he had a personal copyright on it. When Jung published *Wandlung und Symbols der Libido*, Freud took immediate steps to vent his displeasure. He said that he could tolerate differences in their private discussions among themselves, but to contradict The Master in print was unforgivable. In other words, whatever the plans were before, Jung was now out. Their last contact was in 1913.

The Red Book

By 1913, Jung had resigned all his institutional appointments and, while keeping a small private practice, entered into a psychic state of creative isolation. Ellenberger called it a state of creative illness and compared it to Freud's similar inward journey beginning with the death of Freud's father in 1896. For Jung it was a period of extended trance consciousness in which he was able to carry on outwardly as if normal, but the majority of his attention was taken up by a stream of insights and visionary hallucinations in which the depths of his own psyche opened into a deep chasm, revealing what seems to have been like a journey through the Heavens and Hells, now ecstatic and now one of great pain and anxiety. He saw himself presented as a man who had lost his soul and was on a journey to recover it. He was pulled in this regard between "The Spirit of the Times," and "The Spirit of the Deep." The struggle between these two forces returned again and again as he encountered his muse and protectorate, Philemon, and other beings representative of his own psyche. In the end, he had indeed, rediscovered himself, but in a totally new way from the journey he had been on before meeting Freud.

He chronicled his experiences in the style of a continuous stream of charismatic utterances, and, along

with primitive drawings beginning in 1913, codified them in a series of Black Books, which he later painstakingly copied over by hand into ornate Old German script, including elaborate and extraordinarily beautiful full color paintings of mythic symbolism from his own unconscious. This new rendering he called *Liber Novus*, a "new beginning," the original handwritten edition of which he contained in an oversized book bound in red leather, hence, the name The Red Book, as it came to be called (Jung 2009).

Jung worked on this volume into the 1920s, but then set it aside, only occasionally showing it to a few close associates, after being introduced by his friend and Sinologist, Richard Wilhelm, to a Chinese alchemical text, which led Jung back to his own indigenous European alchemical tradition. There are numerous indications that Jung intended to publish The Red Book, though he never did. A draft copy of the text was made at one point, which eventually ended up in the Beineke Rare Manuscript Library at Yale, but that was not discovered until the Jung scholar Sonu Shamdasani found it in 1996. Until then, the original Red Book remained in a drawer in Jung's study at his home at Kusnacht, and when he died in 1961, his heirs eventually transferred it to a vault in a Swiss bank, where it remained unopened for more than 30 years. Sonu Shamdasani, now Professor of Jung History at the University of London, Wellcome Center for the History of Medicine, entered into an arrangement with the Jung heirs to bring *Liber Novus* to print. Providing the painstaking editorial work and acting as a co-translator with Mark Kybertz and John Peck, Shamdasani shepherded The Red Book into print. But it was no regular book. It was a facsimile edition, complete with ornate Old German script and Jung's dramatic paintings in color, with an English translation. The book is 11 1/2" by 15 1/5" and retailed when it came out for \$200. The original printings have already surpassed 60,000 copies and it has since been translated into a dozen languages.

Why is it important? There has always been much speculation about where Jung's ideas came from, Freud being the erroneous but default source. Jung himself said of it in 1957:

- ▶ The years, of which I have spoken to you, when I pursued the inner images, were the most important

time of my life. Everything else is to be derived from this. It began at that time, and the later details hardly matter any more. My entire life consisted in elaborating what had burst forth from the unconscious and flooded me like an enigmatic stream and threatened to break me. That was the stuff and material for more than one life. Everything later was merely the outer classification, the scientific elaboration, and the integration into life. But the numinous beginning, which contained everything, was then. (Jung 2009, p. vii)

There is no Freudian psychoanalysis in this document, which makes it likely the most important piece of evidence that Jung was not merely a student and disciple of Freud. Additionally, though he did not publish it at the time, *The Red Book* served as a model for Jung's patients, whom Jung encouraged to express their inner journey toward wholeness in a variety of artistic endeavors, including the construction of the Oriental Mandala, or the representation of archetypes in the form of paintings and drawings. At the same time, as he has said, it was the *ur*-text for all his later psychology.

Jung's The Architecture of the Psyche

Out of *The Red Book*, the structure of the psyche as Jung eventually saw it began with the persona. This is the mask that we all wear and project out onto the world. It is the most superficial aspect of personality because it is the way we see ourselves as we believe the world sees us, or as we would like the world to see us. The persona protects the ego from full disclosure of oneself to others. The ego, meanwhile, holds a similar executive function to the ego in Freud's model and can be equated with normal everyday waking rational consciousness, to the extent to which most of us are able to achieve it. It is the reality principle, the I or the me about which the cognitive behaviorists make their primary observations.

At the same time, the ego and the personal unconscious remain separated by the shadow, which is represented by all the undeveloped characteristics of personality that the ego denies or is conscious of enough to want to hide from the external world. However, the shadow is also the guardian of the inner door. It prevents material from the personal unconscious from flooding the field of waking consciousness,

except that the barrier is permeable, in the sense that memories, dreams, and other kinds of imagery do get through. It also admits the impressions of daily experience.

Thus, the personal unconscious functions much like Freud's conception of the preconscious, to a large extent. It is also the medium through which the archetypes make their way into the field of waking rational consciousness in symbolic form. The anomaly is that they come from within, from the collective reservoir, and not from external sources. The archetypes, Jung maintained, are inborn psychic structures that condition outer perception and are the means by which the collective unconscious is represented to waking consciousness. There is one's mother, for instance, which has specific significance to the person. We remember her calling our name; we see her face; we remember when she took us to the beach, but then there is also Motherhood, that domain of experience where all mothers share a common motherhood in the most abstract sense of the term. We might refer to this latter as the archetype of the Mother. We might do the same with fathers. There is our father, but there is also Fatherhood, that fraternity that links all fathers as a deep inward experience. Jung posits a variety of these different conceptualizations – the archetype of the Wise Old Man, the archetype of the Eternal Youth, the archetype of the Deity, the archetype of Transformation, the archetype of the Self, and so on. These structures exert a powerful influence on our thought. They are the substance of a culture's fairy tales and children's songs. They embody the myths of each culture. For Jung they dominate our dreams, subtly influencing the stereotypes we employ in our everyday perception of events.

Possibly the most significant archetypes of personality functioning are, respectively, the animus and the anima. The animus is the archetype of the masculine, while the anima is the archetype of the feminine. The masculine principle, which dominates the masculine personality in waking rational consciousness has an unconscious feminine element, just as the Feminine archetype, which dominates the feminine personality, has an unconscious masculine component. In the course of a normal life, the relationship between consciousness and the unconsciousness might remain relatively stable, so each person operates out of

whatever has been the biological and psychological roll of the dice. Engaging in what Jung called the process of individuation, where dialogue begins between consciousness and the unconscious and the ego is challenged by the Self for supremacy of the person's interior life, begins by an encounter of the animus with his unconscious anima, and in women, a confrontation between the anima of the feminine principle and her unconscious animus. The development of a more mature understanding between these elements of the person proceeds through the transcendence of the opposites to a higher and deeper state of consciousness that Jung called individuation – the coming to selfhood of the person, and the achievement of an authenticity unique to the individual.

JUNG'S ARCHITECTURE OF THE PSYCHE

THE EXTERNAL WORLD

THE PERSONA

THE EGO

THE SHADOW

THE PERSONAL UNCONSCIOUS

THE ANIMUS AND ANIMA

THE COLLECTIVE UNCONSCIOUS

©Taylor, 1999

As these experiences occur, the psychic energy embodied in the archetype, conditioning our stereotypes in everyday perception, is liberated, and free to the individual for continued creative growth. We are likewise liberated from our slavery to our stereotypes. If there is no spiritual evolution of the person, then the door to the collective reservoir remains closed, except

indirectly through spontaneous irruptions on the surface of waking rational conscious.

This process can be better understood through Jung's conceptualization of the function of the animus and anima. They are both guardians of the inner door linking the personal unconscious to the collective unconscious. As we have said, insofar as the personal unconscious accrues memories from outward experiences, the psyche also to one degree or another has access to internal images derived from the Collective Unconscious that have no external origin. The Collective Unconscious he posits as a universal substrate in the normal personality that links individual consciousness to a deep, inward universal reservoir of our humanity. In this manner, ontogeny recapitulates phylogeny. In the same way that the evolution of the fetus during gestation through the various stages of biological evolution to the present individual's brain and body, the internal life of the person carries with it the entire mental evolution of the species. Logically, this would likely begin within the person through the gemmates during reproduction, at the moment of fertilization. There is thus an alternative to living one's life only in the outward environment, adopting others' opinions, being defined by one's job and one's material possessions, or one's place in the caste system. One can elect to live more mythically within, where the self-actualizing needs of the person, what Jung called the process of individuation, are not necessarily identical to the adjustment needs of society.

Aside from "Seven Sermons to the Dead," an essay, the only work of Jung's that was written during the period of *The Red Book's* composition that was later published, was Beatrice Hinkle's English language translation of *Wandlung und symbole der libido*, the text in 1912 that had precipitated the break with Freud. Hinkle's title was *The Psychology of the Unconscious* (1916), in which she translated the mythic dimensions of Jung's interpretation of the so-called Miller Fantasies, a collection of tableaux done by Miss Frank Miller, an actress who performed on stages all over the world, acting out scenarios from the Northwest Indians of the United States to the settings of ancient Egypt along the Nile. Hinkle's translation was reviewed in newspapers large and small across the United States, reinforcing fears of the orthodox psychoanalysts that Jung might take the entire

psychoanalytic movement with him when he had left the fold, though this did not happen.

Then in 1921 Jung published *Psychological Types* (Jung 1923), a work that became a classic in type-theory. Individuals were identified by psychic tendencies to extend themselves outwardly as extroverts, or inwardly, as introverts. He further elaborated the types in what functions were predominant – thinking, feeling, sensing, and intuiting. Compensation was always the key, as whatever was dominant had an unconscious opposite that had to be dealt with and analyzed in the process of personal growth, just as every man had buried within him an anima, and every woman an animus.

In my opinion, the primary function of *Psychological Types* for Jung personally was to make a place for himself on the map as an introvert, which for the rest of his life he developed into more and more. In the 1920s, he produced some papers on the technique and theory of what was by then called Analytical Psychology, and undertook to write in manuscript form about The Vision Seminar, which was finally published a half century later. Toward the end of the 1920s he was then introduced by Richard Wilhelm to the Chinese Taoist text on spiritual alchemy called *The Secret of the Golden Flower* (Wilhelm 1931), for which Jung wrote a psychological commentary to accompany its publication. This led him back to the European alchemical tradition, which he worked on for the rest of his life, as in it, he found the historic link he had been searching for tying contemporary consciousness to the primordial roots of consciousness itself as far as Western civilization was concerned. Texts on *Psychology and Alchemy* (1953) and the final work of his career *Mysterium Coniunctionis* (1964), found among his Collected Works, were the result of this effort to understand the inner alchemy of personal transformation.

The Ethics of Transcendence

John Haule described how Jung's followers understood Jung on ethics. (Haule 2011, v.1, 184–185). People who live in relative ignorance of their inner lives almost exclusively follow the laws laid down by others, which they have introjected. Their sense of right and wrong is dictated through their family, their religion, the clan, the neighborhood, and the milieu in which they live from day to day, but presented in mythic form, from

which they gain their power over the person. According to Haule, Erik Neumann has called this the ethics of the masses. They tend to be self-righteous and resentful of those who break their introjected ethical laws. A second level of ethical behavior comes from elites who interpret the external laws and morays and values, not in terms of the behavior of others, but in terms of themselves. Whenever they break a rule, they chastise themselves and try to do better. They look up to others who have spoken with a prophetic voice, such as Jesus, Mohammad, or Buddha. They are the saints to the masses who are striving for self-development through outward forms. The third level of attainment is where, within the dialogue between the ego and the Self, consciousness plumbs the depths, and ethical decisions are always made against this inner norm, the goal of which is individuation.

Individuation by Means of the Transcendent Function

The *summum bonum* of Jung's dynamic theory of personality was his concept of individuation by means of the transcendent function (Jung 1963). Individuation for Jung meant the actualization of one's uniqueness as a fully functioning person, a process that might begin any time, intentionally, or by accident at some crucial moment in a person's life. As we have alluded, it is the beginning of a dialogue between consciousness and the unconscious in such a way that the ego cedes control of personality to the Self as the person reaches true spiritual maturity. One acknowledges the rational, but adopts a more sophisticated attitude toward the nonrational. One moves from a lower state of ego conscious integration to a higher state spiritual integration. The means by which this is accomplished is through the juxtaposition of the opposites. As consciousness confronts the unconscious, the animus in man integrates and transcends the anima within himself, just as the anima in a woman confronts her own unconscious animus and resolves the antinomy by transcending to a higher level of awareness. Jung contends that this can occur in the face of the paradox of the opposites, if one would but sustain one's attention on that process. The result is not a rational and logical conclusion, but an insight into the nature of the whole that is resolved by the experience of transcendence. Artists seem more prone to handle this

naturally, while scientists who function almost exclusively according to the rational ordering of sense data alone usually cannot. Individuation by means of the transcendent function remains one of Jung's most lasting contributions to depth psychology, as well as to the psychology of religion, but it is a construct found neither in mainstream experimental psychology nor in orthodox Freudian psychoanalysis.

Jung's orbit during the course of his lifetime, aside from the early University and asylum work, centered around his library at his home in Kusnacht, just outside of Zurich, and Bollingen, a stone house that he built on the edge of Lake Zurich. There was also the Analytical Psychology Club of Zurich, where Jung lectured to colleagues, students, patients, and "the fur coat ladies" (Shamdasani 1998). For years, he traveled to Lake Maggiore at the Swiss-Italian border to a conference center called Eranos, started by Olga Froebe-Kaptyne in 1933 (Quaglino et al. 2007). The annual conferences, which focused on religion, philosophy, folklore, and spirituality, attracted the likes of Marcia Eliade, Roberto Assagioli, Henry Corbin, Paul Tillich, and others, and became a platform from which Jung launched several of his most important papers. He also traveled widely, visiting Africa, India, England, and various German-speaking countries, including Vienna. He had a particularly wide following in the United States. *The Cambridge Companion to Carl Jung* (Young-Eisendrath and Dawson 1997) identifies three schools of Jungian thought. With the exception of Jung's impact on the British psychoanalysts, such as Michael Fordham, there is the Zurich School, centered around the C. G. Jung Institute, representing the orthodox view of Jungian psychology (Cambray and Carter 2004), the school started by Maria von Franz (1992), and the lineage of Archetypal Psychology defined by James Hillman (1975, 2004). Beyond these distinct lineages in the Jungian tradition there are literally hundreds of thousands of people who have read Jung to reinforce their own idiosyncratic journey toward spiritual self-realization as a life-time practice. In addition, though we now live in a Post-Freudian era, Jung's psychology seems to be coming more into its own as a vehicle by which western spiritual consciousness can gain entry into the indigenous psychology of non-western epistemologies in an attempt to assess the

contribution that non-technological cultures have to make toward a definition of world mental health.

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Anastasi, Anne

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Anastasi, Anne (December 19, 1908–May 4, 2001) was known internationally as a pioneering psychologist, psychometrician, author, teacher, consultant and, in 1987, the first psychologist to receive the US National Medal of Science in Psychology.

Anne Anastasi was the only child born to first-generation Italian-American parents – Anthony and Theresa (Gaudiosi) Anastasi – in Bronx, New York, in 1908. Anthony died when Anne was 1 year old, and her single mother's family home-schooled Anne. A gifted student, Anne entered Columbia University at age 16, completing her B.A. with honors in 1928 at age 19, and her Ph.D. in 1930 at age 21. Her initial goal was mathematics, but she was inspired to shift into psychology in Columbia, and combine these two fields for the remainder of her career, summarized in [Table 1](#).

Even among other legendary psychologists, Anne's career stood out in several ways. (1) *Longevity*. From 1930 to 2001, Anne's long career of 71 years spanned over half of the 130-year history of psychology itself. (2) *Breadth*. Despite growing specialization, no psychologist exhibited a broader ken, which seemed to span all of the many specialties within psychology. Throughout her three classic *magnum opus* – *Differential Psychology* (three editions), *Psychological Testing* (seven editions), and *Fields of Applied Psychology* (two editions) – readers could not help but be impressed by her flawless knowledge of all of her field. (3) *Diversity*. No one psychologist has occupied more diverse roles within psychology – teacher, researcher, mentor, administrator, and consultant. She taught for 49 years – from 1930 to 1979. She was a prolific scientist and author of over 200 award-winning books, monographs, articles, and other publications. Her leadership of many groups included the Presidency of the American Psychological Association in 1972. As an expert consultant to the Educational Testing Service and similar groups, she was one of the architects who shaped educational testing in the Twentieth Century, making the USA the world leader in this area. (4) *Cross-cultural*. As far back as the first edition of her tome *Differential Psychology* in 1937, Anne was a prescient champion of cross-cultural psychology long before diversity became a central value within psychology. At the same time her own work on psychological testing was translated into a dozen languages worldwide, even in nations like Russia and Iran where western tests were suspect. (5) *New York*. Anne was a petit woman whose long life of 91 years was lived entirely in a 12-mile radius within New York City – at Barnard (1930–1939), Queens College (1939–1947), and Fordham (1947–2001). Meanwhile, few psychologists were more widely known worldwide, and so many overseas psychologists visiting the USA made a pilgrimage to the Bronx for an audience with Anne that some psychologists dubbed her university “Anastasi U.” (6) *Love of students*. After radiation therapy for ovarian cancer left Anne infertile in her 20s, she explained to colleagues how this led her to focus totally on psychology, and regard her students as children. Years before Anne's death, she carefully established the Anne Anastasi Foundation, to ensure her multimillion-dollar estate would directly benefit

Anastasi, Anne. Table 1 Anne Anastasi (1908–2001)

1908, Dec 19: Born in Bronx, NY, home-schooled by her mother Theresa, a widow	
1928: BA with honors, Barnard College, age 19	
1929: Attends the 9th International Congress, Yale	
1930: Ph.D., with Henry Garrett, Columbia, age 21	
1930–1939: Taught at Barnard	
1933: Married John Porter Foley, I-O psychologist	
1934: Survived radium therapy for cervical cancer	
1937: Debut #1: <i>Differential Psychology</i> (three editions)	
1939–1947: Chair of psychology, Queens College	
1946: President, Eastern Psychological Association	
1947–1979: Professor of psychology, Fordham	
1954: Debut #2: <i>Psychological testing</i> (seven editions)	
1956: President, APA Division of General Psychology	
1964: Debut #3: <i>Fields of Applied Psychology</i> (two editions)	
1965: President, APA Division of Testing	
1972: President, American Psychological Association	
1977: ETS Award, Disting. Svc. to Measurement	
1979: Honorary D.Sc., Fordham (1 of 5)	
1981: Award, APA Distinguished Scientific Contr	
1984: Award, APF Gold Medal	
1987: Award, the first National Medal of Science for psychology, from President Reagan	

1996: Final seventh edition of *Psychological Testing*, with Susana Urbina, immediately in nine languages

2001, May 4: Passes away at home, 121 E. 38 St., NYC

Photo Caption: In 1988 in New York City, a Russian psychology team headed by B.F. Lomov visited Anne Anastasi (center)



At the US White House in 1987, Anne Anastasi received the first National Medal of Science in Psychology from fellow septuagenarian Ronald Reagan



students of psychology, and she hand-picked her life-long friend Jonathan Galente to head her Foundation. To mark her centennial in 2008, Galente collaborated with APA to launch the Anne Anastasi Award to recognize outstanding graduate students in psychology.

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Angell, James Rowland

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Basic Biographical Information

Angell, known for his exposition and advocacy of psychological functionalism as opposed to the structuralism of Edward Bradford Titchener (1867–1927), was born in Burlington, Vermont, on May 8, 1869, and died on March 4, 1949, in Camden, Connecticut. That he chose an academic career – 27 years as a teacher and a researcher and 17 years as an educational administrator – that culminated in his election to the presidency of Yale University seems not surprising, for his father James Burrill Angell (1829–1916) served as president of the University of Vermont and then the University of Michigan, and his maternal grandfather Alexis Caswell (1799–1877) served as president of Brown University.

Like others of his era, Angell “had come up to psychology through philosophical channels” (Angell 1930, p. 23), for he began his study when the separation of psychology as a scientific discipline separate from and distinct from philosophy was well underway, but not yet complete. He began his university studies at the University of Michigan where during his second year he

studied logic and psychology. The study of psychology based on John Dewey’s (1859–1952) recently published text (most likely Dewey’s *Psychology* published by Harper & Bros., 1887) “opened up a new world” for him. Besides work in the usual branches of philosophy – ethics, aesthetics, and metaphysics – he took Dewey’s course on Hegel’s (1770–1831) logic and James H. Tufts (1863–1942) course on the history of philosophy. He took Dewey’s advice and remained at Michigan to earn a master’s degree in 1891. As a graduate student, he took Dewey’s seminar devoted to William James’ (1842–1910) newly published *Principles of Psychology*, a work that “unquestionably affected [his] thinking for the next 20 years more profoundly than any other” (Angell 1930, 5). He then again took Dewey’s advice and enrolled in the Graduate School at Harvard where his studies were divided between work under James and Josiah Royce (1885–1916). With Royce he took a seminar on Kant (1724–1824). With James he took a seminar devoted to abnormal psychology and worked in the laboratory that James had established, the laboratory that Hugh Münsterberg (1863–1916) made famous.

After his year at Harvard, Angell had an interest in studying abroad in Wilhelm Wundt’s (1832–1920) laboratory at Leipzig and with Münsterberg at Freiburg. However, Münsterberg was then on his way to Harvard, and there were no places available in Wundt’s laboratory. He then went on to Berlin for a semester and then to Halle where he completed a thesis on how Imanuel Kant (1724–1824) treated freedom in his *Critique of Pure Reason* and his *Critique of Practical Reason*. His thesis was conditionally accepted. The authorities wanted it presented into more acceptable German. However, rather than rewriting his thesis, he accepted a position as an instructor of psychology and philosophy at the University of Minnesota. There he taught elementary psychology, metaphysical ideas, laboratory methods, and organized the psychological laboratory. His tenure at Minnesota was brief, for he accepted an invitation to join Tufts and George Herbert Mead (1863–1931) at the University of Chicago where Dewey had just become chair of the department that included philosophy, psychology, and pedagogy. He was appointed as an assistant professor in charge of the psychology courses and the psychological laboratory for which he had an assistant.

Major Accomplishments/ Contributions

Angell, probably the most important and most influential functionalist in psychology, can be said to have developed his functionalism on the basis of Dewey's 1884 exposition of the new psychology and his 1896 article on the reflex arc concept. He early rejected the notion that the individual was "a neatly dovetailed psychical machine who may be taken as an isolated individual, laid on the dissecting table of analysis and duly anatomized" (Dewey 1884, 278). Functionalists recognized "mental life as an organic unitary process developing according to the laws of all life, and not a theater for the exhibition of independent autonomous faculties, or a *rendezvous* in which isolated, atomic sensations and ideas may gather, hold external converse, and then forever part" (Dewey 1884, 285). Dewey had no difficulty with the reflex arc concept that psychologists had borrowed from physiology, but with the reading into it old conceptions that rendered it into a "patchwork of disjointed parts, a mechanical principle of unallied processes" (Dewey 1896, 358). The functionalists opposed reducing reflexive behavior into simple component parts such as stimulus and response and rejected the claim that they could be studied apart from one another.

Angell's first effort at explaining functional psychology as opposed to structural psychology appeared in 1903. In 1904, he published his text, *Psychology: An Introductory Study of the Structure and Function of Human Relations*, in which he observed that the current fashion in psychology was moving away from investigating mind's structure and its component parts and toward investigating "how consciousness develops and how it operates" (Angell 1904, iii). His most often cited statement on functional psychology was his 1907 article based on his 1906 presidential address to the American Psychological Association. He then explained that functional psychology was interested in discerning and portraying "the typical operations of consciousness under actual life conditions" as opposed to analyzing and describing "its elementary and complex contents" (Angell 1907, 62–63). He later related that functionalism was "concerned first with the identification and description of mental *operations*, rather than with the mere *stuff* of mental experience" (Angell 1930, 28).

Angell explained that according to the functionalists, "reflective consciousness and the philosophical disciplines are seen as having a necessary and essentially organic relationship to one another." Those who studied "the adaptive functions of conscious process" were inevitably themselves considering "the realistic logic, ethics, and aesthetics of our daily deal" (Angell 1930, 29). Just as Angell's functionalism can be seen as based on Dewey's earlier work in psychology, so can Dewey's philosophy be seen as having benefited from Angell's functionalism. As Jane Dewey reported in her biography of her father, Angell's functionalism "played a part developing the logical theories of Dewey and in making a bridge from his logical to his moral theory" (Dewey 1939, 32).

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Ansbacher, Heinz

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Biography

Heinz Ansbacher was born October 21, 1904, in Frankfurt am Main, Germany, the son of a banker. He left college after 2 years and emigrated to the United States in 1924, where he first took a job on Wall Street. Ansbacher first encountered Alfred Adler while the latter lectured at Columbia in 1930. Upon Adler's suggestion,

Ansbacher enrolled in Columbia and earned his Ph.D. in psychology there in 1937. He wrote his doctoral dissertation on the perception of number as affected by the monetary value of objects. Adler also introduced Ansbacher to his later wife, the psychologist and coauthor Rowena Ripin Ansbacher. The couple had four sons.

Ansbacher served on the faculty of Brown University from 1940 through 1943 and worked for Walter S. Hunter as an editor for Psychological Abstracts. Following this time period, Ansbacher was employed by the Office of War Information writing air-drop leaflets to convince German soldiers to give up the war effort.

Ansbacher joined the faculty of the University of Vermont (UVM) at Burlington in 1947 and resided there until his death in 2006. Ansbachers' children Max (UVM'57), Ben, Ted (UVM'68), and Charles Ansbacher have given the University of Vermont an endowed gift of \$350,000 to establish the Heinz and Rowena Ansbacher Green and Gold Professorship in psychology. The professorship will be awarded to a faculty member whose teaching and scholarship focuses upon the enhancement of individual and collective human strengths, virtues, and citizenship as exemplified in the teachings of Alfred Adler.

Accomplishments

Heinz and Rowena Ansbacher both worked directly with Alfred Adler as scholars and editors and are considered among the leading early followers of the Adlerian school of thought. Adler, along with Freud and Jung, was a founder of European depth psychology. Adler eventually broke with Freud, a fellow Austrian, over the predominant role that Freud gave to sexual desire and repression in neurosis and abnormal behavior. Adler developed the theory of the inferiority complex, its role in the drive for power, and he emphasized the importance of social interest and relations in regard to human development and pathology. Though his ideas eventually gained wide acceptance, Adler had difficulty translating them into readily comprehensible writings. It was here that Heinz Ansbacher and his wife were able to help.

Together with his wife Rowena, Ansbacher wrote *The Individual Psychology of Alfred Adler: A Systematic Presentation in Selections from His Writings* (Ansbacher and Ansbacher 1956), which was published in 1956 and remains the basic reference in the field. They also

authored *Superiority and Social Interest* (Ansbacher and Ansbacher 1964) and, they edited and translated *Cooperation Between the Sexes* (Adler 1978).

In 1958, Heinz Ansbacher took over the editorship of *The Individual Psychology News* and renamed the periodical the *Journal of Individual Psychology*. Under his editorship, which continued until 1974, the journal maintained high academic standards and was devoted to “a holistic, phenomenological, teleological, field theoretical, and socially oriented approach to psychology and related fields” endeavoring to “continue the tradition of Alfred Adler’s Individual Psychology.”

Among his distinctions and honors were being named a Fulbright lecturer at the University of Kiel, Germany, and serving as president of the North American Society of Adlerian Psychology. Heinz and Rowena Ansbacher were awarded honorary Doctors of Letters degrees by the University of Vermont in 1980 in recognition of their “major contributions . . . and many years of service.”

See Also

► Adler, Alfred

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Anthropology and Psychology, Case of W. H. R. Rivers

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- “A body of organized processes which can be described and classified, and their relations in space and time studied.” (Rivers [1916]1926, p. 4)

On her way back from Samoa in 1926, Margaret Mead (1972, p. 157) “met a young New Zealand psychologist, Reo Fortune, who had just won a 2-year fellowship to Cambridge University as a prize for an essay he had written on dreams.” According to Mead (1972, p. 158), Fortune “had saturated himself in the work of W. H. R. Rivers, the Cambridge don whose work in physiology, psychoanalysis, and ethnology had excited people right round the world.” Rivers had died, unexpectedly and quite alone in his college rooms, in 1922 at the age of 58. Nonetheless, Rivers “was the man under whom [both Mead and Fortune] would have liked to have studied.”

Mead’s (1928) doctoral dissertation, completed on the basis of library research prior to her journey to Samoa, shows Rivers’ influence. She would surely have known of Rivers’ (1914a, Vol. 1, pp. 363ff) comments on Samoa and his extensive writings on kinship (especially Rivers 1900, 1910, 1914a, Vol. 2, pp. 556ff, b).

Fortune would surely have known Rivers’ book, *Conflict and Dream*, originally published in 1923. Fortune (1927) would shortly publish his own book on dreams.

Fortune was not the only person in Mead’s circle impressed by Rivers. Rivers’ biographer, Richard Slobodin, studied at Columbia University under Ruth Benedict late in her life. Both he (Slobodin 1978, p. 140) and Ruth Benedict’s biographer, Margaret Caffrey (1989, pp. 142, 180), note that Benedict thought highly of Rivers. Benedict was part of a group of professors, according to Slobodin, who convinced the graduate students, in principle, to side with Rivers (1900, 1910, 1914b) against A. L. Kroeber (1909) on key matters of kinship and social organization. Kroeber, like Benedict, was a preeminent student of Franz Boas and a leader of the movements in American anthropology which arose from the department at Columbia. Caffrey (1989, p. 142) makes special mention of Benedict’s regard for, even debts to, Rivers’ book *Instinct and the Unconscious* published in 1920 and reissued in a second edition in 1922, of which more later. More recently, Virginia Young (2005, pp. 289, 293, 307, 315) has reconstituted several of Benedict’s late life lectures which make several highly complementary references to Rivers.

Benedict made explicit reference to Rivers in *Patterns of Culture* of 1934. For Benedict (1934, p. 232), Rivers had been among the first to get to the crux of

cultural selection by which some “behavior under consideration [passes] through the needle’s eye of social acceptance.” “It is not merely psychology which is in question, it is history,” a history not discoverable through introspection (Benedict 1934, p. 232). Thus, Rivers

- ▶ pointed out that instead of trying to understand the blood feud from vengeance, it was necessary rather to understand vengeance from the blood feud. In the same way it is necessary to study jealousy from its conditioning by local sexual regulations and property institutions. (Benedict 1934, p. 232; cf. Rivers [1916] 1926, pp. 8ff)

Nor was the circle around Benedict, of which Fortune was to become a part after his marriage to Mead, the only one in which Rivers has been treated with great respect. In his essay, “Do Dual Organizations Exist?,” Claude Lévi-Strauss ([1956]1963, p. 162) proclaimed, “Anthropology found its Galileo in Rivers, its Newton in Mauss.” He continued, hoping that “the rare so-called dual organizations still functioning may find their Einstein before they—less enduring than the planets—disintegrate.”

Dual organization refers to a sort of kinship organization. Such societies are divided into two sections or moieties, these sections being exogamous so that a person’s spouse must belong to the other moiety. Kin terminology classifies groups of people together so that a man would often use the same term for his wife and his mother’s brother’s daughter (and all women of her moiety and generation), while a woman would likely use the same term for her husband and her father’s sister’s son (and all men of his moiety and generation). Indeed these two cousins, matrilineal cross-cousins, often marry.

Rivers also garnered great respect among psychologists. Charles S. Myers (1923) devoted his presidential address to the Psychology Section of the British Association to a lengthy and detailed assessment of Rivers’ work and influence. Myers (1936, p. 228) credited Rivers with doing much “to promote the scientific status and recognition of [psychology] in Great Britain.” Myers (1936, p. 228) continued:

- ▶ It always seemed to me that his [i.e. Rivers’] earlier laboratory work, carried out when he was much more

diffident and cautious than later, was of immensely greater value and reliability. To him I owe the great importance which... I have come to attach to a strict training of the experimental psychologist in the psychological methods. To him I owe, too, the great interest I have always taken in individual mental differences and the balance I have striven to hold between the value of the results obtained from each individual and the value of the blurred, often meaningless, though statistically reliable, data obtained from large mass studies.

Sir Frederick Bartlett (1936, pp. 40, 41), defining himself as a Cambridge psychologist, noted that the Cambridge Expedition to the Torres Straights “put a social and ethnological stamp upon Cambridge psychology and this has done more than anything else to make Cambridge psychology human as well as scientific.” He noted that the expedition “brought Myers permanently over to psychology” and took “Rivers definitely over to anthropology.” Thus, Rivers exercised great influence over Cambridge psychology.

Titchener (1916), founder of Cornell University’s psychological laboratory, reviewed the work Rivers undertook with William McDougall on color vision and bodily sensation as part of the Cambridge Expedition to the Torres Straights. Titchener treated this work as worthy of lengthy discussion, if only to make clear his reservations concerning Rivers’ and McDougall’s conclusions.

Ernest Jones (1920) devoted a lengthy review to Rivers’ book *Instinct and the Unconscious* of 1920. Jones (1920, p. 470, see also Rivers 1922, p. 119) noted that Rivers aimed “to provide a foundation for a biological theory of the psycho-neuroses.” *Instinct and the Unconscious* was unique in attention to the war neuroses (see below). “The fact that exceedingly few psycho-analyses of war-neuroses could be made, not one of which has been published, speaks for itself” (Jones 1920, p. 471). Nonetheless, “Dr. Rivers has produced a work that is interesting, stimulating, and in many respects original” despite “an imperfect investigation of an aberrant form of neurosis” (Jones 1920, p. 471). The result was “a notable attempt to correlate the principles of biology, physiology, psychology, and psycho-analysis in relation to the problems of the neuroses” even if Jones (1920, p. 476) would

have preferred Rivers to have stated “his conclusions in a more tentative manner” and with greater adherence to Freudian terminology.

Edward Sapir (1921) also wrote a timely, if not as flattering review of *Instinct and the Unconscious*.

Many of Rivers’ (1923a, b, 1924b, 1926a) essays were gathered together posthumously and published as part of the prestigious International Library of Psychology, Philosophy, and Scientific Method. Another volume (Rivers 1924a) appeared as part of the History of Civilization series. David Schneider and Sir Raymond Firth considered Rivers important enough that they brought out a new edition of *Kinship and Social Organization*, adding their own commentaries as well as including Rivers’ essay “The Genealogical Method of Anthropological Inquiry” in 1968 (see Rivers 1910, 1914b).

Thus Rivers, whether one agreed with him or not, was a figure of significant importance.

A Professional Life, Briefly

Originally trained as a physician and a neurologist, in 1892 Rivers studied for a time in Jena, “attending the lectures of Eucken, Zeilen, Binswanger, and others” (Myers 1923, p. 152). Rivers later worked under Hughlings Jackson, a founder of British neurology especially well known for his work on epilepsy, at the National Hospital, Queens Square. Fluent in German from his time in Jena, Rivers also worked and co-authored an article with Emil Kraepelin, the pre-eminent psychiatric nosologist of the day, on their joint researches concerning fatigue and rest (Kraepelin and Rivers 1896). On the basis of his reputation as a careful and thorough experimenter, Rivers became the first lecturer at the psychological laboratory at Cambridge University.

His work brought him to the attention of Alfred Cort Haddon who invited Rivers to take part in the Cambridge Torres Straights Expedition of 1898. Reluctant at first, Rivers recommended his students Myers and McDougall, before joining them and Haddon, among others, on the expedition himself. Rivers took charge of the experiments on the discernment of colors as well as a systematic study of kinship terminology and its relations to social organization. This was perhaps the first systematic study of kinship since the work of Lewis Henry Morgan (1877) over 20 years before. I will

return to Rivers on kinship below. The Torres Straights Expedition was a regional survey, rather than the sort of intensive field study that Rivers would pioneer among the Todas during the next decade (on the Cambridge Straights Expeditions, see Herle and Rouse 1998; Stocking 1995, pp. 98ff, 184ff; on the Todas, see Rivers 1906). Rivers returned to Cambridge relatively quickly, spending 6 months in the Straights. He returned to Melanesia at least twice more.

Beginning in 1903, Rivers undertook a pioneering experiment in nerve regeneration with Henry Head.

At Cambridge, Rivers' students and younger protégées included both anthropologists, such as A. R. Brown (later Radcliffe-Brown), and psychologists, such as Bartlett, who like Rivers would continue an interest in both psychology and anthropology while at Cambridge's psychological laboratory.

Among Bartlett's protégées, one must count Gregory Bateson, Mead's third husband, and yet another figure with a great interest in both psychology and anthropology. Gregory Bateson did not study with Rivers. Rather his older brother Martin Bateson did, while Gregory Bateson came under the influence of Haddon and Bartlett, Rivers' close friends (see Lipset 1980, pp. 80, 82, 102, 122, 124).

Myers (1923, p. 167) reported that "In 1915 [Rivers'] psychological and ethnological researches were recognized by the award to him of a Royal Medal by the Royal Society, of which he had been elected a Fellow in 1908."

During the first World War, Rivers served in the Royal Army Medical Corps as a psychiatrist, first among private soldiers at Maghull, near Liverpool, and later among officers at Craiglockhart, in Edinburgh. He subsequently worked with aviators, acting as a "consulting psychologist to the Royal Air Force, being attached to the Central Hospital at Hampstead" (Myers 1923, p. 167), taking himself through the rigors of flight in order to understand better their particular experiences. The war, thus, put a halt to Rivers' work on kinship, but not to his interest in the relations between psychology and social organization.

During this era, Rivers began a reading and critique of the work of Sigmund Freud, a subject to which he returned not only in *Instinct and the Unconscious* but also in both *Conflict and Dream* and a series of lectures published as *Medicine, Magic and Religion*. In this

work, Rivers reformulated Freud's notion of the unconscious to include the operations of such instincts, as Rivers called them, as self-preservation and its allied emotion of fear as well as gregariousness with its associated senses of loyalty and shame. Rivers did this while considering the circumstances of trench warfare and the generation of those neurosis and psychosis associated therewith under the "unfortunate and misleading term 'shell-shock'" (Rivers 1922, p. 2), in dreamwork and in medical practice more broadly. I shall return to this latter work, especially a portion of *Instinct and the Unconscious*, as it shows well Rivers' interest in the relation of emotion and social circumstance, of psychology and social organization, as well as prefiguring Bateson's ([1956]2000) conception of the double-bind.

After the War, Rivers returned to Cambridge University. His friends and colleagues found him noticeably more outgoing. He lectured widely and served on important national committees. He took part in reorganizing materials to better standardize the methods used in anthropological and psychological researches. At his death in 1922, Rivers was running for a seat in Parliament as a member of the Labor Party.

The Fate of Rivers' Reputation

For all his many accomplishments, Rivers is now largely forgotten. He is perhaps better known today through the novels of Pat Barker (1991, 1993, 1995) than because of his own published works. Reputations fade with time not necessarily because better theories are formulated but because of neglect and the pride of those who come later.

The sorts of experiments which Rivers undertook on vision have long since ceased to be replicated. Even before his death, Rivers' memory was being effaced. In 1920, an unsigned commentary Anonymous (1920) on Henry Head's *Studies in Neurology* which appeared in *The British Medical Journal*, Rivers' name appeared only in the footnote providing publishing information, even though Rivers had been directly involved in certain of the experiments undertaken with Head. By the time Paul Whittle (1997) felt it necessary to revive memory of Rivers within the Department of Experimental Psychology at Cambridge, these experiments were associated with Head alone.

Despite Jones' review, Rivers has vanished from the history of psychoanalysis. He goes unmentioned in

Reuben Fine's (1979) *A History of Psychoanalysis*, for instance. Nathan G. Hale, Jr (1995, p. 22) reports that Rivers' "lukewarm endorsement of Freud" in *Instinct and the Unconscious*

- ▶ angered the *New York Times*. In an article that may have been inspired by [A. A.] Brill [Freud's American translator], Rivers was accused of at once disparaging Freud and adopting his views. He was a Freudian without honestly admitting it, a superb specimen of Freudian "conflict and repression."

Brill's reaction, if Hale is to be accepted, thus, differed from Myers (1923, p. 169) view that Rivers "had the courage to defend much of Freud's new teaching when it was condemned *in toto* by those in authority."

In anthropology we find a similar process, with a few more elaborations.

In his Presidential Address to the Anthropological section of the British Association for the Advancement of Science in 1911, Rivers broke publicly with the social evolutionism then prevalent among anthropologist. In Britain, Sir Edward Burnett Tylor had published studies suggesting that animism begat religion which in turn gave way to science. In America, Morgan's work on kinship suggested a development from a promiscuous horde via group marriage to monogamy. There were still other examples. Such unilineal social evolutionary theories should not to be confused with biological evolution in the work of Charles Darwin and others.

In social evolution's place, Rivers put history. His notion of the movement of peoples and the diffusion of sets of practices and ideas across the landscape plainly differentiates Rivers' idea of the complexity of history from the comparative simplicity of unilineal evolutionary schemes, with their insistence upon a single unfolding teleology, independent invention, and the pre-logical or irrational mentality of the more "primitive" or "ruder" communities of humanity. Like Boas before him, Rivers' experience of such technologically simpler societies had convinced him of the very precise and logical thought of such people, of their careful observation of natural phenomenon. In this Rivers, again like Boas, prefigured Lévi-Strauss.

Rivers (1926c, p. 261) hoped his version of a speculative history would stimulate further research. Rivers (1914a, Vol. 1, p. vi) did not expect the complicated "scheme of Melanesian history. . ." he advanced would

- ▶ be fully confirmed by further research; it may even have to suffer radical change as new facts come to our knowledge, but it is my hope that such modification, or even destruction if it comes, will be due, not to faults of method, but to the insufficiency of the facts to which these methods have been applied.

Rivers only entertained two sorts of possibilities: diffusion (which he associated with history and the contact of migratory peoples) and independent invention (which implied for him "the crude evolutionary doctrine of the time" [Rivers 1914a, Vol. 1, p. vi]). He did not give any apparent consideration to the possibilities or consequences suggested by notions of convergent evolution where similar circumstances and constraints tend to yield similar solutions to similar problems, as did prominent Boasians such as Robert Lowie (1912) and especially Goldenweiser (1913).

Rivers (1926d, p. 272) could consider "an element of culture acquired by the megalithic people in the course of their travels and transported by them to their original home[.]" such as the cultivation of taro, only as part of a megalithic complex. This complex conjoined megaliths, if not also pyramids, mummification or some form of the preservation of the dead, a sun cult and irrigation. He had yet to consider more fully the possibilities of cultural selection, as Benedict (1934, p. 42) would do later, even if a more current reading of his materials suggests precisely such a range of selection in conjunction with diffusion and even independent invention.

Instead, Rivers became allied with two younger colleagues, William Perry and Grafton Elliott Smith, and their theory that all civilization diffused out of Egypt. Rivers' support for Perry and Elliott Smith's notion was perhaps tentative. Still it appears in several essays concerned with a range of topics, including megaliths in Indonesia, the peopling of the Pacific, the range of taro production as well as the means thereof, and especially a traveling lecture Rivers gave in Britain and America during the last 3 years of his life: *The Aims of Ethnology* (Rivers 1923c).

Prior to the requisite archaeological studies, Rivers (1914b) attempted to reconstruct the history of the peopling of Melanesia. Peter Bellwood (1979, pp. 275, 279n166), the noted archaeologist of the region, writes, "Finally, we might ask if the combined results of

modern archaeology, linguistics, and physical anthropology can really tell the ‘truth’ about Melanesian culture history.” Making special reference in his note to Rivers, Bellwood notes that his archaeological finding differs from “the multiple migration waves postulated by the historical ethnologists of the past.”

- It has become fashionable in these hopefully more objective days to reject many of these old theories, but I [Bellwood] suspect that with further investigative research in all fields, certain aspects of them may one day be shown to be valid in the context of modern knowledge. (Bellwood 1979, p. 275)

Rivers study of Melanesian history likely influenced Mead’s (1928) doctoral thesis, with its examination of three complexes of interrelated practices. Mead demurred. Boas’ student Robert Lowie (1937, pp. 169–176), for example, in his *History of Ethnological Theory* of 1937, largely dismissed Rivers because of this attempt at speculative reconstruction. Perhaps more importantly, in his introduction to Fortune’s (1932) *Sorcerers of Dobu*, itself an unjustly forgotten ethnography of a Melanesian community, Bronislaw Malinowski (1932, pp. xxiii, xxvii) twice disparaged Rivers, calling his theory of kinship “farfetched” and his vision of “Melanesian communism” a “myth.” After Rivers’ death in 1922 and with Radcliffe-Brown away in the provinces and America, Malinowski rose to be head of the British anthropologists. Unlike Rivers’ theories (on which, see more below), Malinowskian functionalism famously begins with the needs of the individual, and therefore individual desire and psychology, rather than the institutional organization of society.

Much later, Radcliffe-Brown’s student, E. E. Evans-Pritchard (1981, pp. 199–200) in his posthumously published *A History of Anthropological Thought* referred to Rivers only in his notes and comments on Malinowski and then only as an impediment, “a vast edifice of anthropological theory” from which Malinowski sought to free himself.

As a part of this process, many anthropologists came to trace their research methods – ethnographic participant observation – to Malinowski and his stay in Kiriwina among the Trobriand Islanders during World War I and Malinowski’s (1922) resulting great book: *Argonauts of the Western Pacific*. Anthropologists forgot Rivers’ earlier fieldwork among the Todas of India’s

Nilgiri hills and his published study entitled *The Todas* of 1906, itself almost 20 years older than *Argonauts*.

Forgotten Accomplishments: Psychology and Sociology

In an essay originally published in 1916 entitled *Sociology and Psychology*, Rivers sought to clarify a distinction between the two disciplines that he did not find in McDougall’s definition of psychology: that is psychology as “the science of the behavior of living things” (Rivers [1916]1926, p. 4). Instead, knowing full well that psychologists would think him begging important questions, Rivers ([1916]1926, p. 3) preferred to “use the term ‘psychology’ for the science which deals with mental phenomena, conscious and unconscious.” This allowed him to reserve sociology for that science studying “human actions [which] are carried out in conjunction with others, or involve the social welfare of others” (Rivers [1916]1926, p. 4).

- These social actions as a whole form a body of organized processes which can be described and classified, and their relations in space and time studied. It is this description and classification, together with the study of these relations, which [he] regard[ed] as the special subject-matter of sociology. (Rivers [1916]1926, p. 4)

Hence, one could write a sociology without making reference to instincts, motives, or emotions, that is to the “mental phenomena, conscious and unconscious” appropriate to psychological science. As the sciences of psychology and sociology were then just at their beginning, this distinction should be understood as one of method, “the final aim of the study of society [being] the explanation of social behavior in terms of psychology” (Rivers [1916]1926, p. 5). In the end, these two ways of proceeding would demonstrate many connections, but in 1916 the time was not yet ripe.

Rivers was then working among British soldiers suffering from psychoses and neuroses attendant upon the war experience. In 1918, he published his report for the Medical Research Committee on “War-Neurosis and Military Training” in the journal *Mental Hygiene*; this report is one of several appendices to *Instinct and the Unconscious* (Rivers [1920]1922, pp. 205–227).

There were many differences between a Melanesian blood feud, as considered by Rivers and by extension

Benedict, and modern, especially trench, warfare; those most easily grasped have to do with the scale of violence. The blood feud arose out of a concern with reciprocity, with what Mauss ([1950]1990, pp. 13ff) would later term the obligations to give, to receive, and to give back, and hence with a generalized exchange of life and death; once the requisite number of victims had been slain and balance achieved, the combatants retired with no concern for whether the recent victim had previously killed or belonged to the group of the previous killer. In this sense the blood feud resembles headhunting among the Ilongot of the Philippines as described by Renato and Michele Rosaldo (1980a, b) or warfare among the Dani of highland New Guinea as seen in the film *Dead Birds*. Many of the frustrations of the trenches had much to do with the endless stagnation, a forced but unintended balancing of a general destruction without the asymmetric release of enforcing victory or suffering defeat.

Bearing this distinction between the blood feud and the trenches in mind, Rivers' discussion in "War-Neurosis and Military Training" concerns those ways in which training, drill, giving and receiving orders, attitudes toward the avoidance of any expression of fear inculcated on the public school rugby fields and so forth disposed men to react to horrendous destruction. These men were of differing classes, but with a similar sense of themselves as free Britons whatever their class. They gave themselves over to the loyalties, asymmetrical though these loyalties between officers and men were, which the military training sought to instill. In that the training and, indeed, the War involved "human actions [which were] carried out in conjunction with others," and could and often did "involve the social welfare of others" at the expense of still other human beings (Rivers [1916]1926, p. 4), both the training and the War should be counted as social actions. Such social actions could be regarded as "a body of organized processes which can be described and classified, and their relations in space and time studied" (Rivers [1916]1926, p. 4) without reference to "mental phenomena, conscious and unconscious" ([1916]1926, p. 3), without instincts, emotions, and the like, that is without psychology. Social actions could not be so lived.

In the main text of *Instinct and the Unconscious*, Rivers ([1920]1922) examined mechanisms by which memories become suppressed (his preferred term), wittingly, half-wittingly, or unwittingly. Being suppressed by whatever means, they are unconscious but not inactive. As with Freud, the primary reason for suppression is the protection of the self, either deliberately or without deliberate effort, from those memories. As again with Freud, suppression is not discreet. Rather suppression takes whole sets of associated memories even at the cost of yet greater discomforts as when a small child confronted and penned in by a dog in a small space and later set to sleep in cramped quarters unable to move for fear of disturbing his older brother later became claustrophobic, a fact that man did not think even unusual until he saw others react quite differently to the enclosed world of the trenches.

Unlike at least the pre-war Freud, Rivers did not trace much of the mental life of those he treated at Maghull or Craiglockhart to *eros*, reduced as too often it was to sexual life. Nor did he postulate *thanatos*. The success of Rivers' psychiatric practice required rather, that he explain to many soldiers that the matters they sought to understand did not concern unfortunate sexual events. These unconscious but powerful memories were attached to a conflict between the instincts for self-preservation and gregariousness. Self-preservation brought its allied emotions of fear and terror and its impetus to a range of responses from flight to holding still to the incapacity to control one's own body. Military training sought to channel if not outrightly suppress at least portions of this instinct. With gregariousness came the impetus to loyalty and fellow feeling which military training sought to harness. Free Britons so trained to gregariousness lived through dug-outs collapsing, finding themselves waking up with their faces in the bellies of the dead and the juices thereof in their mouths, seeing their friends die right next to them while they themselves were physically unimpaired and so on for a time without apparent end. The resulting symptoms varied, but the conflict between the demands of self-preservation and gregarious could only be resolved through debilitating symptoms. Much later, Gregory Bateson ([1956]2000) would call this sort of dilemma a double-bind.

Kinship and the Debate with Kroeber

We can look elsewhere in Rivers' work and find his concerns with the relations between psychology and social action. In his posthumously published lectures found in *Social Organization* of 1924, Rivers (1924a, pp. 63–64) contended that rather than being “a mere collection of terms of address” the terms of “the classificatory system. . . a system of nomenclature” “connote definite social functions, specific duties, privileges and restrictions on conduct and that these social functions apply to relatives in the classificatory sense.” Given the ensuing expansion of ethnographic knowledge, it is perhaps not difficult to understand how later luminaries – Lévi-Strauss, Benedict and Mead, for example, – could have been so impressed by Rivers. It is only a small theoretic move from Rivers to Lévi-Strauss' ([1972] 1976) notion of the atom of kinship with its regular and systematic patterns of preferences and stresses. Nor is it difficult to find in Benedict's (1934) accounts of the variable patterns of kinship, folklore and myth, in the distinctive integrations and selections of cultures spread out along her great arc, more than echoes of Rivers' functions, duties, privileges, and restrictions. Benedict said each pattern produced a distinct ethos – her term before it was Bateson's. Such ethos provided the backgrounds within and against which activity evokes or discourages emotion, as Mead and Bateson would contend, differently depending upon circumstance. Their point would not have been lost on Rivers.

Rivers (1900, p. 74) began developing the genealogical method as a part of his psychological experiments during the Cambridge Torres Straights Expedition. Like his other experimental practices, the genealogical method proceeds systematically.

Rivers began by simplifying his terminology, using only descriptive terms: father, mother, husband, wife, and child. Aware that various peoples categorize kin relations in distinctly different ways, he approached each household. He recorded what he found about each household on a sheet of paper specific to that household using a consistent system of notation: men's names in capital letters on the left with their wives names in lower case on the right. He asked for the names of each of the household's members real

father and real mother as well as the names of any other children. He repeated this procedure as he learned of each previous generation. Below each person's name, he indicated clan membership or totemic association.

Once he has this information for all the households in a given community, Rivers could compare the collected genealogies. His comparisons lead Rivers to understand that these genealogies were remarkably internally consistent. He, thus, knew how members of differing households were related to one another, often over several generations. He could then examine consist uses of reciprocal local terminologies, gathering thereby which people categorized which other people in consistent ways, patrilineal and matrilineal descent, permissible marriages and the like. With reports from several communities, he could analyze how their respective systems for reckoning kinship and its social consequences differed from place to place.

This work led Rivers to return to Morgan (1877). Further, Rivers (1914a, Vol. 1, p. vi) “intended” *The Todas* (Rivers 1906) “to be a sample of scientific method applied to the collection and recording of ethnographic facts[,]” especially those found by use of the genealogical method. He also used this method as well as on a journey to Melanesia he undertook with A. M. Hocart in 1908.

By contrast, Kroeber (1909) sought to dispel an unnecessary distinction between classificatory and descriptive systems of kinship. All such systems classify.

- ▶ The English word cousin denotes both men and women cousins; cousins on the father's or on the mother's side; cousins descended from the parent's brother or the parent's sister; cousins respectively older and younger than one's self, or whose parents are respectively older or younger than the speaker's parents; and cousins of men and women. Thirty-two different relationships are therefore denoted by this one English word. If the term is not strictly limited to the significance of first cousin, the number of distinct ideas it is capable of expressing is many times thirty-two. (Kroeber 1909, p. 77)

This class, therefore, is not particularly precise. “No language possesses different terms for all. . . or even for any considerable proportion” of the genealogically

possible relationships (Kroeber 1909, p. 77). For Kroeber the greater generality of English kin classes made it more classificatory than many other languages. As such, all terminological systems are descriptive of general possible types of relationship, but not in the same sorts of ways.

Kroeber (1909, pp. 77–78) discerned eight possible broad principles: generation; collaterality; age within a generation; sex of the relative; speaker's sex; sex of the person connecting two other people; blood viz marriage; life condition of the connecting person. English makes use of fewer principles (sex, generation, shared substance; marriage) than certain Native American languages with which Kroeber was familiar. Hence, "English is simple, consistent, and, so far as it goes, complete[.]" save for the class of cousins (Kroeber 1909, p. 80), though one should add aunt and uncle to Kroeber's analysis. By comparison, "[t]he Indian systems of relationship all start from a more elaborate basis, but carry out their scheme less completely" (Kroeber 1909, p. 80).

- ▶ The so-called descriptive [i.e., European] systems express a small number of categories of relationship completely; the wrongly named classificatory systems express a larger number of categories with less regularity. (Kroeber 1909, p. 80)
- ▶ The reason why the vague and unsatisfactory idea of a classificatory system of consanguinity [shared substance] has found such wide acceptance is not so much to be sought in any primary interest in designations of relationship as such, but in the fact that terms of relationship have usually been regarded principally as material from which conclusions as to the organization of society and conditions of marriage could be inferred. (Kroeber 1909, p. 82)

For Kroeber, terminology was merely linguistic. Kroeber's primary target appears to be Morgan, though Kroeber did not say so. Kroeber (1909, pp. 83–84) drew four conclusions. The fourth of these was that "[t]erms of relationship reflect psychology, not sociology. They are determined primarily by language and can be utilized for sociological inferences only with extreme caution."

Rivers extensive genealogies and extensive studies among the Todas, in Melanesia, the British Isles and

Egypt showed otherwise. The classes referred not to logical possibilities determined according to some external, genetic grid, but rather to groups of people in relation to yet other groups of people. Further, his genealogies showed that even though systems differed from people to people, the members of given communities were often very consistent in their designations of both particular and classificatory relations. The classes had to be sociological rather than individual. By contrast, our terms cousin, aunt, and uncle would appear hopelessly muddled to many a Melanesian. In that, these terms also designated how members of particular classes should behave toward members of other classes, the sociological relations organized behavioral and psychological relations in a wide variety of ways still in need of exploration.

Rivers (1914b, see also 1910) responded to Kroeber directly and extensively in *Kinship and Social Organization*, showing not only relations between terminology and cross-cousin marriage but to other forms of preferential marriage as well. The siblings who join two cross-cousins are respectively of differing sex and the parents of those cousins. A mother's-brother's daughter and a father's-sister's son are matrilineal cross-cousins. A mother's-brother's son and a father's-sister's daughter are patrilineal cross-cousins. Such cousins are never members of the same matrilineage or patrilineage. But neither are they solely, single individuals necessarily, as all members of a given clan, sex, and generation may occupy such relations one to the other, as Rivers well knew.

As such any given terminology referred to "a body of organized processes which can be described and classified, and their relations in space and time studied" (Rivers [1916]1926, p. 4) without reference to "mental phenomena, conscious and unconscious" ([1916]1926, p. 3), without instincts, emotions, and the like, that is without psychology per se. Rivers (1916[1926], p. 2) formulation of this distinction between sociology and psychology corrected a possible ambiguity reflected in his use of sociology and psychology in *Kinship and Social Organization*. But his point holds. Only once, one knows something of the relations defined by a particular terminology and the way the terminology, thus, classifies sets of people can one begin to understand the "mental phenomena, conscious and unconscious" evoked for those persons by other persons who

embody those categories. The categories, themselves, are not mere appendages of language, but “a body of organized processes which can be described and classified, and their relations in space and time studied” (Rivers [1916]1926, p. 4), that is a means to organize those very relationships between classes of people and the consequences of those relations for groups of persons so organized.

As seems always the case, some of Rivers work now appears dated. But much of that work retains the power to instruct and inspire. He remained cautious and prudent methodologically, at least, to the end. He thought carefully about issues others have passed over too quickly. If for no other reason, his reputation deserves revival.

See Also

- ▶ Boas, Franz
- ▶ Comparative Psychology
- ▶ Consciousness and Embodiment
- ▶ Cultural Psychology (General)
- ▶ Janet, Pierre
- ▶ Myers, Charles S.

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Basic Biographical Information/ Major Contributions

- I feel that my life in social psychology has been well worth living. (Erika Apfelbaum 2009, p. 34)

Erika Apfelbaum, French experimental social psychologist, was born in 1934 in Germany. She was the chief architect of a theory of power which has influenced the thinking and practice of several researchers, both in France and in the United States, Canada, and Africa. The seminal years for Apfelbaum’s work were those she spent at the Laboratory of Experimental Social Psychology, Sorbonne University, where for more than 30 years she was senior professor and then head of the social psychology unit at the prestigious scientific research center CNRS (Centre National de la Recherche Scientifique). During the golden years of the 1960s, a quiet passion for ideas led her to construct an alternative body of theory to that which might be offered by social psychologists as a base discipline for psychology teaching and research. Apfelbaum was concerned with larger questions than those generally posed by social psychologists. She wanted to explore the relationships between power and interpersonal conflict, and between anti-colonial struggle, liberation movements, and aggression. She was drawn to the hot topics of social psychology such as power struggle, interpersonal conflict, struggles against oppression, anti-colonial struggle, feminist movements, black consciousness, revolts, riots, aggression, social injustice, poverty, racism, authoritarian personality, and social change. These topics were fueled by the zeitgeist of the revolts of May 1968. Apfelbaum’s whole cast of mind was strongly interdisciplinary. Her works touched researchers, psychologists, and social activists in many parts of the English-speaking world, and in several parts of the world her works have informed official policy.

Her own life work comprises at least six main stages: (1) growing up in the dark times; (2) the Sorbonne and the potential of knowledge; (3) social psychology in the 1950s; (4) social psychology in 1960s; (5) breaking away and shifting paradigm; (6) finally, the importance of creating a new social psychology that is fully grounded in history and culture.

Apfelbaum was surrounded by a network of researchers and social psychologists who were together part of a collaborative project within the Laboratory of Experimental Social Psychology as a base. But her personal and intellectual influence on this group (Robert Pagès, Gerard Lemaine, Jean-Marie Lemaine, Jean-Pierre Deconchy, Roger Lambert, André Duflos, Maryla Zaleska, Michel Pêcheux, Jorge Da Gloria, Bernard Personnaz) should not be underestimated.

Apfelbaum is truly a woman of heroic, yes of epic proportions. She is very influential in the feminist movement and a role model too. Here is Apfelbaum in her own words, “I am part of a whole generation of psychologists who have been significantly affected in one way or another by the changes in the socio-political and intellectual climate of the 1960’s – the counter-cultural movements, the anti-psychiatry movement, the civil rights, as well as the feminist movements” (2009, p. 32).

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Archives of the History of American Psychology

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The year 1965 was a remarkable year for the history of psychology (Baker and Benjamin 2008). The American Psychological Association inaugurated Division 26, History of Psychology (now the Society for the History of Psychology), the *Journal of the History of the Behavioral Sciences* was published, and the Archives of the History of American Psychology (AHAP) was founded at The University of Akron (Poplestone and McPherson 2000).

The AHAP was the creation of psychology professors John Poplestone and Marion White McPherson of the University of Akron. They realized that the availability of primary sources and research in the history of psychology was limited and could be improved by having a dedicated archive. This came to fruition in October 1965 when the Board of Trustees of The University of Akron approved the establishment of the AHAP. The founding involved no budget, a desk in an office within the library, and a student assistant (Poplestone and McPherson 2000).

The Case for Archives

The mission of the AHAP is to “promote research in the history of psychology by collecting, cataloguing, and preserving the historical record of psychology” (www.uakron.edu/ahap, 2009). As a subject matter archives, the AHAP seeks material from all fields of psychology and from all psychologists. In order to control and manage the collections, the focus has been limited to American psychology and influences that bear upon it.

Before the founding of the AHAP, university archives and special collections took care of their own faculty. For example, the papers of William James and B. F. Skinner are found at Harvard University. Professional psychologists, who work largely outside the academy, have always been less likely to have their papers archived, and as a result, such records often remain in a state of uncertainty; relegated to basements, garages,

and other less-than adequate quarters (Popplestone and McPherson 2000). The AHAP was designed to give all such papers a home.

Archival repositories such as the AHAP serve a central role in historical research. In all sciences, research depends on a supply of raw data that is transformed into results that answer a variety of questions. Primary source material is the gold standard for historical research; it provides the raw data that historians use to craft narratives of history. The most important source of such data is archival repositories. Within such repositories, one can find records of individuals (referred to as manuscript collections) and organizations (termed archival collections). Manuscript collections preserve and provide access to unique documents such as correspondence, lab notes, drafts of manuscripts, grant proposals, and case records. Archival collections of organizations contain materials such as membership records, minutes of meetings, convention programs, and the like. Archival repositories provide, in essence, the “inside story,” free of editorial revision or censure and marked by the currency of time as opposed to suffering the losses and distortion of later recall. In much the same way, still images, film footage, and artifacts such as apparatus and instrumentation aid in the process of historical discovery.

As sources of data, archival materials provide many important functions. One of these is to help elucidate context. Individuals and events do not exist in a vacuum; rather they exist in a time and place and are subject to the influences of that particular context (Benjamin and Baker 2009). Many students in psychology know there was a behavioral revolution and later a cognitive one, but may have little understanding of the events and context that created such changes or the meaning of those events for the psychology of today. For instance, it is a fact that David Shakow was a founder of the scientist-practitioner model in professional psychology. However, without a contextual understanding of the ways in which World War II focused attention on the lack of a trained national mental health workforce in America, we are left with a naïve understanding of how the most dominant training model of professional psychologists came into being (Baker and Benjamin 2000; Cautin 2008). Appreciation of historical context allows us to examine and modify our current practices.

AHAP Holdings

The AHAP contains the personal papers of over 740 psychologists. There are papers of those representing experimental psychology (Leo and Dorothea Hurvich, Kenneth Spence, Ward Halstead, Mary Ainsworth, Frank Beach, Knight Dunlap, Dorothy Rethlingshafer, and Hans Lukas-Tuber), and professional psychology (David Shakow, Edgar Doll, Leta Stetter Hollingworth, Herbert Freudenberger, Sidney Pressey, Joseph Zubin, Erika Fromm, Jack Bardon, Robert Waldrop, Marie Crissey, and Morris Viteles), and just about everything in between. In addition, there are records of over 50 psychological organizations including Psi Chi and Psi Beta honor societies, regional associations such as the Midwestern Psychological and Western Psychological Associations, divisions of the American Psychological Association such as the Society for Industrial and Organizational Psychology, and papers of other groups including the Association for Women in Psychology and the American Group Psychotherapy Association. Individual oral histories and histories of departments of psychology are also well represented in the AHAP collection.

The AHAP is home to a wide array of objects including the simulated shock generator used in Stanley Milgram’s seminal obedience experiments (Milgram 1963), a prison door, guard uniforms and related objects from the Stanford Prison experiments (Zimbardo 1972), numerous brass and glass era instruments such as chronoscopes, Koenig cylinders, and memory drums, as well as a version of B. F. Skinner’s air crib designed for better care of infants (Benjamin and Nielsen-Gammon 1999). The media collection includes more than 8,000 films, 20,000 still images, and 2,000 audio recordings. Highlights include home movies of Sigmund Freud and footage of Pavlov’s research institute.

The assessment of individual difference is a hallmark of American psychology and is well represented at the AHAP. The test collection contains over 8,000 tests of personality, intelligence, aptitude, and ability. Rounding out the AHAP holdings is a rare book collection of more than 5,000 titles dating back to the sixteenth century.

The growth of the AHAP has been substantial. Since its modest beginning in 1965, it has grown into the largest collection of its kind in the world. In 2002, the

AHAP was named a Smithsonian Affiliate, the first archive to achieve this designation. As the AHAP has grown, so too has the need for a larger facility. In August 2010, the AHAP moved into the Center for the History of Psychology, a newly renovated building on the campus of The University of Akron. The center includes a museum, reading room, space for visiting scholars, and greatly expanded space for processing and storing archival material. The facility will continue the AHAP's tradition of promoting the history of psychology.

For over 4 decades, the AHAP has supported research in the history of psychology. It provides both on-site and off-site services to aid researchers. The key to research in the AHAP is the use of finding aids. A finding aid is a tool that tells a researcher what a collection contains. A list of finding aids for collections at the AHAP can be found at www.uakron.edu/ahap. Finding aids come in different levels of specificity. Some finding aids include a description of everything in a folder such as "letter from A. Person to T. Person" while others are more general, listing just the folder contents such as "personal correspondent 1950–1951." Typical information found in a finding aid includes (from Baker and Benjamin 2008):

- Collection dates (date range of the material)
- Size of collection (expressed in linear feet)
- Provenance (place of origin of a collection; previous ownership)
- Access (if any part of the collection is restricted)
- Finding aid preparer name and date of preparation
- Biographical/historical note (a short, succinct note about the collection's creator)
- Scope and content note (general description and highlights of the collection)
- Series descriptions (headings used to organize records of a similar nature)
- Inventory (description and location of contents of a collection)

In addition to providing assistance to researchers, the AHAP maintains an active program of educational outreach. Every semester the AHAP sponsors a colloquium series and every other year sponsors a major conference. The AHAP has a strong commitment to ensuring that the historical record of psychology is as complete as possible. One example of this was the

convening in 2000 of a national conference to honor Dr. Robert V. Guthrie, a psychologist and historian, and the first psychologist of color to be included in the AHAP's manuscript collection. The presence of traditionally underrepresented groups in the historical record is a priority for the Archives of the History of American Psychology.

The AHAP continues making sources available electronically. The new web site (www.uakron.edu/chap) offers access to a variety of archival materials. Using services such as Flickr and Youtube, the AHAP is able to make pictures and videos available to the general public. Through a joint agreement with the American Psychological Association, many of the books and gray literature (technical reports, newsletters, etc.) from the AHAP's holdings have been digitized and are available through PsycBOOKS and PsycEXTRA. Portions of this digitized content are also available on the AHAP web site. Staff of the AHAP has played a major role in the development of Encoded Archival Description (EAD) in the state of Ohio through the OhioLINK Finding Aid Repository (<http://ead.ohiolink.edu/xtf-ead/>). The Repository provides detailed access to collections housed in archives, special collections and libraries throughout the state of Ohio. EAD provides a powerful and easy-to-use interface for browsing and searching archival collections.

Summary

The Archives of the History of American Psychology was founded in 1965 to preserve and make available the historical record of psychology. The work has continued unabated and the AHAP has grown into the largest collection of its kind in the world. Through the AHAP's collection, students, researchers, and the public can find original source material that informs and educates about the role of psychology in defining who we are as individuals and as members of society. Historical understanding offers many benefits and pleasures not the least of which is assisting in understanding the present and preparing for the future.

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Asch, Solomon E.

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Asch, Solomon Eliot (September 14, 1907 – February 20, 1996), was an American Gestalt psychologist and a pioneer in the field of social psychology, best known for his experiments on social influence and conformity.

Basic Biographical Information

Solomon Eliot Asch was born into a Jewish family in Warsaw, Poland, in 1907. At the time, Warsaw belonged

to the Russian Empire. In 1920, he moved to the United States with his family at the age of 13. He and his family lived in Manhattan's Lower East Side, where they taught themselves the English language by reading the works of Charles Dickens. Asch attended the College of the City of New York, where he received his bachelor's degree in 1928. He then went on to earn his master's degree in 1930 and his Ph.D. in 1932 at Columbia University. While studying at Columbia, Asch was mentored and greatly influenced by psychologist Max Wertheimer, a founder of Gestalt psychology.

After studying at Columbia, he began his career as a psychology professor at Brooklyn College in the 1940s. During this time, World War II was occurring, and Hitler was at the height of his power. Asch studied the concepts of propaganda, indoctrination, and social pressure while teaching at Brooklyn College. He then became a professor for 19 years at Swarthmore College, where he worked with renowned Gestalt psychologist Wolfgang Köhler. He then became both the director and a distinguished professor at the Institute for Cognitive Studies at Rutgers University from 1966 to 1972. In 1972, Asch began to teach at the University of Pennsylvania, where he served as an emeritus professor of psychology before retiring in 1979.

Asch married Florence Miller in 1930. Together, they had a son named Peter, who became a professor of economics at Rutgers University and died in 1990. Asch's wife, Florence, died in 2002. Solomon Eliot Asch died on February 20, 1996, at his home in Haverford, Pennsylvania, at the age of 88.

Major Contributions

During the 1950s, Asch became famous after conducting a series of experiments which demonstrated the power of social influence. These experiments commonly became known as the Asch conformity experiments. The experiment took 123 male participants and placed each participant in a group with 5–7 confederates who, unlike the real participants, knew the true nature of the experiment but acted as though they were real participants, naïve to the true nature of the experiment. The participants were shown a line next to three additional lines. Of the three additional lines, which were labeled A, B, and C, one was of equal length to the first line shown, while the other two were of different lengths. In each trial, the participants, including the confederates, were

asked to choose which of the three lines was of equal length to the first line. The real participant always answered last or near last.

During the first couple of trials, the participants, along with the confederates, chose the obvious, correct answer. However, after the first couple of trials, the confederates began to all state the same wrong answer. The confederates stated the wrong answer in 12 of the 18 trials conducted on each participant. During these 12 critical trials, Asch studied whether the real participant would conform and state the same, obviously wrong answer as the confederates due to social pressure. Asch predicted that most people would not conform and state an obviously wrong answer. Asch found, however, that about 75% of participants conformed at least once and 5% conformed every time. A quarter of participants resisted social pressure and did not conform on any trial. Many participants became confused and upset when the confederates began answering incorrectly. Many participants who chose to conform did so believing the group was wrong but wanted to avoid being different or judged. When interviewed later, participants who conformed to the majority underestimated how frequently they actually did conform.

One variation of Asch's original experiment varied the amount of confederates present in each group. Groups ranged in confederates containing just one confederate to 15 confederates. Asch found that one confederate has almost no influence on the participant, while two confederates have a small influence. Three or more confederates are able to equally influence a participant to conform. Another variation examines the influence having one confederate stating the correct answer, while the others continue to state the wrong answer. Asch found that when the participant was not

alone in stating a minority opinion, the urge to conform to the majority is greatly decreased.

Asch published his famous textbook, "Social Psychology," in 1952. This classic social psychology textbook, which was later reissued in 1987, became a highly influential work in psychology, influencing many later social psychologists.

Solomon Eliot Asch's work greatly influenced the field of social psychology. Asch influenced the work of many of his peers, including Herman Witkin, who studied cognitive and learning psychology. Asch also influenced and supervised the Ph.D. of Stanley Milgram, who studied obedience to authority. Asch's experiments on the influence of social pressure on conformity continue to influence the field of social psychology to this day.

See Also

- ▶ [Köhler, W.](#)
- ▶ [Rutgers University, History of Psychology at Social Psychology](#)
- ▶ [Witkin, Herman A.](#)

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B

Baldwin, J. M.

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Basic Biographical Information

James Mark Baldwin was born in 1861 to a well-to-do Presbyterian family in South Carolina. He began his career at the University of Princeton within the intellectual atmosphere of the Scottish School of Common Sense advocated by James McCosh. Like other psychologists of his generation, he traveled to Europe and became familiar with the experimental psychology of Wundt. He also came in contact with the philosophy of Spinoza and the French psychology of the time, which he was especially interested in. Otherwise his education developed within the atmosphere of the newly formed school of North American functionalism and was especially concerned with giving a place to psychology within evolution. He was a professor at Lake Forest University, the University of Toronto, Princeton and Johns Hopkins University, as well as the *École des Hautes Études* of Paris.

As a result of the influences that he received, Baldwin distanced himself from the psychology of the faculties that the Scottish School promoted and began to develop the basis of the genetic psychology. This was accomplished by bringing together a solid theoretical background with extensive information of the empirical developments of his time. In different points in his life, Baldwin himself conducted experiments and empirical studies on laterality (the use of the left or right hand in children), optical illusions (the “Baldwin Illusion”), memory (of geometrical figures),

and reaction time (in which he maintained an intense controversy with Titchener). His genetic perspective was also nourished by a good knowledge of the philosophy and social sciences of the times, keeping close contact with some of the most highly regarded figures in these fields.

Genetic psychology sees functions where the Scottish School saw faculties; this is to say that Baldwin did not consider faculties to be something static but rather the result of the complex development of structures from active processes that were initially quite basic (“circular reactions”). The mind, although supported by innate elements, comes to be through active development and this development generates the structures that come to define it. Baldwin puts forward his genetic psychology in the 1894 book *Mental Development in the Child and the Race*, where he deals with the themes typical of developmental psychology such as circular reactions, accommodation (active adaptation), imitation, play, etc.

Shortly thereafter, in an atmosphere of heated discussions about darwinism, lamarckism, and psychology, the article “A New Factor in Evolution” (1896) and the book *Development and Evolution* (1902) relate the evolution of a species with the novel and adaptive behaviors generated throughout the development of an individual. The theory of Organic Selection or the “Baldwin effect” (also formulated by H. Fairfield Osborn and Lloyd Morgan) assumes that the survival of the individual or group is facilitated by the adoption of specific novel adaptive habits in such a way that random hereditary mutations that are either directly or indirectly useful for these habits will be selected for and passed on to the following generations. For example, if in a population of birds, the novel habit of protecting nests by digging in the ground to hide them is generated and propagated, hereditary variations that reinforce an instinctive tendency to dig

would probably be selected. However, other characteristics that are indirectly related such as the shape of the beak or the ability for mimicry would also be selected. In this way, the adaptive behavior –novel, intelligent– is what defines the direction in which evolution proceeds. The theory of Organic Selection, although never completely rejected, not even by Neo-Darwinism, has received growing attention and support in the last 20 years. It has even come to make up the core of Mary Jane West-Eberhard’s general theory of biological evolution (West-Eberhard 2003).

In *Social and Ethical Interpretations in Mental Development* (1897), Baldwin shows the intimate connection that exists between individual development, socialization, and culture (or “social inheritance”). By way of processes of active imitation of diverse degrees of complexity, the individual assimilates social influence in an idiosyncratic manner – it is not mere reception. In a reciprocal way, this individual action reinforces and contributes to the transformation of “social inheritance.” The individual is not a simple product of society nor is society an objective structure that subsists by itself without the participation of individual agents.

Thought and Things, or Genetic Logic, a work published in three volumes in the period 1906–1911, to which in 1915 a book titled *Genetic Theory of Reality* was added, extends, to the fullest extent, Baldwin’s genetic perspective, converting it into a general theory of reality, i.e., an ontology. The theory is formulated from a psychological, but not subjective, point of view. This is to say, the subjects are considered to be as the true constructors of that which we call “real,” and what is real is objective because it is intersubjective for having been stabilized (constructed) historically through the concurrence of a myriad of operations performed by the subjects. In this sense, Baldwin’s constructivism does not tend toward relativism, as do many constructivisms and current constructionisms influenced by postmodernism. The activity of the subjects does not impede objectivity but rather –to the contrary– makes it possible.

In 1909, as the result of a sexual scandal that surrounded him, Baldwin abandoned American academic life. After several stays in Mexico and England, he settled definitively in Paris where he continued his intellectual activity developing his genetic perspective

while in contact with some of the most important French philosophers and psychologists of the time such as Janet or Bergson. He also became involved with the support of the allies in the First World War. He died in Paris in 1934, and his remains were buried in Baltimore (USA).

Major Contributions

James Mark Baldwin is one of the most distinguished psychologists of all time. He developed a general constructivist psychology that includes four components, previously shown through the comments on his main works. These four components can be now summarized as follows:

1. A theory of the active genesis of novel behavior and cognitive innovations in animals and humans. This theory directly influenced the genetic psychology of Piaget (Broughton and Freeman-Moir 1982).
2. A theory of the biological basis of these innovations that explains –without lamarckism– their effect on the very evolution of a species. This theory is known as the “Baldwin effect” or Organic Selection and continues to be present in current evolutionary biology (Hinton and Nowlan 1987; Sánchez and Loredo 2007; Weber and Depew 2003).
3. A theory of the active formation of human individuality by way of socialization and social inheritance that includes an explanation of the genesis of technical and cultural innovations and their historical development. This theory is similar to what Vygotsky proposed (Valsiner and Van der Veer 2000).
4. A constructivist theory of the relation between reality and thought which emphasizes the fact that the history of reality itself is parallel with the history of our institutions and knowledge (Broughton and Freeman-Moir 1982; Wozniak 2009).

Baldwin’s commitment to the institutional development of scientific psychology was also an important theme throughout his career. He founded laboratories in Princeton and Toronto, and two journals (*Psychological Review*, together with J. McKeen Cattell, and *Psychological Bulletin*). He organized congresses, advised educational reforms, directed experiments, and edited a monumental *Dictionary of Philosophy*

and Psychology. His efforts led him to extend, above the base of the new scientific psychology, a general psychology that was able to coordinate consciousness and action, adaptation and cognition, habit and instinct, individual and society, evolution and development, and history and individual human life. After Baldwin, no one of these dualities should be understood in terms of simple opposites.

Although Baldwin was recognized at the beginning of the twentieth century as one of the most eminent North American psychologists, his prominence declined at the same velocity that Neo-Darwinism in biology and experimentalism, professional pragmatism, and behaviorism in psychology grew. Like James, Baldwin was more and more dissatisfied with some of these tendencies. Baldwin's theory is a psychobiology and social psychology that avoids reductionism, empiricism, and geneticism. For him, the autonomy and consistency of psychology does not rest in professional isolation nor in scientific mimicry of other disciplines but rather in having something of its own to contribute to evolutionary biology, sociology, history, and the theory of knowledge. Baldwin's status has slowly come to shine again starting in the 1970s, thanks to historians of psychology, epistemologists, social psychologists, cultural psychologists, biologists and psychologists who are interested in evolution (Broughton and Freeman-Moir 1983; Richards 1987; Wozniak 2009). The bulk of psychology, however, continues away from his figure, surely because it oscillates between isolation and mimicry and because cognitive and computational orientations are not very sensitive to the genesis of cognitive structures.

See Also

- ▶ Janet, Pierre
- ▶ McCosh, James
- ▶ Piaget, Jean
- ▶ Titchener, Edward Bradford
- ▶ Vygotsky, Lev

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Bandura, Albert

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Basic Biographical Information

Albert Bandura was born on December 4, 1925, in Mundare, Alberta, Canada, the youngest of six children and only son. His parents, who had immigrated to Canada from Eastern Europe, valued education although they were not formally educated themselves. In 1949, Albert Bandura was awarded his B.A. in Psychology from the University of British Columbia with the Bolocan Award in Psychology. Inspired by Kenneth Spence, he then enrolled at the University of Iowa,

completing his M.A. in Psychology in 1951. He earned his Ph.D. in Psychology in 1952, focused on learning theory, working with Arthur Benton.

Albert Bandura and Virginia Varns met at the University of Iowa and married in 1952; the same year Dr. Bandura completed a postdoctoral internship at the Wichita (KS) Guidance Center. Their daughters, Mary and Carol, were born in 1954 and 1958, respectively.

In 1953, Albert Bandura joined the faculty at Stanford University on a 1-year appointment as an acting instructor, which was soon upgraded to a 3-year assistant professorship. He advanced quickly and was promoted to full professor in 1964; the same year he was elected Fellow of the American Psychological Association (APA). Ten years later, in recognition of his scholarship, Dr. Bandura was named the David Starr Jordan Professor of Social Sciences in Psychology, an endowed chair he continues to hold.

Major Accomplishments/ Contributions

Albert Bandura is considered one of the world's most famous living psychologists. While he is known for his early work on the development of aggression in adolescents including the well-known Bobo doll experiments that demonstrated the effect of social learning on human behavior, he is better known for his Social Learning Theory (SLT; 1977) and more recently, Social Cognitive Theory (SCT; Bandura 1986, 1997, 2001).

SLT and SCT elements, including self-efficacy and self-regulation, have inspired innovations in clinical practice, including the treatment of phobias and advances in educational and career development (e.g., Social Cognitive Career Theory: SCCT; Lent, Brown & Hackett 1994), as well as a significant body of supportive research.

Bandura (1997) argues compellingly that SCT goes beyond behavioral, cognitive, and social theories in recognizing that human cognition, behavior, feelings – and indeed even physiological response – emanate within people, influenced by a dynamic interplay between their behaviors, thoughts, and feelings about those behaviors, as well as the environment itself, that he refers to as *triadic reciprocal causation*.

Another key aspect of SCT is Bandura's observation that people have *agency*; that is the ability to exercise

control over their own lives (Bandura 1997, 2001). Key aspects of agency are individual and collective self-efficacy, people's belief in their ability to complete a task or reach a goal (Bandura 1997), their intentions, plans, self-awareness, and ability to adapt to external opportunities and challenges (Bandura 2001).

Bandura's work has been applied within psychology and allied fields as well as education, communications, business, and international relations (Bandura 1997). His more recent work is focused on a greater understanding of people's beliefs and belief systems (Pajares 2004).

In addition to his own prodigious scholarship, Albert Bandura is known as a family man, generous colleague, and mentor. He served on the Editorial boards of more than 20 journals, and, as evidence of the respect accorded him by his peers, was elected President of APA in 1974 and of the Western Psychological Association in 1981. He was also named honorary president of the Canadian Psychological Association.

Among his many honors and accolades, Albert Bandura was presented with the APA Award for Distinguished Scientific Contribution, 1980, the 2003–2004 James McKeen Cattell Fellow Award from the Association for Psychological Science (APS), the Outstanding Lifetime Contribution to Psychology Award from APA in 2004, and the American Psychological Foundation (APF) Gold Medal Award for Life Achievement in the Science of Psychology in 2006.

See Also

- ▶ Maslow, A. H.
- ▶ Rogers, Carl R.

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Bartlett, F. C.

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Basic Biographical Information

Born on October 20, 1886, at Stow-on-the-Wold in Gloucestershire, Frederic Charles Bartlett was the second son of a successful boot and shoe store merchant. He completed two external degrees from the University of London: an Honors B.A. in philosophy in 1909 and an M.A. (with special distinction) in sociology and ethics in 1911. In 1914 he received an Honors B.A. in the moral sciences tripos from Cambridge University. When *Cyril Burt* left Cambridge's new laboratory of experimental psychology in 1915, Bartlett took over as assistant director to its founder, *Charles Samuel Myers*, and became its director in 1922 on Myers' departure to found the National Institute for Industrial Psychology. As a student and young researcher, Bartlett came under the particular influence of three Cambridge scholars: these include the aforementioned psychiatrist-psychologist *Myers*, as well as the philosopher-psychologist *James Ward*, and the psychiatrist-anthropologist *William H. R. Rivers*. It was Rivers who urged Bartlett toward psychology rather than his own field. Following the sudden death of Rivers in 1922, Bartlett found himself the senior academic in social science at the university. During the First World War and the 1920s he worked to build up the laboratory's facilities and program. These efforts culminated in his appointment to the first chair of experimental psychology at Cambridge in 1931. Until his retirement in 1952, Bartlett shaped the direction of British experimental psychology in fundamental ways both through his own work in memory, perception, thinking, and applied psychology and his direction of a cadre of excellent students, including Kenneth Craik and Donald Broadbent. Following his formal retirement, Bartlett served as a consultant at the university where he continued writing.

In 1920 Bartlett married Emily Mary Smith (1886–1974), an animal behavior experimentalist at the psychology laboratory. The couple had two sons. Bartlett was knighted in 1948 and awarded the Royal Medal in

1952. In the last two decades of his life, Bartlett received multiple honorary doctorates and election to scholarly societies and academies from around the world. He died on September 30, 1969, after a short illness.

Major Accomplishments/Contributions

Three books highlight Bartlett's most important scholarly contributions to psychology. In *Psychology and Primitive Culture* (1923), Bartlett surveyed the work of field anthropologists and social psychologists such as Franz Boas, Edwin W. Smith, William McDougall, and Rivers. He argued that an understanding of human behavior required psychologists to confront how deeply individuals are enmeshed in their social networks and cultural heritage. He especially detailed the dynamics of behavioral change across "primitive" (and modern) peoples through the mechanisms of cultural diffusion as social groups came into contact with each other. He also outlined how social institutions and cultural conventions tended to promote behavioral stability within individuals. Though he later seems to have stepped back from the more radical social framing of this argument to concentrate on the psychology of the individual, Bartlett here anticipated aspects of late twentieth century cultural and cross-cultural psychology.

His most well-known book, *Remembering* (1932), challenged prevailing laboratory-based theories of memory, particularly that of Ebbinghaus and the notion of memories as mental "traces." He employed an innovative research methodology and, as his book's title alludes, argued that memory is an active process of building rather than a static object to be recovered. His experimental method confronted English-born adults with a range of meaningful materials – stories, prose passages, and drawings – which they were asked to reproduce either at multiple sequential intervals or via serial transmission from one subject to another (similar to the American game of "Telephone"). He analyzed the qualitative changes and stabilities in his subjects' reproduction of these materials, particularly their responses to a decidedly singular Native American folk tale ("The War of the Ghosts") taken from Boas. He pointed out the ways his participants tended to assimilate experimental stimuli to their own cultural frameworks. In recounting the ghost story, notions at odds with its listener's cultural knowledge tended to be

“conventionalized” or ignored, and unfamiliar or singular emotions flattened or recast. To explain these findings, Bartlett used the concept of *schema*, adapted explicitly from its earlier use by the neurologist Henry Head to describe regular body movements. Individuals actively deploy their own attitudes, beliefs, and past experiences (their *schemata*) to make sense of the materials they are remembering. Hence, Bartlett argued, memory is a fundamentally reconstructive rather than reproductive act. Later experimenters noted that, if explicitly asked to recall stimuli as precisely as possible (a condition Bartlett did not request of his subjects), they were far more accurate in their responses than Bartlett found. *Remembering* and its conclusions have provoked continuing interpretations and challenges both by cognitive and information processing theorists during the “Cognitive Revolution” as well as social and cultural psychologists of more recent decades.

Bartlett became deeply involved during the Second World War with the demands of aircraft design, control, and production; the training of aircraft personnel; and, beginning in 1944, the Applied Psychology Research Unit of Cambridge’s Medical Research Council. His 1958 book, *Thinking*, reflected these involvements as Bartlett compared thinking to a high-level bodily skill and contrasted closed-system versus adventurous forms of thought. Information processing theorists have found his description of the demands of any closed-system thinking fruitful. Meanwhile, Bartlett’s emphasis upon both individual initiative factors and group or social contexts facilitating the growth of adventurous thought, particularly by experimental scientists, has found particularly traction within late twentieth century approaches to the sociology of knowledge.

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Behaviorism

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Introduction

To be a behaviorist is to be committed to a set of beliefs about the nature of mind. Unlike someone working in a field such as personality or motivation, a behaviorist has to adopt a specific ideological stance. Danziger (1997) shows that the basis for what amounts to a behaviorist theory of mind was established within the Anglo-American tradition of comparative psychology from the end of the nineteenth century onward. The term *behavior* was used to refer to bodily activity, but not to all such activity. Heart rate, for example, was not called “the heart’s behavior.” Instead, behavior referred to activities which, in a human being, would be called intentional or conscious, such as approach, avoidance, discrimination, or learning. Researchers could study those activities in animals without committing themselves to the belief that a mind controlled them. At the same time, they could take the position that some sort of “inner forces” (drives, motives, or reinforcement) acted as controlling agents. As Danziger writes, “[Behaviorism’s] promiscuous use expressed an assumption that common principles, spanning the biological, psychological and social levels were indeed waiting to be discovered” (Danziger 1997, pp. 95–96). Later, he writes, “Far from being a neutral category, ‘behavior’ had become a preferred vehicle for those who shared the conviction that human problems would be solved only by adopting a natural science approach” (1997, p. 96).

Philosophical Behaviorism

Philosophically, we can distinguish between logical, radical, and methodological behaviorism (e.g., Kim 1996). All those variants of philosophical behaviorism underlay the theories of the mature behaviorists (Mills 1998). Logical behaviorists asserted that any proposition about a mental state could be converted, without loss of meaning, into a proposition about behavior. We can state logical behaviorism as follows, “Psychological

theories must make no reference to inner mental states in formulating psychological explanations” (Kim 1996, p. 43). Methodological behaviorism did not address the issue of the ontological status of mental states; it merely stated that we did not have to make reference to such states in order to understand or predict actions or statements. For example, the “sensation” *redness* could be understood as a disposition to utter the word “red” or the action of stopping at a traffic light when driving, while to say that “John is a vegetarian” is to say that John will refuse meat dishes if offered them or that he will purchase no meat products. Ontological (or radical) behaviorists, in contrast, explicitly denied that there are any “inner” mental states. So, for a radical behaviorist, pain was nothing other than wincing, groaning, and so on. Furthermore, because, according to radical behaviorists, all human activities, whether mental or physical, could be exhaustively defined and understood behaviorally, it was unnecessary to appeal to states of the brain in order to understand, predict, or control behavior.

Within psychology, we can conflate logical and methodological behaviorism. Almost all behaviorists embraced the methodological variety, making Burrhus Frederick Skinner (1904–1990) and his followers almost the only radical behaviorists within the discipline. Once behaviorism matured, methodological behaviorists attempted to analyze behavior in terms of stimuli, responses, drives, and reinforcers. Drives were said to propel animals, both human and nonhuman, into action, whereas reinforcers served to terminate sequences of actions. Most behaviorists (whether methodological or radical) also maintained that reinforcers served to “stamp in” responses, thereby increasing the probability that any given response would recur in the presence of those classes of stimuli associated with it. All behaviorists had to explain why, in crucial situations (especially in the search for food and the avoidance of danger), animals from cephalopods upward displayed seemingly purposive behavior and why it was that identical stimuli (where stimuli are fully defined in physical terms) do not necessarily evoke identical responses in animals of the same species (again, where responses were defined solely in physical terms). All radical and most methodological behaviorists denied that nonhuman animals could foresee the probable consequences of their actions and hence devise means of achieving desired ends (or avoiding

undesirable ones). Instead, they claimed that, within any animal’s history, because particular reinforcers (whether these fulfilled a stamping in or a mere signaling function) became associated with particular classes of responses and with particular classes of stimuli, the animal formed habits and that those habits controlled particular modes of responding in particular situations. They then extended the same type of analysis to humans.

Methodological behaviorists, unlike radical behaviorists, did grant explanatory status to brain states. Thus, we know that, in cats, electrical stimulation of the lateral nucleus of the hypothalamus will trigger stalking and other actions associated with hunting, whereas electrical stimulation of the ventromedial nucleus will trigger aggression. Some methodological behaviorists, however, denied that there were any mental states, while others believed that there were but that psychologists, in their scientific practice, did not need to make any reference to them. In order to understand why methodological behaviorists imposed such a severe restriction on themselves one has to appreciate that, when the science of psychology came into being, science was conceived as comprising, on the one hand, sets of unassailable, publicly verifiable facts and, on the other, sets of inductive inferences from those facts. If the inductive inferences were of sufficiently high level and comprehensive, then they became scientific laws. Because brain states are physical and, thus, in principle observable, methodological behaviorists were prepared to concede their existence. Mental states were banned because they were private.

Moreover, scientific psychologists, whether they are behaviorists or not, have tended to repudiate what they saw as René Descartes’s fundamental error (e.g., Descartes 1637/1960). Damasio put the issue succinctly by stating that Descartes had claimed, “[t]hat thinking, and awareness of thinking, are the real substrates of being. And since we know that Descartes imagined thinking as an activity quite separate from the body, it does celebrate the separation of the mind, the ‘thinking thing’ . . . from the nonthinking body, that which has extension and mechanical parts . . .” (Damasio 1994, p. 248). In addition, early psychologists opposed themselves to the theories of action proposed in the eighteenth and nineteenth centuries whereby internal processes (usually called “associations”) engendered

lifelong connections between sensations and responses. Other internal processes (eventually called “emotions”) supposedly triggered responses to those stimuli associated with them (Peters 1974).

Behaviorists were convinced that if meaning or significance lay solely within the inner, private, or mental realm, then no psychological statements could be verified. Thus, to state that the ultimate meaning of sensing *redness* resides in each person’s private or subjective feeling or sensation of the color red is to say nothing because subjective reports are not open to public verification. Furthermore, behaviorists’ distaste for the mental as an arbiter of meaning had support from philosophers. For example, Kim (1996) cites Ludwig Wittgenstein’s parable of the beetle in a box. Imagine that the only beetles in the world live only singly, each in a box. Every person carries a box and only that person can open the box and look into it. So, nobody can publicly or intersubjectively establish the truth of the answer to the question, “What is in your box?” (in reality, a particular box could contain a locust, but the box’s owner, for unknown reasons, chooses to call the animal in the box a beetle).

However, now consider the activity of writing a check, which is not a mere sequence of responses but a social transaction implying a fairly complex set of obligations (for example, the necessity to retain sufficient funds in one’s bank account so as to ensure that payment can be met). We can imagine situations in which the physical responses called “writing a check” are performed but in which a genuine check is not written. For example, in a well-known joke, a lawyer discharges a debt to a dead person by dropping a check into the open funeral casket; so, the lawyer drops a mere piece of paper, not a check as we understand the concept *check*, into the coffin. In general, we can apply the principle of defeasibility to any form of behaviorism (Kim 1996, pp. 32–25). If we say that a person will perform an action if and only if he or she has belief X, then we can imagine a belief that will counteract the action. More generally, we can say that a person will perform an action only if that person desires a particular outcome and believes that the action will produce or contribute to the production of that outcome. Conversely, if the person believes that the action may well produce an undesirable end-result, then he or she will refrain from the action. For any action whatsoever, we

can imagine beliefs or desires, which promote or nullify the action. Thus, beliefs or desires determine actions and actions cannot be actions unless they result from beliefs and desires.

The Origins of Psychological Behaviorism

American philosophers, especially Edwin Bissell Holt (1873–1946), Ralph Barton Perry (1876–1957), William Pepperell Montague (1873–1953), Walter Taylor Marvin (1872–1944), Walter Boughton Pitkin (1878–1953), Edward Gleason Spaulding (1873–1940), Edgar Arthur Singer (1873–1924), Grace de Laguna (1878–1978), and Frederick James Eugene Woodbridge (1867–1940) – the first six of the philosophers I have named formed the school known as New Realism – had early, and decisive, influences on psychological behaviorism. Mostly that influence was indirect, in that Holt, for example, believed that “consciousness” was merely a way of categorizing collections of objects and that behavior was the only observable psychological category while Perry believed that psychology should address the ways in which entire organisms adjusted to their environments. American philosophers did have some direct influence on psychological behaviorism. Edward Chace Tolman (1886–1959) studied under Perry and Edwin G. Guthrie (1886–1959) under Singer.

Even though some transactions between psychological behaviorists and philosophers did occur in the 1960s and 1970s, psychological behaviorism did not arise from within philosophy and developed independent of it. Moreover, within psychology, *behaviorism* underwent progressive changes in meaning or significance (Danziger 1997). Broadly, we can say that behaviorist principles emerged from American Progressivism (for discussions of Progressivism, see Burnham 1977 and Ross 1991). Progressivism was the birthplace of a particularly American version of the social sciences (Ross 1991). Hence, American psychology had pragmatic rather than conceptual or scientific origins. In addition, the pragmatism from which, initially, behaviorism drew its sustenance was socially directed so that the desire to promote social utility remained a driving force within behaviorism, being only occasionally subordinated to a need to achieve apparent scientific credibility (Mills 1998).

The behaviorist approach to research made its first appearance, in 1909, in American sociology, when Franklin Henry Giddings devised an objective scale of sympathy (Mills 1998, pp. 26–27). Within psychology, Watson (1913), in an article which has since become famous, was the first person to use the word formally. However, historical research and a textual analysis of the article demonstrates that we cannot interpret the article as a “rallying call” to psychology or even give 1913 as the date for the first appearance of psychological behaviorism (Mills 1998; Samuelson 1980). Certainly, it would appear that, in his early writings on the topic, Watson did not use *behaviorism* in any of its later senses. Mills (1998), from an analysis of the correspondence between Watson and his early colleague Robert Mearns Yerkes (1876–1956), concluded that Watson, who started his career as an animal psychologist, used *behavior*, broadly speaking, as an adjective, as in the phrase “behavior men.” That is, he was contrasting his research practices with those of human psychologists.

It is also usually maintained that Watson (1916) carried out psychology’s first behaviorist experiment, a single case study of what, again typically, is interpreted as an instance of aversive conditioning. Samuelson (1980) and Harris (1979) have subjected Watson’s study to a devastating conceptual and methodological critique, while Mills (1998) has shown that Watson’s understanding of conditioning was seriously defective. Moreover, Watson, by resigning his academic post in 1920 (Buckley 1989), removed himself from a research environment, although it must be said that a program on conditioned aversion therapy he undertook with the collaboration of Mary Cover Jones did show distinct promise. Instead, Watson, in his post-academic writings (e.g., Watson 1924), asserted that uncontrolled and unintentional parental (especially maternal) behaviors were the sole influences on the character development of children. Watson exhorted parents (again, especially mothers) to program their interactions with their children in such a way as to produce desirable character development, where “desirable,” broadly construed, meant “socially useful.”

Four praiseworthy things can be said about Watson: (1) his commitment to making a comprehensive attempt to make a behaviorist analysis of all “inner” states inspired psychologists like Hull; (2) he was crucial in laying the groundwork for behavior therapy

(he treated children, including his own, as robots who could be shaped to perform any desired end whatsoever); (3) his early experiments demonstrated, brilliantly, that lower animals learn even though they can neither think nor speak; and (4) his insistence on peripheralism, which had a decisive influence on Hull’s thinking.

Within American academic psychology, behaviorism certainly did flourish in the 1920s. However, it took on a different form from that it was to assume from the 1940s onward. The behaviorism of the 1920s was purely theoretical, made comparatively little use of the concept of conditioning, and was, on the whole, divorced from research. Above all, it made comparatively little reference to learning. Max Meyer (1873–1967), Albert Paul Weiss (1879–1931), Jacob Robert Kantor (1888–1984), Walter Samuel Hunter (1889–1956), and Zing-Yan Kuo (1898–1970) were the leading proponents of this form of behaviorism (Mills 1998, pp. 40–54). All, except Hunter, were very much concerned with philosophical issues and none (except Hunter again) performed experiments with animals. Therefore, with help from de Laguna, they did what behaviorists should have been doing, namely, applying a philosophical behaviorism directly to human beings so that they could construct plausible (but not scientific) explanations for the inner or mental life of human beings based on behaviorist principles.

The Laying of Neo-Behaviorism’s Foundations

Mills (1998) wrote, “Almost all neo-behaviorists were animal scientists, and unlike the early behaviorists, they produced highly sophisticated and, in some cases, comprehensive psychological theories. The major neo-behaviorists, at least, shared the early behaviorists’ commitment to social application, but believed that such applications should be mediated through empirically tested theories, whose ultimate derivation was the highly controlled environment of the animal laboratory” (p. 4).

In order to create such a sophisticated enterprise (which might conceivably be dignified with the title “behavioral science”), neo-behaviorists needed a conceptual base. Specifically, that base comprised: (1) a distinction between classical and operant conditioning; (2) the concept *operationism*, which, it is

crucial to note, is peculiar to certain forms of psychology and goes far beyond the definition of scientific phenomena operationally; (3) the concept *learning* and its operationalization; (4) the terms (or rather concepts) *stimulus* and *response* in an operational form; and (5) the attempt to operationalize what neo-behaviorists believed to be explanatory concepts, such as *reinforcement*. Guthrie, Tolman, and Edward Lee Thorndike (1874–1949) played the required roles. Paradoxically, Guthrie performed only one major experiment, while Thorndike did not call himself a behaviorist and was not treated as one even if those who rejected him relied heavily on some of his basic concepts.

I will start by discussing, in some detail, the distinction between classical and operant conditioning. The former was known from the mid-eighteenth century onward and, in humans was construed as an involuntary expectation of some anticipated pleasure (e.g., salivating when entering a restaurant). By the end of the nineteenth century, a considerable amount of research had been carried out on anticipatory actions in animals (Logan 2002). Operant conditioning can be understood, in common sense terms, as the delivery of reward or punishment following some action. Writers such as Bentham (1983, 1996) claimed that all human actions could be controlled by administering carefully contrived sets of rewards and punishments.

Ivan Petrovich Pavlov (1849–1936) was the first person to carry out systematic research on classical conditioning. It is crucial to note that Pavlov was, in no sense of the word whatever, a learning theorist. He believed that, by studying conditioned reflexes, he could study the brain. He imposed further limitations on those who wished to extrapolate his work to the study of learning by limiting his work almost exclusively to the study of salivary conditioning in dogs. It requires great skill, knowledge, and patience to elicit and maintain the canine salivary reflex. Moreover, Pavlov displayed extraordinary and well-nigh unique skills in the maintenance of what are called “chronic preparations,” that is, animals that have undergone fairly severe surgery so that processes can be observed not just systematically but *in vivo* (Gray 1979).

A conditioned reflex is derived from a neurologically based response of known origin, such as the knee jerk. Salivation is a reflex which, even in human beings, is elicited not just by the placement of food in the mouth

but by its odor, its sight, and, above all by acquired associations (such as reading about food even after one has ingested a large and satisfying meal). Pavlov’s (Pavlov 1960) terminology, at least, did provide a basis for the learning theory whose proponents paid him unwanted compliments. The stimuli that automatically elicited reflexes he called “unconditioned,” while those acquired by association (and which could thus be idiosyncratic) he called “conditioned.” The conditioned response could be adjectivally qualified as either “conditioned” or “unconditioned,” but in any particular situation, conditioned and unconditioned responses were physically identical.

Classical conditioning is best defined by describing a typical experiment from Pavlov’s laboratory. A dog, which had been surgically prepared so that the parotid salivary glands were exposed, would be placed on a stand and in a harness. The handler would then leave the room. A small amount of food (the unconditioned stimulus) would be presented to the dog by an automatic device. The dog would then salivate; in Pavlovian language, the food would elicit salivation (the unconditioned response). The strength of the unconditioned response was measured (again automatically) by recording the number of drops of saliva elicited, its amount, and the response latency. The experiment proper would then begin. A tone (the conditioned stimulus) would be sounded and would be followed a few seconds later by food. What was later to be called “learning” initially manifested itself when the dog salivated before the food was presented and fully manifested itself in the absence of food. However, if the tone was presented in the absence of food, the conditioned response would attenuate and then disappear (a process Pavlov called *extinction*). It was, therefore, said that classical conditioning could occur (in the language of learning theorists could “become a habit”) if and only if the unconditioned stimulus was associated with (reinforced) the conditioned stimulus. Learning theorists were especially excited because acquisition and extinction were not just measurable but could be plotted as an S-shaped function. Once acquired, conditioned responses became a permanent part of an animal’s “mental furniture.” That discovery also excited learning theorists because it suggested that concealed but vital states or processes, such as memory, could be subjected to scientific analysis.

At almost the same time that Pavlov began work in the area that was later to be called classical conditioning, Thorndike (1898), in his famous puzzle box experiments with cats, laid the foundation for operant learning. He couched his account of his results in a language that approximated that of mature neo-behaviorism. The Thorndikian cat, although under severe experimental constraints, had to find its own way out of the difficulties Thorndike imposed upon it. There was one major difference between Thorndike's cats and Pavlov's dogs. The former were severely hungry, the latter consistently well-fed. The neo-behaviorists were to call "making an animal hungry" "placing it under a hunger drive" (thus concealing a commonsensical notion under the stifling mantle of science). Thorndike, so far as I know, remained within the sphere of common sense because he realized that his cats would not do what he wanted them to do unless he made them hungry. Thorndike put the unfortunate cats in various types of puzzle box with a dish of food in plain sight. The cat, frantic with hunger, started to claw the interior of the box. In the course of its clawing, it eventually tripped a mechanism that opened a door, leaving it free to rush at the food. Allowing it to eat very briefly Thorndike, who, given the severe and quite possibly severe consequences of being bitten or clawed by a justifiably angry cat, displayed, at the very least, great courage, replaced it in the box. Eventually, all the cats showed "learning." That is, once a cat had made a correct response, the latency of that response on succeeding trials would progressively decrease and the probability of its emission would progressively increase. Thorndike summarized his findings by positing the Law of Effect, whereby responses were progressively "stamped in" by rewards. In particular, Thorndike believed that he had demonstrated that one-trial learning (insight) in a nonlinguistic animal was impossible. In his later experimental work, he went even further, showing that a progressive stamping process could explain various simple responses in human beings. Conceptually, Thorndikian learning is identical to Pavlovian learning except that, in Thorndike's case, there is no sign of a conditioned or unconditioned stimulus and that some sort of drive is crucial.

I have deliberately written my account of Pavlov's and Thorndike's work so as to emphasize the similarities between them. I have done so because it is difficult,

from a contemporary standpoint, to appreciate the crucial significance neo-behaviorists gave to the supposed difference between classical (Pavlovian) and operant (Thorndikian) conditioning. Oddly, Pavlovian conditioning was never called "Pavlovian learning" and "operant learning" was almost never called, except in the very early phases of neo-behaviorism, "operant conditioning." It is true that a Pavlovian animal was not deliberately placed under a "hunger drive" but it is also true that a non-salivating mammal would be so abnormal in other respects that it could never survive and therefore never exist in the first place.

How, then, did it come about that the differences between Pavlov's and Thorndike's mode of experimentation became so exaggerated that, eventually, neo-behaviorists came to say that each had laid the foundation for the discovery and theoretical elaboration of two irreconcilably different forms of learning (e.g., Kimble 1961)? Or, how was it that trivial but real differences in method became grotesquely overblown and delusory differences in theory? I would suggest that the purportedly crucial differences between operant learning and classical conditioning arose, for the most part, because of Pavlov's and Thorndike's different professions. Pavlov worked as a scientist throughout his life, whereas Thorndike, as soon as he had gained his doctorate, became an educational psychologist. He was among those who revolutionized the American system of public education, especially at the primary level. He, following Ernst Meumann and Herman Ebbinghaus, converted education into graduated sets of drills (Danziger 1990; Mills 1998). Children, while they were in the classroom, were required to become robot-like beings who were forced to learn fixed sequences to preset criteria. They were being socialized into the habits required for routine work such as that carried out on a factory assembly line. Unwittingly, Thorndike was not the first to apply scientific principles in the classroom. Instead, he was reenacting, in close and eerie detail, principles enunciated very early in the nineteenth century by Jeremy Bentham, and his eighteenth century forebears (Bentham 1983). Furthermore, just as Thorndike's children were "children," his cats were "cats" (explanatory concepts fitting into a speculative scheme).

Operant conditioning, then, began as a technology, became a set of hallucinations that was, grotesquely,

called a theory, and reverted to an, albeit marginal, set of techniques. Pavlov, as any great scientist should, established a robust set of techniques that have become an unchanged and unchangeable part of science (Bitterman 2006). This is not to say that Pavlov's techniques could not be adapted to ideological ends. The leading Bolsheviks, especially Lenin and Trotsky, were obsessed by the illusion that they could fashion human beings who would devote their entire being (emotional as well as cognitive) to the creation and maintenance of an ideal society (Service 2007). Lenin, who, like Stalin, undertook the annihilation of the Russian intelligentsia and the creation, *ex nihilo*, of a new social elite, knew of Pavlov's work within 2 years of the Bolshevik revolution (Figs 1996, pp. 732–736; Hosking 1985). He ordered the construction of a spacious, fully modern building in which, for the rest of his life, Pavlov conducted his research.

Operational Definitions

In effect following Thorndike, Guthrie defined learning in terms of successive increases in response strength, where “response strength” was physically measured and construed as frequency, amplitude, latency, etc. Within that framework of thinking, a stimulus must be defined, in principle, as “that which evokes a response,” while a response is defined as “any physically measurable movement.” One immediate problem is that the definition of *stimulus* is circular. Since a response can be defined as any observable act the issue of circularity does not arise (although one has to note that to talk of implicit responses, as Watson and others did, is to talk nonsense). These problems became far more severe when we turn to supposedly explanatory concepts such as reinforcement or learning. To put the matter bluntly, to define such terms operationally is to define nothing. For example, let us take the example of intelligence, which was the first psychological concept to be defined operationally (Mills 1992). If we ask a psychologist who has not yet become skeptical about, or cautious, in the way he talks about the concept or notion of intelligence, “How do you know that Fred is very intelligent?” he might reply “Because his score on the WAIS is two standard deviations above the mean” that is, like Boring (Mills 1992) he is saying, “Intelligence is what the tests test.” He is assuming, tacitly, that something happened because it happened.

The psychologist's reasoning is circular (I am taking my wording from Peter Loptson). Besides being hopelessly inept as a purported scientist of the mind, such a person is dull and unlettered in that he does not know that “explanations” such as his have been an object of mockery for a century. For example, the French playwright Molière mocked Aristotle's theory of forms in one of his plays by having a character say that opium causes drowsiness because it contains a dormative factor. Green (1992) has written a comprehensive critical account of the application of operationism to psychological constructs. Koch (1992) argued that, properly construed, operationism points toward a to-be-discovered meanings rather than the constitution of meanings, while Mills (1992, 1998) has discussed the problems arising from applying operational definitions to psychology at length.

Tolman and Intervening Variables

Tolman showed neo-behaviorists how to apply operationalism comprehensively (Mills 1998; Tolman 1951). He divided his explanatory system into three realms – independent (input) variables, dependent (output) variables, and intervening variables. He claimed that all were real, physical states. He further claimed that the nature and strength of any given intervening variable was a known, physical consequence of the operations required to instantiate it. Habit was a crucial intervening variable for Tolman. Habits, he believed, were dispositions inserted between independent and dependent variables. By controlling habit strength, one could make predictions about animals' behaviors or exert control over them.

However, the cognitive map is the intervening variable for which Tolman is best known. He demonstrated that even the lowly rat creates and retains something which could loosely be called “knowledge” of the nature of the apparatus devised for various experiments and will, if given the opportunity, use that knowledge to its own advantage (Staddon 2001, p. 19). Mills wrote:

- ▶ As a matter of expository convenience we could talk of minds as though they were independent substances. We could portray the concept of such minds as interlocking sets of cognitive maps linked to environmental and bodily input variables (stimuli arising for the physical world outside the body and motivational

factors arising from within the body) and to action systems. Such portrayals . . . were, however, no more than formal devices. (1998, pp. 95–96)

Skinner's Operant Theory

Burrhus F. Skinner (1904–1990) claimed that he was not a theorist. Nevertheless, his terminology demands an analysis in terms of operational definitions especially because, in the course of pursuing his research, Skinner created a particular terminology which demands a theoretical interpretation. In addition, Skinner created a particular style of carrying out animal research which his followers generalized to human research. His central concept was the operant (Skinner's term for an instrumental response), which he contrasted with the respondent. An operant is a voluntary response emitted by an animal; it operates on the environment and is controlled by its consequences (Staddon 2001, p. 33). An operant is emitted, whereas a respondent, which is involuntary, is elicited by a stimulus. Again, non-Skinnerian behaviorists call respondents "classically conditioned responses." Staddon comments:

- ▶ The concept of "emission" of operant behavior is important. It represents Skinner's recognition that operant behavior must occur spontaneously before it can have consequences or be guided by them. But apart from a few general comments about engineered environments that might conduce to "novel repertoires" . . . Skinner never enquired systematically into the process that generates operant behavior in advance of any opportunity for reinforcement . . . By his silence on the problem of origins, Skinner conveyed this message about the range of spontaneous behavioral variation: Variation is generally sufficient to allow for not just some act, but the correct, adaptive, act to be rewarded and strengthened. (2001, p. 35)

Skinner believed that response rate was a measure of response probability. He arrived at that belief, on the one hand, via his creation of the cumulative recorder which allowed investigators to acquire records of animals' moment-to-moment responding and, on the other, via his discovery of schedules of reinforcement. The latter appeared to demonstrate that animals adjusted their rate of reinforcement to the anticipated delivery of reinforcement. Skinnerians were also

excited because it was the nature of the schedule, not the species of the animal, that determined response rates. However, Skinner never defined *rate* or *probability*.

Despite that theoretical shortcoming, Staddon writes:

- ▶ It is important not to underestimate the enormous excitement associated with the discovery of reinforcement schedules. The older, between-groups method estranged the experimenter from his subject matter. He dealt not with animals and acts, but with averages and statistical tests. In this context, the power of Skinnerian techniques and the direct contact they offered with individual experimental subjects was intoxicating. The visible and orderly output generated moment by moment by each subject, the lack of any need for inferential statistics, the amplification of research effort made by automation . . . and the new world of possibilities opened up by the reinforcement-schedule idea generated a heady atmosphere among operant conditioners in the 1950s and 1960s. (2001, p. 38)

Despite his atheoretical protestations, Skinner did, undeniably, have one explanatory concept – reinforcement. The construct was his version of Thorndike's Law of Effect. Skinner defined reinforcement as follows, "The barest possible statement of the process is this: we make a given consequence contingent [dependent] on certain physical properties of behavior . . . and the behavior is then observed to increase in frequency" (Skinner 1953, p. 64). The best example of Skinner's definition of reinforcement came from his study of "superstition" in pigeons. Skinner placed hungry pigeons in a Skinner box (a piece of apparatus in which food or water are delivered automatically) and delivered food at fixed intervals. The pigeons gradually came to engage in whatever activity happened to precede the delivery of food during the entire inter-reinforcement interval.

Frequency and contingency are the two key terms in Skinner's definition. However, reinforcement encompasses more than mere "stamping in." The more likely it is that a response predicts a reinforcer, the stronger (or more probable) it becomes. Thus, a response becomes an act. An operant is not a mere response; operants are classes of responses jointly predicting the occurrence of particular reinforcers. Skinner's version of the Law of Effect is an example of an operational

definition. Operants are defined in terms of the operations (contiguity between response and reinforcer) required to produce them. However, the reinforcers do not produce operants. Instead, we have a relationship between the response and the experimenter-induced consequence (the reinforcer). So, some inner factors control the response and those factors are immune to a Skinner-style scrutiny (which is wholly devoted to factors under the experimenter's control). Skinner's definition is thus immune to potential disproof. He generalized from his superstition experiment. He maintained that the experiment demonstrated that whenever a response appears regularly and predictably, it must be the consequence of reinforcement. However, because he refused to countenance any explanations that were not strictly empirically based, he was unwilling to entertain any explanations in terms of inner factors.

Such explanations are readily available. One area of research was particularly damaging to Skinner's theory. Brown and Jenkins (1968) discovered autoshaping, a procedure whereby Pavlovian procedures can induce key-pecking in pigeons (the procedure can be modified to produce bar-pressing in rats). Thus, the key-peck and the bar-press, the two paradigmatic operants, became respondents. A broader review (Mills 1988) shows that, when hungry or thirsty, rats and pigeons emit instinctively based food- or water-gaining responses. Thus, pigeons peck with the beak closed when they are hungry and the beak open when they are thirsty, while rats will grasp and gnaw at an object associated with food (e.g., the lever in the Skinner box). Cognitive and sociocultural explanations will have to be found to explain human responses to rewards and punishments.

Hull's Theory of Learning

Hull (1942), Hilgard and Bower (1966) attempted to create a deductive system in which all the postulates were anchored to, and referred to, operationally defined variables, so that drive, for example, was defined as the number of hours since food had been ingested. Hull's theory was also a conflation of Thorndike's and Pavlov's work. At the same time, he transformed their terminology. Thus, unlike Thorndike, who had stated merely that appropriate rewards would, under certain circumstances, stamp in preselected responses, Hull defined

reinforcement as the progressive reduction of a physiological need. Just as he took Thorndike into the theoretical realm, Hull transported Pavlov into it as well. He interpreted conditioning as an underlying process not as a mere relationship between a conditioned stimulus and a response. Hull was impelled to overinterpret Pavlov because he asserted that need reduction was both the necessary and sufficient cause for all actions. However, need reduction occurs at the end of a series of actions, so that, apparently, effects preceded their cause. So, in an experiment in maze running, for example, Hull was forced to suppose that each correct turn received, via classical conditioning, a modicum of positive reinforcement, thus impelling the animal to move forward to the next choice point. Furthermore, he had to assume not just that associative bonds connected stimuli and responses but that reinforcement-promoting stimuli (secondary reinforcers) were also linked together in hierarchical chains. To use the example of maze-running again, a correct turn distant from the goal would have less reinforcement value than one distant closer to the goal. In principle, then, Hull's was a predictive system just like Tolman's, although, for Hull, all animals, including humans, were machines under the complete control of drives and reinforcers. For a discussion of the role of robots in Hull's thinking, see Mills (1998, p. 106).

Although, in his early career, Hull did research into human psychology, he never attempted to carry out neo-behaviorist research on humans. Neither he nor his colleagues knew that not only did they have no warrant to generalize from their animal work to human beings but that their animal work itself was, possibly, species bound. In common with much of the neo-behaviorist animal research, Hull and his colleagues derived their data from what came close to a robotic animal, the artificially bred Wistar strain of *Rattus norvegicus* (Logan 2001). They could derive support from the psychologist Norman L. Munn, who had pronounced, "The white rat has become a standard animal for the investigation of many psychological problems . . . it is possible to write an essentially complete outline . . . if the science of animal behavior without going beyond the available data in the rat." (cited in Logan 1999, p. 4).

Wistar rats were convenient in many ways. They were short-lived (with a lifespan of about 3 years) and thus could be produced in large numbers at a relatively

low cost. Because they were bred in a standardized environment individual differences were minimized, allowing for generalization of results from one experimental laboratory to another. The difficulty with accepting the rat as a standard mammal resides in the distinction between organism-based and problem-based disciplines (Logan 1999). The former are defined in terms of the animal studied (primatologists study primates, for example). In the case of a problem-based discipline, a species is selected as a data source (a good example would be the biologist Thomas Morgan's choice of *Drosophila melanogaster* for his genetic studies). Morgan did not, however, make his choice without considering alternative animals and, above all, without knowing that there was a physical structure (the chromosome) to be studied. In the same way, Henry H. Donaldson, who introduced the albino strain of the Norway rat to American laboratories wished to study neurology and chose his experimental animal after canvassing some alternatives (Logan 1999). In principle, then, there is something odd about a theory like Hull's which purported to deal with the human mind but derived all its data from rats together with guinea pigs and the occasional chick. At best, we could say that Hull's theory was problem-based and that he set himself the task of studying various psychophysical states such as drives or secondary reinforcement. He could, quite justifiably, have made the working assumption that those processes were materially the same in all mammals. But before launching on a problem-based enterprise in one species of animal, Hull should have assured himself that his selected processes manifested themselves at some level or other or in several. As it is, it is as if Morgan had undertaken a comprehensive study of genetics in *Drosophila melanogaster* while treating chromosomes as some purely theoretical entity.

Hullian Theory

Like Skinner, Hull had a large group of followers. Unlike the Skinnerians, who merely took over their leader's concepts and concentrated solely on modifications in technique, the Hullians, led by Hull's principal disciple Kenneth W. Spence (1900–1970), enlarged upon and introduced changes to the theory (Mills 1998, pp. 184–187). At the most fundamental level, Spence made signal contributions to the theory of operationism. At a lower level, he worked extensively

on discrimination theory in animals and, in humans, via his studies of eyelid conditioning, on motivation. In discrimination learning, he formulated variety of noncontinuity theory whereby consistency of association between a cue and a reward elicits an approach tendency from an animal whereas an association between a cue and non-reward elicits an avoidance tendency. For a behaviorist, Spence's theory had the advantage that it dispensed with the need to refer to some "mental" model or representation.

In his work on eyelid conditioning, Spence, like Hull, assumed that motivation had both cue and arousal functions. Unlike Hull, who had assigned some degree of arousal to habit strength, Spence restricted habit strength to the mere pairing of stimuli and responses (i.e., he gave it solely a cue function). In consequence, arousal had a larger sphere of application in his theory than it did in Hull's. Mills wrote:

- ▶ "Hull had assumed that drive and incentive exerted multiplicative effects on habit strength. Spence assumed that drive and incentive added their effects to each other and that the sum had a multiplicative effect on habit strength." (1998, p. 186)

Spence believed that scores on the Taylor Manifest Anxiety Scale (MAS), a scale derived from items from the Minnesota Multiphasic Personality Inventory, were a pure measure of drive. Unfortunately, even from within the perspective of Hullian theory, it is not possible to treat MAS scores as a measure of habit strength. At a deeper level, the MAS is a measure of anxiety in purely operational sense. Scores of the MAS predict the likelihood that someone will be more or less anxious on some physical measure of anxiety (e.g., degree of pupillary enlargement). Quite apart from the problem that predictions derived from MAS scores are merely probabilistic it could still be the case that someone with pupillary enlargement could not be in anxious state of mind. To say that MAS scores measure drive is to stretch credulity even further. For a further analysis of those problems, see Wiseman (2000).

Early in his career, Spence was appointed to the University of Iowa, becoming head of the department of psychology in 1942. He created a doctoral program which produced many graduate students, many of whom engaged in lifelong research programs; roughly a quarter of Spence's students undertook research

similar to his once they had graduated (Mills 1998, pp. 187–190). However, their work is seldom referred to today. It is not so much that the work of the Iowa School was overtly disproved but rather that American psychologists both moved away from it into the new area of cognitive psychology. At the same time, the profession became more pluralistic and thus disinclined to subject itself to a hegemonic enterprise like neo-behaviorism (Mills 1998, pp. 190–193).

Behavior Therapy

Mills (1998, pp. 162–164) discussed the reformulation of psychoanalytic concepts in a behaviorist language by Hullians O. Hobart Mowrer and John Dollard, who attempted to formulate a rationale for behavior therapies. The motive for that enterprise was ideological. So, like mesmerism, and its descendants, such as hypnosis, they merely peripherally concern a historian of science, although definitely lying within the purview of a historian of ideas (e. g., Ellenberger 1970). Here, I will take only the case of Joseph Wolpe's (Wolpe 1958) development of reciprocal inhibition because it is an excellent example of the selection of a technique by means of deductive reasoning combined with an experimental demonstration of the effectiveness of the technique (Wolpe 1958).

Wolpe, who was practicing as a psychiatrist in Johannesburg, was introduced to reciprocal inhibition by the South African Hullian theorist James G. Taylor (see Taylor 1975). Taylor had been using a version of reciprocal inhibition on his patients by training them to remain relaxed when experiencing potentially anxiety-provoking episodes or experiences. At Taylor's suggestion, Wolpe carried out an experiment in which he trained cats to continue eating in the presence of a loud sound which initially provoked fear and thus inhibited eating. Taylor derived the rationale for the experiment from Hullian theory. The cats had to be under a hunger drive, meaning that the parasympathetic nervous system predominated. The sound, in contrast, triggered the sympathetic nervous system. Wolpe started to train the cats to eat in the presence of a very low sound. He progressively increased the sound's intensity until, eventually, the cats would eat even though the sound was very loud. Physiologically, the actions of the sympathetic and parasympathetic

nervous systems are antagonistic to each other. By keeping the cats hungry, Wolpe continued to reinforce eating. However, by initially holding the sound level low, he extinguished the fear response and was able to keep it extinguished even when the conditioned stimulus (the sound) was at a high level.

Wolpe applied a purportedly analogous procedure (later called systematic desensitization) to human beings suffering from phobias. The phobic situation played the role of the loud noise while training in relaxation played the role of food. Just as in the case of the cats, human beings could bring themselves to remain calm while in close physical proximity with previously phobic stimuli, provided that the phobic stimulus was initially held psychologically distant or at a low level and only slowly growing in salience. Wolpe (1961) claimed a 91% success rate for systematic desensitization. Even his close followers, like Arnold Lazarus, could not match it. So we have to say that, in the field of supposedly scientifically based therapy anyway, those who start from a purported scientific basis can end up as gurus like Mesmer and those who followed him in the fields of magnetic diseases and hypnotism.

Conclusion

The neo-behaviorists had a perfectly reasonable set of what should have been working assumptions. They followed Thorndike by, implicitly, treating both their experimental animals and human beings as if they were robots. Such an assumption is not harmful. After all, by making the working assumption that the mind resembles a computer one can make discoveries about how minds might function. In order to have functioning theories the neo-behaviorists believed that their basic terms (especially *stimulus*, *response*, *drive*, and *reinforcer*) had to have fixed (operationally defined) meanings.

However, the neo-behaviorists could not have known that the foundations of the science of animal behavior were being laid, largely in Europe, but to a limited extent in America (Kalikow and Mills 1989). The two leading ethologists, Lorenz (1981) and Tinbergen (1969), treated animals as, essentially, carriers of meaning so that basic terms have to be interpreted within currently occurring sets of needs and external pressures. For example, in the spring and early summer, when it is actively defending a territory, the robin, *Turdus*

migratorius, will attack anything red (another robin, its reflection in a window, a red rag on a stick, etc.). In Lorenz's and Tinbergen's terminology, red objects are releasers (species-specific stimuli) which provoke fixed action patterns (chains of behavior appropriate for reaching a particular goal). Outside the breeding season, male robins do not attack each other. A red object, then, is not a conditioned stimulus which automatically elicits a conditioned response. Instead, red objects provoke attacks only when the dominant needs of robins require attack.

It is impossible to explain the operations of releasers and fixed action patterns solely by deploying the principles of classical and operant conditioning. Instead, one has to assume that they are partly genetic and partly derived from early socialization. However, operant and classical conditioning do function during socialization and do help to maintain responses in adult animals. In general, Lorenz and Tinbergen demonstrated that, just as each species of animal has evolved physically, thus allowing it to occupy a specific ecological niche, so it displays the very behavioral patterns required to fit that niche. Furthermore, the work of other ethologists proved that, within any particular order or family, the closer the physical appearance between species the more similarities there are between their patterns of behavior. Moreover, Lorenz, Tinbergen, and their followers deployed unexcelled skill in devising field experiments to support their position.

Ultimately, the theories of the two leading neo-behaviorists, Hull and Skinner, were deeply flawed. Few people doubt that Hull was the greatest theorist of the neo-behaviorist movement. Yet, he was a theorist without any grasp of what it meant to theorize and an empiricist whose experimental work was totally conceptual. Even worse, two covert purposes drove his theorizing. First, without admitting so publicly, he was driven by the desire to show that minds were, in every possible sense, machine-like. That covert theory was materialist rather than behaviorist. Second, he was obsessed by an ideological need to defeat the Gestalt theorists, his only possible rivals. Those imperatives pervaded every aspect of his theory (Mills 1998, pp. 111–122).

Skinner went to great pains to reiterate, publicly and loudly, that he was not a theorist (Mills 1997). Nevertheless, even if he could, as a psychologist, eschew

theory, he could not avoid doing so as a behaviorist. Mills described the essentials of that theory as follows:

- ▶ What is ultimately at stake . . . is the context of meanings in which actions take place. In the Skinnerian laboratory, the context of meaning is one of rigid control of carefully prespecified actions and settings for those actions. In free-living lower animals, the context of meaning is provided by the ecological niche to which any given species has become adapted and the instinctively controlled processes and mechanisms that mediate adaptation. In the higher primates the context for action is complex, subtle, fluid, and, ultimately unique to each individual. (1998, p. 142)

To put the matter briefly, Skinner could not rebut the defeasibility argument. As human beings, our beliefs, intentions, and desires determine our actions.

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Bekhterev, V. M.

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Bekhterev (1857–1927) was born in Vyatskaya, Russia. He died as a resident of St. Petersburg but in Moscow under mysterious circumstances (see below). Bekhterev earned a medical doctorate in 1881 from the Military Medical Institute in St. Petersburg. After further study with leading physiologists and psychiatrists in Europe, and based on his growing research reputation, he was appointed professor of psychiatry at the University Kazan (1885). There he founded Russia's first psychophysiological laboratory and its first institute for brain research associated with mental disease. As reflected in many ways including his approximately 600 publications and numerous institutes that he founded, Bekhterev showed expertise in anatomy, hypnosis, neurology, neuropathology, neurophysiology, neuropsychology, psychiatry, and psychology. Diseases and

neuroanatomical structures associated with his research bore his name before eponyms began to be replaced by more intrinsically informative names (e.g., Bekhterev's nucleus is now better known as the superior vestibular nucleus).

In psychology, Bekhterev founded *Review of Psychiatry, Neuropathology, and Experimental Psychology* (1896), the first journal to include “experimental psychology” in its title. His three-volume *Objective Psychology* (1907) presented methodology that went well beyond Pavlov's salivary conditioning and that included both instrumental and operant conditioning. However, instead of Pavlov's term “conditioned reflex” (Pavlov used the Russian word for *conditional* but the mistranslation has endured), Bekhterev preferred “association reflex” which arguably embodied a superior heuristic for both men's interests.

Deeming “psychology” too subjective, Bekhterev replaced it with “reflexology” which, nevertheless, encompassed nearly as broad a range as had psychology (Schniermann 1930). For example, Bekhterev's Reflexological Institute had five divisions: *General reflexology*, mostly physiological psychology; *Individual reflexology*, individual differences personality, etc.; *Age reflexology* dealt with physical and psychological abnormalities associated with child development; *Collective reflexology* was social psychology including genetic and evolutionary influences; and *Genetic reflexology* addressed developmental psychology from the onto- and phylogenetic standpoints. Bekhterev has been described as being one of the first experimental social psychologists (Strickland 1991).

Despite Pavlov's Nobel prize, arguably, Bekhterev was far more influential during his lifetime than Pavlov, and Bekhterev's historical importance might have received greater recognition internationally had not his works been suppressed by the Soviet authorities. Thus, it is highly relevant to Bekhterev's legacy to report on his death and its consequences (Shereshevskii 1991).

While visiting Moscow for scholarly purposes and as Russia's premier neuropathologist, Bekhterev, who had earlier treated Lenin, was summoned to examine Stalin's dysfunctional arm. Explaining his tardiness at a subsequent meeting with colleagues, Bekhterev stated, “I was examining a paranoiac with a withered arm.” That came to the attention of the Soviet authorities.

That evening, during intermission of the Bolshoi Ballet, strangers approached Bekhterev, conversed with him, and gave him something to eat (possibly ice cream). Despite being in good health, he died that same evening after complaining of gastric pain. A hastily arranged autopsy by the authorities and questionably limited to the brain, an equally hasty cremation despite family members' objections, and other emerging evidence contribute to the suspicion that Bekhterev was assassinated by poisoning.

Although Bekhterev was among Russia's most accomplished scientists, his works were suppressed by the Soviet authorities until *glasnost* in 1989. One result was that his work was poorly known by American psychologists. However, John B. Watson, father of behaviorism, was greatly influenced by Bekhterev's *Objective Psychology* (1907; never translated into English and available to Watson only in French translation). Watson used it to co-teach with his protégé, Karl Lashley, a winter seminar at Johns Hopkins in 1914–1915, and Lashley was to have studied methods in Bekhterev's laboratory but WWI prevented it. Although Watson's behaviorist methodology closely resembled Bekhterev's, Watson adopted Pavlov's terminology, thus, obscuring Bekhterev's influence. An abbreviated version of *Objective Psychology* published in English translation as *General Principles of Reflexology* (1932; original 1928) was Bekhterev's only book to be translated into English until *Collective Reflexology: The complete edition* (2000).

Further contributing to the disregard for Bekhterev's work was Pavlov's intense dislike of Bekhterev. One can only speculate at motive. Please see “Pavlov's Controversy with Bekhterev” in Babkin's *Pavlov: A biography*. As more of Bekhterev's work becomes available to Western psychologists, undoubtedly his reputation and the value of his theoretical ideas will be increasingly recognized.

See Also

- ▶ [Lashley, Carl](#)
- ▶ [Watson, John Broadus](#)

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Benjamin, Ludy T. Jr.

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Basic Biographical Information

Ludy T. Benjamin, Jr. was born on December 26, 1945, at Corpus Christi, Texas. Benjamin is the son of Ludy T. Benjamin (a US Navy photographer and WWII and Korean War veteran) and Mary Kate Jones (a homemaker). He received a B.A. degree in psychology from the University of Texas in 1966 and a Ph.D. degree in experimental psychology from Texas Christian University in 1971 with a specialization in perception. Benjamin is married to Priscilla Kay Finlay, a retired elementary school teacher and librarian. They have two daughters and two grandsons.

Major Contributions

Dr. Benjamin is an American educator (professor and department head, Presidential Professor of Teaching Excellence, Texas A&M University) and researcher best known for his work in the history and teaching of psychology.

Ludy T. Benjamin, Jr. is known for his work in two areas, the history of psychology and the teaching of psychology, and he has received national awards in both fields. Benjamin has written or edited more than 20 books and more than 150 journal articles and book chapters, most of them on the history of psychology.

Benjamin's first academic job was at Nebraska Wesleyan University where he worked from 1970 to 1978. He then served 2 years as Director of Education for the American Psychological Association in Washington, DC, where he was responsible for the gamut of educational settings in psychology including high school psychology, undergraduate education, graduate education and training, and continuing

education and postdoctoral training. In 1980 he joined the Psychology Department at Texas A&M University where he was a professor of psychology until his retirement in 2012.

Benjamin's work in teaching promoted the use of active learning exercises in psychology. He edited the first collections of such teaching activities in what are generally referred to as activity handbooks. A strong interest in the teaching of psychology in secondary schools led to efforts to persuade the College Board to establish an Advanced Placement Exam in Psychology. Benjamin chaired the committee that developed the first AP Psychology Exam that was administered in 1992. To assist high school teachers in offering AP courses, Benjamin directed a series of National Science Foundation supported summer workshops at Texas A&M University that drew more than 150 teachers in a 5-year period.

Benjamin's work in the history of psychology has focused on the history of American experimental psychology as it moved from mental philosophy to experimental science at the end of the nineteenth century and into the next century. In describing that metamorphosis he has written about the establishment of the earliest of the psychology laboratories, about the development of the early psychological organizations and how those fostered the agenda of the new experimental psychology, about the initial applications of experimental psychology to education, business, and clinical practice, and about the ways in which psychologists sought to inform the American public about their science.

Benjamin's biography of Harry Kirke Wolfe (1858–1918), the second of Wundt's American graduates, documented the struggles of the early psychology laboratories in battling the more established sciences in American universities. Benjamin has also written on other Wundt doctorates in America. His research, based on archival records at the University of Leipzig, produced the first comprehensive treatment of Wundt's American students and their subsequent careers.

As one of the markers of a scientific discipline, the early psychological organizations were key to the development of experimental psychology. Benjamin published the first archivally based histories of the Midwestern and Eastern Psychological Associations, which were founded in 1902 and 1903, respectively. He also

has published articles and book chapters on the Psychological Round Table (a somewhat secret organization of experimental psychologists begun in 1936), the American Psychological Association, and Titchener's Experimentalists, a precursor to the Society of Experimental Psychologists. Central to this work on organizational history is an understanding of the roles these societies played in the research careers and social and intellectual lives of those involved (and, in some cases, those who were excluded), and ultimately the role they played in shaping the course of American psychology.

Benjamin has also published extensively on the beginnings of applied psychological research in business (e.g., research on the early forays into advertising and product testing), education (e.g., work on child study and teaching machines), and clinical psychology. This work has documented the nineteenth century origins of applied experimental psychology and is part of a larger scholarship in the history of psychology that has changed current views on the history of psychology's applied ventures.

Benjamin's most recent work emphasizes the history of psychology's public image and popular psychology, focusing on public understanding of psychology and the ways in which psychologists have sought to convey the nature and importance of their science and practice to the public. This work has emphasized the social context in America that shaped the interests of psychologists and in turn shaped America's understanding of and attitudes toward psychology.

See Also

- ▶ [Brewer, Charles L.](#)
- ▶ [Industrial-Organizational Psychology](#)
- ▶ [Reich, Wilhelm](#)
- ▶ [Structuralism](#)
- ▶ [Thorndike, Edward](#)
- ▶ [Vocational Psychology](#)
- ▶ [Watson, John Broadus](#)
- ▶ [Wundt, Wilhelm](#)

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Bentley, Madison

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Basic Biographical Information

Born: June 18, 1870; Died: May 29, 1955.

Born in Clinton, Iowa, Madison Bentley spent his early life in Nebraska where he apprenticed in his teen years to a bank, which was his career for several years thereafter. He then attended the University of Nebraska where he came in contact with Harry Kirke Wolfe, who turned him toward psychology. Bentley then completed graduate work at Cornell under Titchener in 1898 with a study of memory fidelity, and remained there as a faculty member for the next 14 years. He then moved to Illinois for another 15 years, returning to Cornell where he finished his career.

Major Accomplishments

His earliest Cornell studies encompassed a variety of experimental and theoretical studies on color and tone perception, fusion of ideas, and motor theories of consciousness. He also was involved to a small extent in comparative psychological research with Margaret Floy Washburn on color vision in fish and with Lucy Day's (E. G. Boring's future wife) research on paramecia in 1911 (Day and Bentley 1911). Disagreement over Bentley's approach to the introductory course and Cornell promotion policies which balked his ambition to a professorship led to Bentley's removal to Illinois in 1912 where he became Psychology department head. There he continued to teach and to develop a systematic approach to psychology which constituted a critique of structuralism. As an insider in Titchener's system and at the same time an outsider exiled from it, he was in a position to know both structuralism's strengths and its significant weaknesses. Among the former he counted its tendency toward simplicity, its insistence on analysis as the only mode of doing science, and its conception of the external stimulus as the determiner of experience (Bentley 1926). He proposed to replace it with a comprehensive synthetic psychology of experience in which psychological phenomena were considered as physical as other body processes. This hybrid theory had at its core a conception of the organism as moving in time, with the stream of its experiences always being modified by new experiences impinging from both outside and inside the organism. This wholistic conception of the organism as the unit of analysis resonated both with Gestalt ideas and with other attempts to create a comprehensive physicalistic psychology encompassing all aspects of experience such as that proposed by E. C. Tolman. Bentley's version, however, was stylistically less attractive and did not gain the same widespread acceptance. Bentley also enumerated the problem areas of psychology which his brand of dynamic functionalism could address: "performance and character of the adult" (personality), comparative study of animals, genetic psychology, individual differences, psychological deficiencies and disorders, and social psychology. A further mark of Bentley's departure from orthodox structuralist psychology was his positive attitude toward applied psychology: among Bentley's students at Illinois was Coleman Griffith, considered the first sports psychologist in America.

In 1928, on Titchener's death, Bentley returned to Cornell where he chaired the department during the 1930s and revised the Cornell curriculum incorporating applied, developmental, and abnormal psychology while continuing the department's strengths in sensation and perception (Ryan 1982). He also continued his activity as a respected editor of several psychological journals: his longest and most prominent association was with the *American Journal of Psychology*. After his return to Cornell, his theoretical work focused mostly on abnormal and developmental aspects of psychology. In connection with the Committee on Psychiatric Investigations of the National Research Council, Bentley coedited, with the anatomist and gerontologist E. V. Cowdry, an extensive collection of papers on psychopathology, published in 1934 as *The Problem of Mental Disorder* (Bentley and Cowdry 1934). Bentley had long-standing interests in history and anthropology and served for a time as head of the NRC's division of Anthropology and Psychology. He also planned but did not complete a comprehensive psycho-anthropological study situating humans in a cultural matrix, though he did publish a prospectus (Bentley 1947). Bentley also wrote on developmental subjects, and had a special interest in adjustment during adolescence and young adulthood (Bentley 1945). Bentley's developmental theories may have had their greatest effect via his mentorship of his doctoral student Robert Lindner, with whom he published on "emoving," the dynamic process of emotion regulation (Lindner and Bentley 1939). Lindner later became a psychoanalyst and went on to write *Rebel Without a Cause* (Lindner 1944) which, heavily adapted and released under the same title, was one of the most influential films about troubled adolescence ever made in America.

See Also

► [Titchener, Edward Bradford](#)

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Berlyne, Daniel E.

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Basic Biographical Information

Daniel Ellis Berlyne was a motivation theorist, an experimentalist on various topics including aesthetics, and an active participant in the North American neobehavioral movement from the 1950s to the early 1970s. Born on April 25, 1924, in Salford, a suburb of Manchester in Northern England, Berlyne held several academic positions before becoming Professor of Psychology at the University of Toronto from 1962 until his death in 1976. Berlyne was truly an international scholar, having traveled all over the European continent and beyond (both in an academic capacity and during multiple posts during his service in World War II) prior to his arriving in Toronto.

In 1941, at the age of 17, Berlyne was awarded a Major Scholarship to Trinity College, Cambridge, to study modern languages. The start of his second year at Cambridge, however, was interrupted in the fall of 1942, because he was called up to serve during World War II. Upon his return to Cambridge, in the fall of 1946, Berlyne decided to switch his area of concentration from modern languages to psychology. He had become familiar with psychology at school through his readings of Freud and during his war period he had found the time to read about the different varieties

of psychology. Cupchik (1988) and Furedy and Furedy (1981) have detailed Berlyne's early life experiences and suggested the impact that this had on the development of his scholarship. Faced with career-prospect concerns, Berlyne felt that the opportunities with a degree in psychology looked more promising than were those with a degree in modern languages; the Experimental Psychology Laboratory at Cambridge was bustling with activity and had acquired a high reputation for its contributions to the war effort. Psychology at Cambridge had been run under Sir Frederic Charles Bartlett (1886–1969), first Professor of Experimental Psychology at the University from 1931 to 1952; his role in the development of the university's laboratory extended outward and influenced the development of psychology throughout Britain (Bunn et al. 2001).

In 1946, Bartlett became Berlyne's supervisor; unfortunately, however, Berlyne was not interested in the work going on in his supervisor's laboratory. As an undergraduate student, Berlyne took a newly offered course on motivation and learned of:

- ▶ The work of Mowrer, because this American group – the learning theory group – the Yale group it was, actually – who were doing animal experiments, were sympathetic in a critical way to Freudian psychology. They were doing rat experiments that purported to be about some of the same processes that Freud was talking about in the human being. Mowrer had a rat analogue of regression . . . and this seemed very exciting. (Berlyne 1973, p. 82)

Stemming from his interest in Freudian notions of motivation, Berlyne was intrigued by the research and the type of psychology being practiced by the neobehaviorists in the USA. Despite his supervisor's disapproval of Freud, Berlyne believed that “Freud was dealing with important questions . . . which were motivational questions,” and that the neobehaviorists in America, “were using scientific method” to deal with these “vital questions” (Berlyne 1973, p. 83). With this interest, Berlyne went on to read not only the work of O. Hobart Mowrer (1907–1982), but also that of Clark L. Hull (1884–1952), Neal E. Miller (1909–2002), and other neobehaviorists at Yale.

Berlyne was accepted into the graduate program at Cambridge in 1947, after obtaining his B.A. degree. And in early 1948, he was offered a full lectureship at

the University of St. Andrews in Fife, Scotland, a 2-year appointment that was to commence in the fall. While at St. Andrews University, Berlyne had access to budgetary funds – he bought two cages, housing six rats each, and continued his experiments on attention in rats. At this time he also continued to develop his theoretical ideas about the concept of interest. In 1949, Berlyne's first paper, "Interest as a Psychological Concept," was accepted for publication in the *British Journal of Psychology*.

Berlyne applied for a fellowship at Yale University, offered by both the English-Speaking Union and Yale University, because he was keenly interested in Clark Hull's research there. Some authors have characterized Berlyne's reading of Hull's (1943) *Principles of Behavior*, as the point of "conversion," while others have referred to him as neither a true stimulus–response (S-R) drive theorist nor a "Hullian disciple," and discussions regarding whether he was (or was not) a "true Hullian theorist" are evident in the literature (Brown 1961; Cupchik 1988; Day 1977; Furedy and Furedy 1981; Konečni 1978; Walker 1961, 1980). What is true is the fact that Berlyne retained an admiration for Hull's theorizing throughout his career (Berlyne 1975) and did integrate a number of significant aspects of Hull's system into his theoretical work.

Berlyne's intention in applying to Yale had been to work with Hull, although in the year prior to his being offered this fellowship, Hull advised him "that Yale wasn't the best place to go for Hullian psychology; Iowa was the place" (Berlyne 1973, p. 115). It was at this time that Kenneth W. Spence (1907–1967) had taken over at Iowa and was, in Hull's view, working the way Hull would have liked. When Berlyne arrived at Yale, he did meet and interact with Hull, who unfortunately was very sick and died the following year. About his time at Yale, Berlyne commented "I did not learn all that much about Hullian learning theory because I had already learned a lot about it . . . but I did learn a lot of things . . . mainly statistics and research design" (Berlyne 1973, p. 116–117). During his second year at Yale, Berlyne taught full time at Brooklyn College in New York City. He received his Ph.D. degree, under the supervision of Carl I. Hovland (1912–1961), in 1953; the title of his doctoral dissertation was "Some Aspects of Human Curiosity." Faced with visa problems after receiving his doctorate, Berlyne was obliged to return

to Great Britain, where he taught at the University of Aberdeen in Scotland from 1953 until 1956.

In 1954, Berlyne was offered a Fellowship at the Center for Advanced Study in the Behavioral Sciences at Palo Alto, California, and he took leave from Aberdeen for this position in 1956. Following his time at the Center, Berlyne resigned from his position at Aberdeen and signed on for a year-long appointment as visiting Associate Professor from 1957 to 1958 at the University of California, Berkeley. Here he continued to work on a book he had begun at Aberdeen (which was later to become his first published book) and also had the opportunity to meet the learning theorist Edward C. Tolman (1886–1959) in the last year of Tolman's life.

In 1959, Berlyne went to Geneva, Switzerland, and spent the year with Jean Piaget (1896–1980), as Membre-résident at the Centre International d'Epistemologie Génétique. Berlyne had first met Piaget in 1948 at the International Congress in Edinburgh, and following subsequent meetings, Piaget had invited Berlyne to the International Centre for Genetic Epistemology. It was at the Centre that Berlyne finished his book, *Conflict, Arousal, and Curiosity* (1960), and also began some theoretical work that he later expanded into his second English language book, *Structure and Direction in Thinking* (1965). During this time, he also collaborated with Piaget on a book in French (*Théorie du comportement et opérations*; Berlyne and Piaget 1960).

After Geneva, Berlyne returned to North America and was invited as a Visiting Scientist to the National Institute for Mental Health (NIMH) in Bethesda, Maryland. There he spent time working on the physiological measurement of the orientation reaction, using the galvanic skin response (GSR) and electroencephalography (EEG). In 1960, he was appointed to a position as Associate Professor at the University of Boston. It was while he was occupying this position that he received a call from Roger Myers (1906–1985), who raised the question of a possible move to the University of Toronto (Berlyne 1973, p. 182). Berlyne accepted a position as Associate Professor in January, 1962, and became a Professor of Psychology at the University of Toronto in the following year.

By the time he had arrived at the University of Toronto, Berlyne had published approximately 27 papers, written one sole authored book and one

coauthored book with Piaget (Day 1977). He had also paid a short visit, in 1961, to the Soviet Union where he had the opportunity to visit a number of laboratories investigating the orientation reaction, as well as other topics in physiology and psychology (Berlyne 1963). Berlyne remained at the University of Toronto from 1962 until his death, with the exception of a sabbatical leave in 1968–1969 during which he held the title of NATO-Heineman Visiting Professor at the Institut d'Esthetique et des Sciences de l'Art at the University of Paris. At this time Berlyne's research interests were converging, in a manner consistent with his theorizing, from interest, curiosity, and thinking, onto the study of aesthetics. At the Institut, he started to write a book entitled *Aesthetics and Psychobiology* (1971), and, back in Toronto he obtained funding for an extensive research program on experimental aesthetics.

Berlyne was diagnosed with cancer in early 1976, and after three unsuccessful surgeries and a very quick physical deterioration, he succumbed to his illness on November 2, 1976, at the age of 52. He left behind Hilde Berlyne, his wife of 23 years, whom he had married while teaching at Brooklyn College, and three children. His distinguished scientific career yielded many honors, including Fellow of the Royal Society of Canada, Fellow of the British Psychological Society, and Fellow (and sometimes President) of several divisions and sections of the American and Canadian Psychological Associations. A biannual Berlyne Memorial Lecture was initiated at the University of Toronto, and Division 10 of the American Psychological Association presents a Berlyne Award each year in recognition of outstanding research on aesthetics by a junior scholar. Berlyne served as both President and Vice President of the International Association of Empirical Aesthetics, an association he had cofounded at the First International Congress in Paris in 1965.

Major Contributions

During his lifetime Berlyne wrote or coauthored seven books and approximately 150 journal articles, book chapters, and review papers (some of which were published posthumously). Moreover, Berlyne's work and research has had a resounding international impact – his work has been translated into at least six different languages; he wrote articles in a number of different languages, for example, French, German,

and Russian; he lectured in eight languages on five continents; and he carried out his research in North and South America, Europe, Africa, and Japan. He is undoubtedly a key historical figure in reconstructing the post-World War II exchange of ideas, both transatlantic and cross-continental.

Berlyne's topics of inquiry were broad, including interest, attention, curiosity, exploratory behavior, physiological arousal, play behavior, humor, knowledge-seeking behavior, thinking, and experimental aesthetics. His first book *Conflict, Arousal, and Curiosity* (1960) expounded the theoretical and experimental building blocks of his general motivation theory of exploration-related phenomena, for example, interest, curiosity, thinking, and aesthetics (Barnes 2007). His intentions were clearly stated from the outset when he wrote: "This book is going to be concerned with the *motivation of perceptual and intellectual activities*" (Berlyne 1960, p. 1, italics in original). According to Berlyne (1960), *curiosity* is caused by various *conflicts* and the intervening variable mediating this relationship is *arousal*. Thus, curiosity is the organism's response to "arousal" (or lack thereof) caused by a conflict about "what to do next?" By prompting the organism to explore the environment, curiosity enables the organism to resolve such a conflict and thereby reduce its associated "arousal" level. It must be noted that the term arousal, although it remained a central mediating construct in Berlyne's theorizing, was associated with connotations that differed over the course of his career (e.g., from an "arousal jag" to optimal levels of arousal; a state of arousal versus "arousal potential"; arousal as a physiological index of general activation; a concept to be used as a replacement to drive).

Berlyne (1960) attempted to generalize his theory of exploratory behavior so as to include what he called "epistemic" or knowledge-seeking behavior. This topic became the focus of his second book, *Structure and Direction in Thinking* (Berlyne 1965). The theoretical system proposed in this book was intended to explain the processes involved in directed thinking. Berlyne (1965) explicitly acknowledged that his ideas on thinking had been influenced by his collaboration with Piaget and by his acquaintance with Eastern European and Soviet physiologists. Berlyne (1965, p. 7) refers to his approach as "integrative neoassociationism,"

primarily to distance himself from what he perceived to be the shortcomings of stimulus–response (S–R) behavior theory. Berlyne (1965, pp. 14–19) listed the features of his integrative neoassociationist behavior theory, and in particular, indicated that a neoassociationist behavior theory refers to changes in the internal conditions of the organism through inferred mediated processes (intervening variables) as both “responses” and as “stimuli” (he referred to intervening variables as “implicit responses” and/or as “internal stimuli”). Berlyne, also indicated that a neoassociationist gives primacy to S–R associations (be they manifest in overt behavioral responses or represented as intervening variables) and in this respect differs from those who describe central mediating process through the use of neurophysiological terms and the use of terms like cognition, expectations, and images.

Berlyne (1965) drew on Hull’s S–R theory concept of the *habit-family hierarchy* to explain how an assembly of response alternatives could be made available to an organism in the process of thinking. A habit-family hierarchy consists of a set of potential chains of behavior, such that (1) every chain can start out from the same initial stimulus situation and (2) every chain can end by achieving the same goal. According to Berlyne, the process of directed thinking is one in which the organism “moves” (internally/implicitly) from habit-structure to habit-structure until the problem solution or desired response for the alleviation of conceptual uncertainty and conflict is arrived at. He suggested various mechanisms whereby a person was able to select an optimum response chain out of the several chains available in the habit-family hierarchy. These mechanisms included what he called *implicit symbolic transformational responses*; these hypothetical constructs correspond roughly to the process of imagining what would happen if any given chain *were* to be responded to.

Berlyne’s work on thinking was succeeded by his development of a theory of aesthetic behavior, a theory that was summarized in *Aesthetics and Psychobiology* (Berlyne 1971). Even his aesthetic theory was rooted in Berlyne’s (1960) views concerning exploratory behavior. It was in the *stimulus selection* process that is necessitated in exploratory behavior, Berlyne argued, that

various stimuli are competing for attention. According to Berlyne (1960), in this competition, various aspects/and or properties are being compared and contrasted; it is during this process, he proposed that the organism *collates* (gathers) information from the stimuli available to it and then selects that stimulus to which a behavioral response will be given. It was in the context of collation activity that Berlyne coined the term *collative variables*. These variables determine what properties are assessed and compared during the perceptual phase of the stimulus selection process. For example, novelty is one property that might lead to the selection of one stimulus rather than another. While his list of the collative variables changed from publication to publication, the ones most commonly referred to were: novelty, uncertainty, surprisingness, complexity, and conflict.

The collative variables he had found useful in his analysis of exploration became equally valuable in his analysis of aesthetic properties of an art object. Berlyne (1971) comprehensively detailed the sources from which he had derived his theoretical views on aesthetics; the role of physiology in aesthetic pleasure; and the methods that can be used to study aesthetics empirically. On the role of physiology, Berlyne attempted to show how stimulus intensity could combine with a subject’s arousal level to determine the hedonic value to be associated with an art object. Berlyne moved from theory to experimentation by initiating, in the 1970s, a robust and productive research program at the University of Toronto, in which many graduate and postdoctoral students participated. They attempted to demonstrate how hedonic quality could be influenced by collative variables that included congruity, ambiguity, complexity, and level of novelty, and multidimensional scaling methods were used to extract important attributes common to works of art. At this point the collative variables were referred to as collative properties, and they were conceptualized as structural stimulus properties of art objects. The collative properties commonly varied along dimensions such as familiar–novel, simple–complex, expected–surprising, and ambiguous–clear (Cupchik 1986). This research program culminated in a volume entitled *Studies in the New Experimental Aesthetics* (1974), edited by Berlyne; in the 12 chapters

of this book, data collected in 31 different experiments were reported.

In modernizing experimental aesthetics, Berlyne's approach was in accordance with Fechner's empirical aesthetics "from below" and with Fechner's psychophysical methods. However, Berlyne was essentially founding a new line of scientific inquiry, and he called this the "new experimental aesthetics" (Berlyne 1974, p. 5). Thirty years after his death, his work still serves as a foundation for innovations and research in this field; according to Silvia (2005), "Modern research on experimental aesthetics still takes inspiration from Berlyne's ideas about how collative variables effect arousal, interest and preference" (p. 119).

Berlyne was unique; he attempted to integrate insights derived from diverse theories such as those of Freud, Pavlov, Bartlett, Hull, Hebb, and Piaget into his ideas about psychology; he was well versed in the traditions of American psychology and also those of Western and Eastern European psychologies; he was broadly educated; and he was able to communicate with scholars in a number of different languages. In an examination of his short life, one finds an inordinate number of ideas worth pursuing, and the significance of Berlyne's contributions to the history of psychology has, as of yet, only marginally been brought to life.

See Also

- ▶ Bartlett, F. C.
- ▶ Behaviorism
- ▶ Bekhterev, V. M.
- ▶ Comparative Psychology
- ▶ Gestalt Psychology
- ▶ Harlow, Harry
- ▶ Hebb, Donald O.
- ▶ Helson, Harry
- ▶ Hull, Clark L.
- ▶ Luria, A. R.
- ▶ Mowrer, O. H.
- ▶ Osgood, Charles
- ▶ Piaget, Jean
- ▶ Seashore, Carl E.
- ▶ Tolman, E. C.
- ▶ Troland, Leonard T.
- ▶ Vygotsky, Lev
- ▶ Watson, John Broadus

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Bettelheim, Bruno

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Basic Biographical Information

During his lifetime, Bruno Bettelheim was considered one of the leading experts on the treatment of disturbed children, particularly autistic children. Through his articles and books, he argued that the cause for autism could be found primarily in faulty parenting. His solution was to provide an intensive residential therapy through which autistic children could regain a sense of their autonomy. The period of treatment frequently lasted for years. Over time, his views became increasingly controversial and many of them are now considered outdated (Pollack 1997).

Bruno Bettelheim was born in Vienna on August 28, 1903, to a middle-class Jewish family. After the early death of his father, Bettelheim cut his education short and joined the family lumber business. It was during this period that he and his first wife took in a child who was later described as autistic. Some of Bettelheim's ideas about autism originated from this extended encounter. He later returned to the University of Vienna to resume his studies, eventually receiving a doctoral degree in 1938.

Although Bettelheim grew up in a secular family, he was Jewish by birth, and this was enough for the German authorities to send him to a concentration camp. After being incarcerated in Dachau and Buchenwald for 11 months, he was eventually freed to emigrate to the USA. He would use his experiences in the concentration camp to write his first set of controversial essays, most notably *Individual and Mass Behaviors in Extreme Situations* (1943). In the USA, he went through a series of jobs before being named the principal of the Sonia Shankman Orthogenic School at the University of Chicago. He set out to change the school dramatically and it was in this position that he accomplished his most significant work.

Bettelheim worked with a variety of emotionally disturbed children in the school, but autism was a particular focus of his. He believed that autism was primarily due to a defect in the parenting relationship.

In some ways, he extended the beliefs of Leo Kanner (1894–1981) who first described the autistic syndrome. Kanner had observed that many of the parents in his early sample could be described as “refrigerator parents,” that is, they performed all of the appropriate duties of parents, but were emotionally cold. Bettelheim saw this faulty relationship as a principal cause of the illness (Sutton 1995). Current research in autism differs dramatically from this view, emphasizing the biological origins of the disorder.

As Bettelheim's view became more out of fashion, his writings became equally suspect. He was accused of many things, including being abusive to his charges, falsifying his background and data, and plagiarism. His autocratic personal style did not endear him to everyone. After the death of his wife, Bettelheim became increasingly depressed. He also suffered from a variety of physical problems. Bettelheim died on March 13, 1990, at age 86, a suicide.

Major Accomplishments/Contributions

Bettelheim's beliefs in the causes of autism had a profound effect on the culture at the time. Although he had a pronounced psychoanalytic orientation, he also emphasized the power of the social situation in his work with emotionally disturbed children. He used his experience from the concentration camps to establish his “milieu therapy.” It was his belief that children placed in therapeutic communities such as his, in which they received constant and loving attention, could begin to return from even the most serious emotional illness. The staff at the school went to extraordinary lengths to provide for the children in the treatment center. For autistic children, Bettelheim's goal was to provide them with a sense of autonomy. It was this loss of autonomy he believed that lay at the heart of the disorder. He published data indicating a high success rate for his approach. Although some of his data were questioned, anecdotal reports from parents and filmed records indicated that even if his claims were exaggerated, they nonetheless contained some truth.

In his book, *The Empty Fortress* (Bettelheim 1967), Bettelheim compared children who suffer from autism and schizophrenia to the helpless concentration camp inmates he had studied. Just as the inmates began to

believe that they were worthless and blamed themselves for the position they were in, he believed that children may do the same. He believed that the children enter into a world of their own in order to avoid facing the fact that they are the reason their parents are neglectful toward them. Bettelheim's approach was often interpreted to mean that parents were directly to blame for their children's autistic behavior. Although Bettelheim seemed to support this interpretation, he noted that the cause of autistic behavior might also be found in a clash of temperamental styles between parent and child. In this case, neither parent nor child could be blamed for the poor fit.

Apart from his work with emotionally disturbed children, Bettelheim also wrote a very popular book, *The Uses of Enchantment* (Bettelheim 1976), in which he discussed the role that fairy tales play in the life of children. Using psychoanalytic explanations, Bettelheim tried to show that fairy tales actually helped children to cope with their fears and assist in their growing up. The book was well-received and won several awards (Zimmerman 1997).

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Binswanger, Ludwig

DAVID D. LEE

Amsterdam, The Netherlands

Basic Biographical Information

Ludwig Binswanger was born April 13, 1881, in Kreuzlingen (Switzerland) and died on February 5, 1966, in Kreuzlingen (Switzerland). He studied

medicine in Lausanne, Zurich, and Heidelberg, earning his MD from the University of Zurich in 1907. He worked for a year at Zurich's Burghölzli clinic run by Eugen Bleuler where C.G. Jung supervised his medical dissertation. From 1908 he worked at the Bellevue sanatorium in Kreuzlingen founded by his grandfather and then run by his father which he subsequently directed from 1911 (to 1956), transforming it into one of Europe's most modern private psychiatric clinics. His work with Sigmund Freud was crucial to his intellectual development, specifically his combination of phenomenological and psychoanalytic thought into *Daseinsanalyse* (existential analysis).

Major Accomplishments/Contributions

Major Accomplishments: Binswanger became close friends with Sigmund Freud in 1907 and remained friends for the rest of Freud's life despite their theoretical differences (see Correspondence (Fichtner 1992)). Freudian psychoanalysis and phenomenological philosophy were the two main sources of Binswanger's psychology: existential analysis (Seidman 1984). In contrast to theories in the natural sciences which are designed to explain a phenomenon, Binswanger (following Martin Heidegger, Edmund Husserl, and Martin Buber) believed phenomena to be the beginning and end of scientific and philosophical inquiry. The Freudian approach, which focuses on aggression and sexuality, was combined with (a largely Heideggerian) existentialism. In Binswanger's day, scientific theory was designed to regulate the perception and experience of phenomena in order to help comprehend others' experiences. Existential analysis refutes the psychological view of man's being as solely a natural object. Binswanger insisted on comprehending his patients' illnesses within the full context of their lives, including the patient's mode of being in time (*Eigenwelt*), his orientation in space (*Umwelt*), his relation to his body, and to others (*Mitwelt*), how he thinks as well as his fears and anxieties. He also borrowed Freud's focus on language believing that the content of existence was best expressed in and could be best analyzed via language (Binswanger 1922). This naturally focuses attention on consciousness in a new way, for all scientific data are no longer "objective" and "out there," but interpersonal and mediated by consciousness. How this

differed in practice is that unlike most scientific psychological and psychiatric theories in which each symptom presented by a patient is compared and contrasted to previous patients' symptoms and thus categorized, in existential analysis, all behavior and each symptom is understood firstly within the context of the patient's experience. Moreover, existential analytic therapeutic encounters consist of the genuine opening up of one individual's presence (Dasein) to the other. Thus, unlike Freudian or Jungian analysis in which there are (relatively) set meanings for common dream phenomenon, for example, in existential analysis even "obvious" symptoms (slips of the tongue, dreams, etc.) have no meaning until interpreted within the framework of the patient's being-in-the-world (Binswanger and Needleman 1963). On account of its focus, Binswanger had initially called his theory "phenomenological anthropology" only later adopting the term Daseinsanalyse (existential analysis). His ideas influenced many social sciences, particularly psychology, in the years immediately after the Second World War. His was the first application of existential ideas in a therapeutic setting (see Binswanger (1942)). His most famous case history is that of Ellen West, a deeply troubled anorexic whose diaries and poems Binswanger employed in his (ultimately unsuccessful) attempt to treat her. Unlike Freud and Jung who created schools to perpetuate their ideas and provide an organization for their followers, Binswanger shunned university life and the creation of his own school in favor of managing his sanitarium and explicating his ideas in print. Nonetheless, Binswanger's work has been influential on subsequent psychologists such as Rollo May and Viktor Frankl.

See Also

► [Bleuler, Eugen](#)

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Bleuler, Eugen

DAVID D. LEE

Amsterdam, The Netherlands

Basic Biographical Information

Bleuler was born April 30, 1857, in Zollikon (Switzerland) and died July 15, 1939, in Zollikon (Switzerland). He studied medicine in Zurich (and later Paris, London, and Munich), earning his license to practice in 1881 and his MD degree in 1883. He worked as assistant physician in Waldau (near Bern) from 1881 to 1884, then in 1885–1886 as an intern at Zurich's psychiatric state hospital, the Burghölzli, under Auguste Forel. After directing the Heil- und Pflgeanstalt (psychiatric nursing home) at Rheinau (near Zurich) from 1886 to 1898, he was appointed Director of the Burghölzli and Professor of Psychiatry at the University of Zurich in 1898, a post he held until his retirement in 1927. He is best known for coining the terms schizophrenia, ambivalence, and autism, as well as for supporting Sigmund Freud and the psychoanalytic movement in its earliest years.

Major Accomplishments/Contributions

One of the most influential psychologists of his age, Eugen Bleuler was the fifth director of the University of Zurich's psychiatric hospital, named the Burghölzli after the hill upon which it sits just outside the city. His tenure as Director (1898–1927) is considered the institution's most illustrious period due to his transformation of the idea of the psychiatric hospital into a medical research facility whose purpose was to develop treatments for the mental ill (Hell 2001). His greatest contribution was the replacement of Emil Kraepelin's term *dementia praecox* with his own schizophrenia (1908) (Bleuler 1984). The significance

of this lay not only in the designation – dementia praecox means “premature dementia,” while schizophrenia means the “splitting of the mind,” and Bleuler asserted that the splitting symptom of this disease was more important and prominent than its early onset – but also his assertion that the disease was not incurable and that it did not always result in full dementia (see Bleuler 1911). It was during this work that he developed the concepts of autism (loss of contact with reality often via bizarre fantasy) and ambivalence (contradictory tendencies within the psyche). The former has become a field of research of its own and the latter became a core part of psychoanalytic thinking. Bleuler continued Auguste Forel’s tradition of combining French “dynamic” conceptions of the mind with the German biological perspective (Kuhn 2004). He was the first academic psychiatrist to support Sigmund Freud’s psychoanalytic theories, reviewing Freud’s early work with Breuer favorably and assigning Carl Jung the task of reporting on Freud’s *Interpretation of Dreams* in 1900. The Freudian group in Zurich was founded under his auspices in 1907, and the *Jahrbuch für Psychoanalyse und Psychopathologische Forschung* (1910–1913), edited by Jung, was published jointly by Bleuler and Freud. In addition to his own interests, he encouraged others working at the Burghölzli (e.g., Carl Jung, Ludwig Binswanger, Hermann Rorschach, Adolf Meyer) to think and work psychoanalytically. This led directly to extensive association experiments which presupposed an unconscious along lines Freud (and others) had laid out. Jung and Franz Riklin attempted to empirically demonstrate Freud’s theories. Bleuler’s support for Freud’s ideas and movement was critical at this early stage (1900–1910), and his withdrawal of this support (around 1911) was equally crushing (Falzeder 2007). Bleuler also contributed to a number of psychological and psychiatric subfields (hypnotism, aphasia, osteomalacia, moral idiocy, etc.), and his 1916 textbook was reprinted many times over, spreading his take on psychology and psychiatry throughout German-speaking Europe (and farther afield) for many decades thereafter.

See Also

- ▶ Binswanger, Ludwig
- ▶ Forel, Auguste-Henri

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Boas, Franz

IVAN MANCINELLI-FRANCONI

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Basic Biography

Franz Uri Boas (July 9, 1858–December 21, 1942) Minden, Germany. German-born American anthropologist and founder of the relativistic, culture-centered school of American anthropology. Married to Marie Krackowizer Boas (1861–1929).

Franz Boas was born on July 9, 1858, in Minden, Westphalia, Germany. His parents, Meier Boas (1823–1899) and Sophie Meyer Boas (1828–1899) were well-to-do Jewish merchants. Beset by poor health as a child, Boas spent much of his time reading books on the natural sciences. He earned his baccalaureate at Heidelberg University in 1881, and the same year received his doctorate in physics and geography from Kiel University, Germany.

In 1883, Boas’ interest on the causes of cultural variation, whether due to physical environment or human migration, led him to conduct geographical research on the impact of the physical environment on the *Inuit* on Baffin Island, Canada. This was one of the many *ethnographic* field trips he would take to the Canadian Pacific Northwest. During this expedition, the harsh *Arctic* winter conditions contributed to Boas

and his traveling companions to become lost. Nearly frozen, they were found by the *Inuit* who taught them how to survive in this harsh environment. The long and lonely *Arctic* winter helped Boas find his true vocation as an anthropologist.

While working in Berlin's Royal Ethnological Museum, Boas met members of the *Nuxálk Nation* of British Columbia, Canada. This encounter established a lifelong interest in the indigenous peoples of the Pacific Northwest. In 1887, on a trip to British Columbia via New York, Boas was hired as assistant editor of the New York-based journal *Science*. The security of employment in the United States, along with his marriage to Marie Krackowizer (with whom he had six children), and the growing anti-Jewish sentiment in Germany contributed to Boas' decision to permanently reside in the United States. In 1889, he was appointed head of the newly-created department of anthropology at Clark University. During the early 1890s, Boas did fieldwork along the North Pacific Coast of North America for several museums, and worked as chief assistant in anthropology to *F.W. Putnam* for the *Chicago World's Fair* (1892–1893) focusing on *Native American* cultures, which he showed with life group displays, or *dioramas*, a concept he pioneered. Hired as curator of anthropology at the American Museum of Natural History in New York, Boas directed and edited reports submitted by the *Morris K. Jesup's North Pacific Expedition*, which investigated cultural and linguistic ties between Siberian and North American aboriginal peoples.

In 1899, Boas became professor of anthropology at Columbia University. Through his efforts, the anthropology department became the foremost anthropology department in the United States.

Boas was a great teacher and mentored several American anthropologists, including *Alfred Kroeber*, *Robert Lowie*, *Ruth Benedict*, *Margaret Mead*, *Melville Herskovits*, and *Edward Sapir*. They would later become renowned in their own disciplines.

Accomplishments

Boas' work revolutionized the scientific community at a time when few scholars believed that the various human races possessed equal capacity for cultural development. Two major concepts are attributed to him,

“*Cultural Relativism*” and “*Historical Particularism*.” The former refers to the idea that all cultures are of equal value needing to be studied from a neutral point of view so they can be understood on their own merit and not another culture's. The latter, “*Historical Particularism*,” is the notion that each culture has a unique history and that universal laws do not necessarily determine how cultures operate. These concepts challenged the “*evolutionist*” view of *Louis Henry Morgan* and *Edward Tylor*, who believed that each culture went through stages (from savagery to culture), during their development. The implications of “*Cultural Relativism*” and “*Historical Particularism*” have had a significant impact on anthropology and the social sciences in general.

Boas' argument that human groups evolved equally but in different ways also clashed with the prevalent theory that skull capacity equated directly with *intelligence*, thus implying that Caucasians, having larger brains, were more intelligent than *Native Americans* and people of black African descent. During that period, it was also thought that *cranial index*, or head form, could be used to distinguish between *races* and *ethnic* groups, and that there was a direct relationship between skull shape and predisposition to *criminality* and *mental illness*. Boas' research (1910–1912) based on the analysis of *cranial forms* collected from European-born immigrants and their American-born children in New York, showed however, that environment and not heredity (*Nature vs Nurture*) determined skull shape. Furthermore, due to the plasticity of the skull, precise distinctions between races, ethnicities, or *intellect* could not be ascertained. His findings are still widely accepted and frequently cited in scientific studies. Boas' book, *The Mind of Primitive Man*, which addressed culture and race, was often cited in the 1920s to justify US immigration restrictions based on racial differences. In 1930s' Germany, the *Nazi Party* denounced “*Jewish Science*” attacking not only Boas' anthropology, but also *Sigmund Freud's* and *Albert Einstein's* theories as well. The *Nazis'* contempt for Jews went as far as to publicly burn Boas' books and rescind his Ph.D. from Kiel University. Boas, who had retired since 1936, responded to the *Nazis'* atrocities and the events of the *Spanish Civil War* by writing articles in popular journals about *racism* based on his

anthropological views. These articles were later compiled in the book “*Race and Democratic Society*” (1945, reissued 1969).

Boas also contributed substantially to *descriptive* and *theoretical linguistics*, *statistical physical anthropology*, and *Native American ethnology*, including *folklore* and *art*. He established the *International Journal of American Linguistics*, was one of the founders of the *American Anthropological Association*, and served as president (1931) of the *American Association for the Advancement of Science*.

Boas was a prolific writer. During his lifetime, he wrote hundreds of books and articles. His most notable books are *Growth of Children (1896–1904)*; *The Mind of Primitive Man, 1938*; *Primitive Art, 1927*; *Anthropology and Modern Life, 1938*; *Race, Language, and Culture, 1940*; and *Dakota Grammar, 1941*.

Boas died of a stroke during a luncheon at the Columbia University Faculty Club on December 21, 1942. One of the most influential and respected scientists of his generation, the German-born American anthropologist pioneered modern anthropology. He is considered the “Father” of *American Anthropology* and *Modern Anthropology*.

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Bolton, T. L.

DAVID C. DEVONIS

Graceland University, Lamoni, IA, USA

Basic Biographical Information

Born: July 27, 1865; Died: January 3, 1948

Born in Illinois, Thaddeus Lincoln Bolton worked as a school administrator for a year after graduation from the University of Michigan before beginning psychological studies at ► [Clark University, History of Psychology](#) at in 1890, where he worked with ► [Hall, G. Stanley](#) and Edmund C. Sanford. Bolton’s first work was a developmental study of digit span memory: his doctoral work was in the area of rhythmic perception. Using an electric pattern generator, Bolton studied the process by which people group rhythmic patterns and published in 1894 a detailed review of the literature on rhythm as well as a description of his experimental methods (Bolton 1894). After this he began a long period of academic itinerancy, working for short times at a long succession of academic posts. Between 1899 and 1902, he made the by then nearly obligatory laboratory tour of Europe and worked mainly with Kraepelin in Heidelberg (Crabb 2006). On his return he joined the faculty of the University of Nebraska at Lincoln where he conducted several studies of fatigue utilizing the Mosso ergograph and mentored, among others, Edwin Guthrie.

Major Accomplishments/Contributions

His major contribution during this time was an article on the relation of consciousness to muscular tonus (Bolton 1909). His fractious personality and his ambitions toward higher academic office resulted in his moving from Nebraska to university and normal school appointments in Kansas, Arizona, and Montana within an 8-year span. Finally, in 1917, he was able to enter a secure continuing position in the Psychology Department of Temple University, Philadelphia, where he served as chair from 1924 until his retirement in 1937. Bolton’s early work on rhythm was appropriate for its times and well cited, but after that he devolved into sporadic scientific and review activity and eventually

into mostly popular journalism and personal genealogy. He cemented his reputation at Temple by establishing an endowed chair in psychology in his name, even though the development of that Department's considerable scientific and clinical reputation has more to do with the achievements of his contemporaries such as Frederick Lund and O. Spurgeon English. One notable consistency in Bolton's career was his interest in anthropology and especially in race psychology, possibly stemming from his early association with Franz Boas at Clark. Bolton reviewed Boas' *The Mind of Primitive Man* for the *Psychological Bulletin* in 1912, evincing guarded optimism for racial tolerance (Bolton 1912). He later sponsored, via his course in social and racial psychology at Temple, a study by three of his students of one of his conjectures – not uncommon in geopolitical and racial theorizing – that civilization's center was gradually moving northward, possibly even as far as Philadelphia (Aretz et al. 1931). Bolton is an example of how the impetus among historians to seek founders in psychology sometimes uncovers and elevates obscure achievements.

See Also

- ▶ [Clark University, History of Psychology at](#)
- ▶ [Hall, G. Stanley](#)

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Boring, E. G.

DAVID C. DEVONIS

Graceland University, Lamoni, IA, USA

Basic Biographical Information

Born: October 23, 1886; Died: June 1, 1968

Edwin Garrigues Boring came from a family which valued science: his elder sister Alice Middleton Boring was a biologist and zoologist who worked in China for most of her career (Ogilvie 2009). He began as an engineer but switched to psychology, influenced by ▶ [Titchener, Edward Bradford](#) at Cornell. Boring's skill with apparatus served him well in his doctoral work, a heroic study of the sensations of the gastrointestinal tract, involving among other things devices swallowed to provide electric shock to the stomach, intestines, and other regions (Boring 1915). This work is sometimes still cited in connection with pain in internal organs connected with disease. After service in the Army in connection with psychology's war efforts between 1918 and 1919, he went to Clark University for a time and then to Harvard in 1922, where he became the director of the laboratory in 1924 after he displaced Herbert Langfeld, who went to Princeton. He remained at Harvard until his retirement in 1953.

Major Accomplishments/Contributions

Boring's chief administrative achievement was engineering the definitive separation of psychology from philosophy at Harvard. He was trained as an experimentalist in the Titchener mold, and developed into one of the contemporary authorities on classical psychophysics. Boring's intuition of a generalized psychophysical law (Boring 1924) was largely realized in the work of his graduate student, S. S. Stevens, who authored Boring's National Academy of Sciences necrology (Stevens 1973). But Boring's heart was in other things, and he ultimately became known for his achievements in areas not fundamentally experimental (Helson 1970). Boring's view of psychology was closer to Madison Bentley's eclecticism rather than Titchener's strict introspectionistic structuralism, and he was sensitive to changes in the scientific winds. Boring had a fascination with consciousness throughout his career (e.g., Boring 1921), and devoted much time in the early 1930s to accounting for it. He accepted Titchener's classification of conscious experience in terms of extensity, intensity, protensity, and quality, and correlated these with neurophysiological processes of extensity, intensity, duration, and some neural correlate of sensory quality (Boring 1932). A central tenet of Boring's view of consciousness was that

consciousness is dependent on memory, and memory demands relation. Boring observed that behaviorism, rejected by Titchnerian structuralists, paradoxically was closest to the mark in establishing the primacy of consciousness, because it established the scientific validity of the concept of response – that is, relations between organism and environment – as meaning. Within a nervous system specialized for making relations, certain functions necessarily are embodied which taken together comprised, according to Boring, a “cognitive systematic psychology” (Boring 1933). These functions, along with memory, are reaction, response, reflex, discrimination, and differentiation. All of them can be studied experimentally in animals as well as humans, making a behavioristic method the most applicable for a general psychology. Boring indeed embraced behaviorism and his last major faculty acquisition for the Harvard department was B. F. Skinner, who Boring chose when D. O. Hebb turned his offer down in 1947.

Boring was psychology’s greatest booster in America in the twentieth century. He had a phenomenally witty style and was able to capture much of psychology in memorable phrases. One of these, uttered in the context of a very complete and thoughtful popular review of mental testing, was that intelligence is “what the tests test” (Boring 1923). Another was his characterization of the tensions in his own department, and in psychology generally, as between “sociotropes” and “biotropes.” Sloganeering aside, Boring’s biggest roles were as gatekeeper and as historian. Boring knew everyone in the field and knew something about everything that was going on. In a sense, as chair at Harvard, he recreated Titchener’s role as an arbiter of psychological activity. And, in his historical work, he provided a self-image for the field which has endured. *A History of Experimental Psychology* (Boring 1929) occupied Boring from the mid-1920s and was the inaugural book in the Century Series edited by R. M. Elliott. Boring was uniquely equipped to write a comprehensive history of psychology in the modern era, bridging the era of the first and second generation of psychologists who had known Helmholtz and Wundt with the modern era of behaviorism, Gestalt, and nascent cognitivism. Boring’s history differed radically from others in that it took, as its starting point, the time of the dawn of modern experimental science, rather than

seeking sources in ancient philosophy. No history of psychology before or since was able to match its wealth of fine detail nor Boring’s facility in making old controversies relevant and interesting. And few sciences have had such a history written in their early stages which could give a sense of coherence and confident self-definition to their practitioners, though it may be that this sense was as much false as true. Even though Boring’s history glossed over major divisions in the field, slighted social and developmental psychology, and relied on oversimple historical machinery, it was for a long time the leading history of the field, and a great stimulus to further scholarship in the area. Boring was also an eminent teacher of psychology, publishing along with Langfeld and Harry Weld at Cornell an ambitious, multiauthored textbook in several editions beginning in 1935. He was also a proponent of scientific communication, instrumental in founding an important journal of reviews, *Contemporary Psychology*, which began publication in 1956, and among the first psychologists to be televised while teaching. Eventually, he became known as “Mr. Psychology” because of his ubiquity, and his pronouncements had more effect because of this. Thus, his short note on the ambiguous results of his psychoanalysis with Hanns Sachs (Boring 1940) may have added more weight to the anti-Freudian side of the scale than another’s, and his comments on why women were not better represented in science and psychology (Boring 1951) – because, among other things, Boring did not see them as capable of maintaining his preferred pace of an 80-hour workweek – may have inadvertently done much to change attitudes and behavior toward greater gender equality in the field. Altogether he was a protean, extraordinarily influential character and remains a key source for interpreting much of the development of the field during his lifetime.

See Also

► [Titchener, Edward Bradford](#)

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Bowlby, John

NAVA R. SILTON

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Bowlby, John Mostyn (February 26, 1907–September 2, 1990) was a British psychologist, psychiatrist, and psychoanalyst, most renowned for his interest in child development and his pioneering work in attachment theory.

Biographical Information

John Mostyn Bowlby was born to an upper-middle class family in London on February 26, 1907. John was the fourth of six children and was primarily reared by a nanny, which was common for a British family of his ilk. Sir Anthony Bowlby, John's father and the first Baronet Bowlby, served as a surgeon to the King's Household but suffered the tragic loss of his own father (John's grandfather) when his father was killed as a war correspondent during the Anglo-Chinese Opium War (Child and Adolescent Developmental Overview). John's mother believed it was perilous to spoil one's children with attention and affection, causing John to only see his mom an hour after her teatime and a bit more over the summer months. John later compared the tragic loss of his mother to the loss of his nanny, his primary caretaker, who left his home when he was 4.

Another difficult time for John was at age 7, when he was shipped off to boarding school. His later work, *Separation: Anxiety and Anger*, divulged how challenging this time was for John and influenced his exceptional sensitivity to the suffering of children throughout the remainder of his life. While he later remarked that “I wouldn't send a dog away to boarding school at age 7,” he did note the potential benefits of boarding schools for children (especially maladjusted children) aged 8 and older.

On April 16, 1930, John married Ursula Longstaff, and they had four children together, one of whom was (Sir) Richard Bowlby, who followed his uncle as the third Baronet Bowlby (Child and Adolescent Developmental Overview). On September 2, 1990, John Bowlby died at his summer home in the Isle of Skye, Scotland.

Major Contributions

John Bowlby began his intellectual career with the study of psychology and preclinical sciences at Trinity College, University of Cambridge. It was not long before Bowlby was recognized for his exceptional performance at Cambridge. Upon completing Cambridge in 1928, Bowlby worked briefly with maladjusted and delinquent children and then attended medical school from age 22 to 26 at the University College Hospital in London. During medical school, Bowlby also attended the Institute for Psychoanalysis. After medical school, he trained in adult psychiatry at Maudsley Hospital and became a psychoanalyst in 1937.

Bowlby served as a Lieutenant Colonel, RAMC during World War II, and as a Deputy Director of the Tavistock Clinic following the war. During the war, there were a variety of circumstances in which young children were separated from their loved ones; including the rescue of Jewish children from the Kindertransport, the evacuation of children from London to protect them from air raids, and the use of group nurseries to ensure that mothers of young children could contribute to war efforts. All of these events coupled with Bowlby's earlier work with maladapted children likely inspired his subsequent work at the Child Guidance Clinic in London. Moreover, it likely aroused his early interest in the topics of: separation and wartime work, evacuees and orphans by Anna Freud, Dorothy Burlingham, and Rene Spitz, respectively (Freud and Burlingham 1943; Spitz 1945).

In 1949, Bowlby was commissioned to write the World Health Organization's report on the mental health of homeless children in postwar Europe based on his earlier work on affectionless and delinquent children and the effects of hospitalization and institutionalized care. In 1950, he became the Mental Health Consultant to the World Health Organization and, in 1951, he published the resulting *Maternal Care and Mental Health*. By the later 1950s, Bowlby amassed a large amount of observational and theoretical work to demonstrate how critical attachment was from birth. He suggested that "the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction." Some strongly disagreed with his notion that maternal (or substitute) love was required to function typically, while others criticized the ambiguity of distinguishing the adverse effects of privation (no primary attachment figure) and deprivation (the loss of a primary attachment figure) on the institutionalized. From the 1950s on, Bowlby shared personal and scientific contact with leading ethologists: Niko Tinbergen, Konrad Lorenz, and Robert Hinde (Blow; Tinbergen and Tinbergen 1972). Armed with these new perspectives, Bowlby rejected the prevailing Cupboard Love Theory of attachment advocated by Psychoanalysis and learning theory and created explanatory hypotheses for human attachment behavior involving the caregiver-child relationship and individual differences in attachment security as environmentally labile methods for adapting to a particular childrearing niche. These theories in turn influenced Ethology and ultimately the development of evolutionary psychology via the cross-fertilization of ethology and attachment theory.

Bowlby hoped to reveal which patterns of family interaction led to healthy or pathological development and to delineate how attachment difficulties may be passed down from one generation to the next. He suggested that attachment behavior was an evolutionary survival need to protect infants from predators. He believed that children's interpersonal relationships were integral to their psychological development. Mary Ainsworth, Bowlby's student, expounded upon Bowlby's "secure base," "stranger wariness," reunion behaviors, and other features of attachment behavior to formulate the "Strange Situation Procedure" for

identifying different attachment styles. Arguably, the three most influential experiences for Bowlby's future career and the development of attachment theory included: (1) his work with maladapted and delinquent children, (2) his 1952 documentary, *A Two-Year Old Goes to the Hospital* with James Robertson relating to the suffering of young children who experienced brief separations from their primary caretakers, and (3) his psychoanalytic training with Melanie Klein, though his perspectives related to the actual life events children were experiencing rather than to the unconscious fantasies that were relevant to the Kleinian outlook.

Despite its critics, attachment theory has been deemed the dominant approach toward comprehending early social development and has inspired substantial empirical work on children's close relationships. Developmental researchers continue to be interested in attachment theory, and the theory was more recently extended to romantic relationships by Cindy Hazan and Phillip Shaver (Hazan and Shaver 1987). In conclusion, attachment theory emphasizes the following principal propositions: (1) It is highly plausible for children between 6 and about 30 months to establish emotional attachments to familiar caregivers, chiefly if the adults are sensitive and responsive to child communications. (2) The emotional attachments of young children are demonstrated behaviorally in their preferences for particular familiar people, their tendency to seek proximity to those individuals, chiefly in times of distress, and their ability to utilize the familiar adults as a secure base from which to explore the environment. (3) The formation of emotional attachments contributes to the foundation of later emotional and personality development; and the type of behavior toward familiar adults exhibited by toddlers has some continuity with the social behaviors they will exhibit in later life. (4) Events that interfere with attachment, such as abrupt separation of the toddler from familiar people or the significant inability of carers to be sensitive, responsive, or consistent in their interactions, have short-term and potential long-term adverse consequences on the child's emotional and cognitive life.

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See Also

- ▶ [Ainsworth, Mary D.](#)

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Bréal, Michael

BRIGITTE NERLICH

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Life

Michael Bréal was born in the German town of Landau on March 26, 1832, to French-Jewish parents. His father, August Bréal, died in 1839 and his widow Caroline Bréal and her children moved to Weißenburg in France. When his mother moved to Metz, Bréal went there as a boarder, before moving to the Lucée Saint-Louis and the Collège Sainte-Barbe in Paris. He then entered the École

Normale, which was a rare achievement for a Jew. After the Agrégation in 1857, he got a stipend which allowed him to study Indoeuropean languages in Berlin under Franz Bopp and Albrecht Weber. Bréal later translated Bopp's main work, a comparative grammar of Indoeuropean languages, into French. After his return to Paris, Bréal got a post at the French national library and obtained his doctorate in 1863 with a thesis on comparative mythology. In 1864 he became professor of comparative grammar at the Collège de France and in 1875 member of the Académie des Inscriptions et Belles-Lettres. He was involved in the foundation of the French Linguistics Society in 1868 and in the foundation of the École Pratique des Hautes Études the same year. In 1867 he married Henriette Bamberger. They had three children who were educated bilingually and provoked reflections on language acquisition and language change. Bréal lived through the 1870/71 Franco-German War and France's defeat triggered a lot of soul searching amongst intellectuals. Bréal became involved in the reform of higher education and wrote treatises and articles on issues of education and pedagogy. In 1890 he was made commander of the Legion of Honour and in the same year his wife Henriette died. To her he devoted his most famous linguistic work, the *Essai de Sémantique* (1897), on the meaning of words, which was translated into English in 1900 by Mrs H. Cust with preface by J. P. Postgate. In 1881, Ferdinand de Saussure, the founding father of general linguistics and structuralism, became his successor at the École Pratique des Hautes Études and in 1905 Antoine Meillet, one of the founding fathers of sociolinguistics, succeeded him at the Collège de France. Bréal died in 1915 (Giessen et al. 2007).

Work

He left an important legacy not only in linguistics (historical linguistics, semantics, and pragmatics) but also in the psychology of language. He changed the study of languages by shifting the focus from single words and their etymology to the study of words in context and use. Bréal's linguistic sparring partners were August Schleicher and Arsène Darmesteter, who were both in different ways influenced by advances in biology. But whereas they regarded languages and words as life forms, that is, organisms that live and die, struggle for survival, and propagate themselves,

Bréal studied languages as parts of what Ludwig Wittgenstein later called “forms of life.” Language is there for the purposes of communication and changes through use in context (see Nerlich 1992).

Language: Origin, Use and Change

Bréal wrote in 1879 that language emerges in the process of trial and error as part of human intellectual evolution: “Human thought, having become capable of the most abstract ideas, introduced notions into names for which those names had not been created. We might compare words to precious vials into which a series of essences is poured. At first they contain merely an ordinary liquid, but the human mind eventually makes them into containers of the most exquisite perfumes” (Bréal 1991: 130). And he went on to say: “I do not believe language had a beginning; rather, language emerged from its first verbal groping after lengthy evolution, the transitions of which are almost indiscernible. If we could witness that evolution we would no doubt see the same laws operating which we find in modern language-change. [...] The same causes which operate in full view today must have worked their influence from the outset” (p. 135). One can here see the influence of thinkers like the geologist Charles Lyell on a new type of linguistic discipline, the study of meaning or semantics. Bréal used the term “sémantique” for the first time in 1883. He also introduced the new term “polysemie” or polysemy into linguistics, first in 1887 in a book review and then more prominently in his *Essai*, to refer to the multiplication of meanings around a word over time and the multiplicity of meanings associated with a word at any moment in time, something that drives language evolution, but does not cause problems for speakers of a language who always hear the word in linguistic and social context. Bréal never lost sight of the human being behind language. As early as 1866 he wrote: “Above and beyond the secondary causes which comprise pronunciation, accent and the grammatical origins, comparative philology should acquaint us with human beings, since language is the most ancient, the most spontaneous, and the most unremitting of their creations” (1991: 62). He also never lost sight of the importance of the human mind in the shaping of language and wrote in 1868: “The mind penetrates the matter of language and fills in its cracks and crevices... It is

not enough, in order to grasp the structure of a language, to analyze its grammar and to reduce its words to their etymological meanings. We must enter into a people’s way of thinking and feeling” (1991: 92).

But most importantly, he never lost sight of the pragmatic, behavioral, and societal aspects of language: “Speech is not made for purposes of description, of narration, of disinterested considerations. To express a desire, to intimate and order, to denote a taking possession of persons or of things – these were the first uses of language” (1964/1900: 238).

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Brentano, F. C.

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Basic Biographical Information

Frantz Clemens H. H. Brentano was born in Marienberg, Germany in January 16, 1838, to a Catholic family of comfortable means that had a certain degree of political and cultural influence in nineteenth century Germany. He died in Zurich, Switzerland, on March 17, 1917. His life’s work was the affirmation of philosophy as a scientific discipline, and his considerations of philosophy included explicit viewpoints toward psychology.

Brentano’s early philosophical studies were at Aschaffenburg, Munich, Würzburg, and Berlin. At Berlin and then at Münster, his studies focused on Aristotle. These studies were significant insofar as they laid the foundation for Brentano’s development of the concept of intentionality coming from the scholastic philosophy of the medieval age, which had incorporated the philosophy of Aristotle.

In 1862, Brentano completed his doctoral dissertation at Tübingen, “On the Manifold Sense of Being in Aristotle.” In 1865, Brentano wrote his *Habilitationsschrift* (a qualifying monograph for academic positions), which was on “The Psychology of Aristotle, in Particular his Doctrine of the Active Intellect.” Brentano was a philosopher with a more-than-average concern about psychology. In 1866, Brentano publicly defended the theses of his *Habilitationsschrift* at Würzburg, declaring natural science to be the only correct method of philosophy. From 1866 through the early 1870s, Brentano lectured at Würzburg. Among Brentano’s students at Würzburg were important figures such as Carl Stumpf, Anton Marty, and Antal (Anton) Schütz.

In 1864, Brentano had been ordained a priest. Ordination to the priesthood contributed mightily to the year 1873 as a watershed year in the life of Brentano. In that year, in an ultimate response to the declaration of the doctrine of papal infallibility by Vatican Council I in 1870, Brentano withdrew from the priesthood and resigned from his position at Würzburg. In 1874, he was appointed Professor Ordinarius at the University of Vienna. In 1880 with his renouncing his Austrian citizenship in order to marry as a former priest (not recognized under Austrian law at the time), he gave up his Vienna professorship. In that year, Brentano married Ida von Lieben with a son, Johannes, following 8 years after the marriage.

Brentano subsequently returned to the University of Vienna as a Privatdozent. Included in his student roster in his years at Vienna were Edmund Husserl, Kasimir Twardowski, Alexius Meinong, Christian Von Ehrenfels, Alois Höfler, and Thomas Masaryk, the founder of Czechoslovakia. To be noted is that Sigmund Freud attended some of his lectures. At both Würzburg and Vienna Universities, Brentano’s students numbered among the important and distinguished in the history of his time.

In 1894, Brentano’s wife Ida died. The year after his wife’s death, Brentano retired as Privatdozent at the University of Vienna and decided to leave Austria and to settle in Florence, Italy. He became an Italian citizen (Italy was the origin of his family name). In 1897, he married Emilie Rueprecht. In 1915, he left Italy and moved to Zurich, Switzerland, when Italy entered World War I. He died in Zurich in 1917. His body

was later reinterred in a family plot in Aschaffenburg, Germany.

There is testimony to the personality and character of Franz Brentano. Husserl, for 2 years in attendance at Brentano’s lectures (1884–1886) in Vienna and arguably the most famous and most cited of Brentano’s students, recounts how Brentano’s students found him easy to speak with, and how well Brentano knew how to use questions and objections to guide beginning students. Brentano was a player in the Vienna Chess Club, Husserl reports, and was considered a “clever player” by fellow players. He did wood carvings; he painted and drew. Brentano was abstemious; he did not smoke and he ate and drank moderately. Husserl further comments on Brentano’s “childlike openness and on his childlikeness of genius.”

Despite Brentano’s estrangement from the Catholic Church, Husserl according to his recollections of Brentano never heard him speak of Catholicism without the greatest respect. Brentano was considered to be a pacifist, a citizen of the world. In the context of the era in which Brentano lived, an era of European empire- rivalries and of national chauvinism, this characterization of Brentano certainly stands out as quite noteworthy. Finally, of interest to Husserlian followers and to phenomenological psychologists is Husserl’s claim that Brentano’s example led him to believe philosophy could be scientific and that it was worthwhile for him to leave mathematics and to take up philosophy as his life’s work.

Major Accomplishments/ Contributions

With respect to Brentano’s life’s work and the topics on which he focused, that of intentionality was salient. Intentionality addressed the character of consciousness and Brentano’s development of it from the medieval period of philosophy was later appropriated by Edmund Husserl who further developed the concept of intentionality in the sense of relationality of consciousness for the articulation of philosophical phenomenology. Husserl’s employment of intentionality has continued in the human science tradition of modern psychology and it has its clearest presentation in the school of phenomenological psychology.

In addition to his development of the concept of intentionality in the understanding of consciousness, a second legacy to psychology bequeathed by Brentano

was his articulation of “act psychology.” In this psychology, Brentano promoted the position that the act and content of psychological consciousness processes are separate as functions. Acts rather than contents are to be considered the important concerns of psychology. Act psychology served as a counterpoise to Wilhelm Wundt’s emphasis on contents.

Brentano’s most important work was *Psychology from an empirical standpoint* (1973). According to the historian of the phenomenological movement Herbert Spiegelberg (1972), “the role of psychology in Brentano’s reformed philosophy was central: to provide the scientific foundation for all the branches of his new philosophy, including ethics.” (p. 4) It is not for nothing that Franz Brentano is considered a psychologist as well as a philosopher.

See Also

► [Husserl, E. G.](#)

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Breuer, Josef

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The Austrian physician Josef Breuer was born in Vienna, Austria, on January 15, 1842, and died on June 20, 1925. He received his medical degree from the University of Vienna in 1867 and subsequently conducted research into the physiology of the nervous system while also maintaining a private practice in internal medicine in Vienna. Breuer is most well known as a mentor to Sigmund Freud, the inventor of psychoanalysis, and as a doctor to Bertha Pappenheim, who, under the case name Anna O., became one of the most famous patients in the history of psychoanalysis (Hirschmuller 1990).

As a friend and mentor to the young Dr. Freud Breuer advised him on his career, sent him patients,

and collaborated with him in an investigation into the nature of hysteria, the nervous ailment most commonly diagnosed in their mostly Jewish, upper-middle class, female patients. In their approaches to treatment Freud credits Breuer with the discovery of the importance of abreaction, the discharge of emotions repressed at the time of a traumatic experience, and of insight into the unconscious to relieve symptoms. Their jointly published work *Studies on Hysteria* (1895) presented case studies of several of their patients and laid the foundation for what was to become the theory of psychoanalysis.

The most famous patient discussed in the work is Anna O. who is often considered to be one of the seminal patients in the history of psychoanalysis, despite the fact that she was Breuer’s patient and not Freud’s. Breuer described Anna O. as suffering from a wide variety of unusual symptoms such as hydrophobia, paralysis in several limbs, disturbances in vision, and an inability to eat. Breuer treated her with hypnosis and through talking about her symptoms traced their origins back to the traumatic experience of nursing her father through a long and fatal illness. There is some controversy in the psychoanalytic literature about whether or not Anna O. was “cured” of her symptoms by this treatment, as Breuer claimed in his published case study. Investigations into the life of Bertha Pappenheim by Ellenberger (1972) show that she suffered a relapse and was admitted to a sanatorium soon after the termination of her treatment with Breuer, but later she achieved a successful career as a social worker. How much the treatment by Breuer helped her has been seriously questioned by critics of psychoanalysis. Nevertheless, Anna O. coined the famous term “the talking cure” to describe her treatment by Breuer, which later came to be applied to the treatment of psychoanalysis. Freud and Breuer proposed that the origins of hysteria lay in the unconscious, through the conversion of emotions associated with repressed traumatic experiences into symptoms. Thus, the abreaction, or discharge, of emotions would relieve symptoms by removing the power of those underlying emotions, or insight into the unconscious origins of the symptoms would serve the same purpose. However, as Freud began to investigate what he believed to be the sexual origins of many symptoms and to develop the psychological theory of psychoanalysis Breuer would not follow along. He rejected Freud’s psychological explanation of hysteria and

maintained that it was a disease of the nervous system with a physiological cause. Their collaboration and friendship soon ended. Breuer also soon ended his attempts to treat hysterical patients claiming that they took up too much time in his practice, although historians of psychoanalysis have speculated that he was overwhelmed by the emotional attachments that hysterical patients often developed to their doctors.

Breuer is also known for two important discoveries in physiology: how the sense of balance is mediated by the semi-circular canals inside the ear and the Hering-Breuer reflex, which explains the role of the vagus nerve in regulating respiration.

See Also

► [Psychoanalysis](#)

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Brewer, Charles L.

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Basic Biographical Information



(Photo legend: Courtesy of Dr. Brewer)

Charles Brewer was born on May 5, 1932, in Pine Bluff, Arkansas. He earned his Doctorate from the University of Arkansas. Prof. Brewer is an American educator (William R. Kenan, Jr., Professor of Psychology, Furman University, Greenville, South Carolina) best known for his contributions to and advocacy for the teaching of psychology and for his leadership in enhancing the teaching of psychology.

Major Accomplishments

More than 200 of Brewer's former students have earned doctoral degrees in psychology. He is an influential member of the American Psychological Association, having served as president of a number of divisions, a member of the Board of Educational Affairs, and the Board of Directors. He is a member of the Board of Trustees for the American Psychological Foundation. He has received numerous teaching awards as well as an APA Presidential Citation as "one of our discipline's most esteemed colleagues" and a Division 2 (Society for the Teaching of Psychology) Presidential Citation.

Brewer received his BA from Hendrix College in Conway, Arkansas, and his MA and Ph.D. from the University of Arkansas in Fayetteville. He has written, coauthored or edited eight books and more than 100 book chapters and articles. He is considered the most knowledgeable scholar of the behaviorist John Broadus Watson. Brewer taught at The College of Wooster (1959–1961) and at Elmira College (1964–1967) before moving to Furman University in 1967. At Furman, he was chair of the Department of Psychology from 1972 to 1984 and was named the William R. Kennan, Jr., Professor of Psychology in 1998.

From 1985 to 1996, he edited *Teaching of Psychology*. In this capacity, he improved thousands of manuscripts by insisting on clarity, conciseness, and felicity of expression. He was given the honorific title of Editor Emeritus in 1996.

Brewer is widely recognized for major contributions to the teaching of undergraduate and high school psychology. He has served as chair of APA's Committee on Undergraduate Education and its Board of Educational Affairs. He was chair of the Curriculum Group for APA's National Conference on Enhancing the Quality of Undergraduate Education in 1991 and worked on the Curriculum Group at APA's national conference

on undergraduate education in psychology in 2008. He participated in nearly every important undergraduate education conference in the last 30 years, including keynote addresses at the International Conference on the Teaching of Psychology in St. Petersburg, Russia, in 2002 and 2008.

Brewer was influential in organizing and sustaining APA's Teachers of Psychology in Secondary Schools (TOPSS) and has served as the college representative for the TOPSS Executive Board. He edited curriculum units for TOPSS and the National Standards for the Teaching of High School Psychology. He was chair of the Advanced Placement Psychology Test Development Committee from 2001 to 2003.

Brewer has coedited numerous books on the teaching of psychology and has served as an educational consultant for over 70 introductory psychology textbooks for 16 publishers. He has had an incalculable impact on the field of psychology for more than 40 years. He was married to Marjorie Suhs Brewer for 45 years, and their daughter, Stephanie Foley, is a museum curator in Gormley, Ontario.

See also

- ▶ Benjamin, Ludy T. Jr.
- ▶ Watson, John Broadus

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Broadbent, Donald

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Basic Biography

Donald Eric Broadbent was born on May 6, 1926 in Birmingham, England. Although born in England, he identified himself as Welsh since he was of Welsh parentage and lived in Wales for most of his boyhood years. At age 13 he won a scholarship to Winchester College, a prestigious English Public School where he completed his schooling. He joined the Royal Air Force (RAF) during World War II and was sent to the USA to train as a pilot. After his stint in the RAF, he studied psychology at Pembroke College, Cambridge University. On completing his undergraduate studies, he joined the research staff of the Applied Psychology Unit (APU) in Cambridge where he was able to continue his research studies. In 1958, he was appointed director of the unit, a position he held for the next 16 years. In 1961 he began a productive research collaboration with Margaret Gregory, who became his second wife in 1972. The APU grew substantially in both size and scope under his leadership and, tiring of the large administrative load, he moved to Oxford in 1974 where he headed a small research program and was able to concentrate on his own research until he retired in 1991. He died of a heart attack 2 years later on April 10, 1993.

Contributions

Donald Broadbent straddled the gap between applied and theoretical psychology. He was a Renaissance man of the twentieth century. One of his great interests was that of aircraft and flying. As a pilot for the RAF in World War II, he realized the importance of human

psychology in the design of aircraft. The instrument panels and control levers on aircraft were complex and confusing. A wrong reading or misapplied lever could lead to disastrous results, and often did, unfortunately. His experience with complex and confusing human-machine interfaces convinced him of the importance of applied psychology as a science. The head of the psychology department at Cambridge University, Frederick Bartlett, recognized Broadbent's potential as an insightful researcher with an appreciation of the importance of solving practical problems and soon became his mentor. At that time, traditional psychologists looked down on applied psychology from their ivory towers. Bartlett was one of the few champions of applied psychology and was instrumental in providing the support Broadbent needed to pursue his research. Broadbent's earliest experimental work was on the effects of noise on human performance. These early studies laid the groundwork for his subsequent research and he maintained an interest in the topic throughout his career.

Another area of research, with important practical implications, was that of selective listening to competing messages. An impetus for this research was the need for aircraft controllers to attend to messages received simultaneously from two or more aircraft. Information theory, a branch of applied mathematics, had recently been developed and Broadbent was quick to see the implications of this theory for human communication, and perception in general. He used the concepts of information theory, such as information rate and channel capacity, in modeling human selective attention. The outcome was his most influential book, *Perception and Communication* (1958) in which he developed his classic filter theory on the perception of competing stimuli. Although details of his theory have been modified or replaced over the years to account for new experimental findings, the theory provided the bedrock for modeling human perception in quantitative terms based on the concepts of information theory. This general approach to the quantification of information provided a unifying framework for the seemingly incoherent mass of experimental data on selective attention. Not only did his theory provide new insights and new ways of addressing the problem, it also broke down barriers between disciplines, leading to the maturation of applied psychology into the broader, more general

field of cognitive psychology. From small acorns, wisely cultivated, do large oaks grow.

Broadbent developed his filter theory further drawing on concepts from signal detection theory to strengthen and broaden the applicability of his ideas to real-life situations not usually addressed by theoretical psychologists. His book *Decision and Stress* (1971) encapsulated these ideas. Although an important contribution, the book was not as influential as his previous work since it was essentially an extension of ideas he had already developed and was no longer as novel a contribution as *Perception and Communication*. A third significant book, *In Defence of Empirical Psychology* (1973), is a compilation of his lectures at Harvard University and elsewhere in which he defended his nonconformist approach to scientific research – an approach which, in retrospect, has yielded rich rewards.

Although Broadbent's later research contributions were not as influential as his early information-theory-based filter theory, the cumulation of his many contributions to the study of attention and memory led to major advances in cognitive psychology, before the field came to be known by that name. Broadbent's impact on the field did not end with his passing in 1993. His work and style of research continue to influence both young and established researchers to this day. It is also important to bear in mind that it was his emphasis on solving practical problems that led to the development of major new theories.

Honors

Fellow of the Royal Society, 1968

Foreign Associate of the National Academy of Sciences (USA), 1971

Commander of the British Empire (CBE), 1974

Distinguished Scientific Contribution Award, American Psychological Association, 1975

Honorary doctorates from seven British universities (City, Cranfield, Loughborough, York Universities, University of Dundee, University of Southampton, University of Wales), and two Belgian universities (Free University of Brussels, University of Leuven)

The British Psychological Society instituted the annual Broadbent Lecture in his honor, with Donald Broadbent delivering the inaugural lecture in 1991.

Major Publications

- Perception and Communication*. London: Pergamon Press, 1958
- Decision and Stress*. London; New York: Academic Press, 1971
- In Defence of Empirical Psychology*. London: Methuen, 1973
- Attention: Selection, Awareness, and Control: A Tribute to Donald Broadbent*. Alan Baddeley, Lawrence Weiskrantz (Eds), Oxford University Press, 1995

See Also

- ▶ [Bartlett, F. C.](#)
- ▶ [Craik, Fergus](#)

Broca, Pierre Paul

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Basic Biographical Information

Broca (1824–1880) was born in Sainte-Foy-La-Grande near Bordeaux, France. He attended a Calvinist Collège in Bordeaux where he earned a bachelor of letters degree and diplomas in mathematics and physical sciences. He earned the M.D. degree at the University of Paris medical school in 1848 after which he did graduate studies in anatomy, pathology, and surgery. In 1853, Broca became assistant professor on the Faculty of Medicine. He served several years as *professeur agrégé* (highest teaching certification), and in 1867, he was elected chair of *pathologie externe* in the Faculty of Medicine. In 1868, he became professor of clinical surgery. With a growing interest in anthropology, Broca founded the *Société d'Anthropologie* in 1859, the organization where he presented that for which he is best remembered, clinical cases that defined the human speech center in the cerebral cortex. Elected to a life term in the French Senate as a representative for science, he served only 6 months before his death in 1880. At that time, Broca was also vice president for the French Academy of Medicine (Clarke 1970).

Major Accomplishments/Contributions

Broca made so many significant contributions in anthropology, pathology, neuroanatomy, neuropsychology, and neurosurgery, both in methodology and discovery, that only a few can be mentioned. He has been called the “father of anthropology.” His contributions included founding the *Société d'Anthropologie*, the *Revue d'anthropologie*, and the *École d'Anthropologie*, Paris. He studied human and racial origins as well as evolution of the brain (via study of skulls) and intelligence. Combining, neuroanatomy, neurosurgery, and neuropsychology, he identified *le grande lobe limbique* which figured significantly in what became known as the limbic system, the twentieth century's focus in the search for the neuroanatomical substrates of the emotions. Several brain structures bore his name, and at least two have persisted in modern times when neuroanatomists seek to eliminate most eponyms, namely, the diagonal band of Broca and Broca's area or convolution as a cerebral cortical center essential for human speech (area 44 in Brodmann's cytoarchitectural system). His research associated with Broca's area also led to his emphasis on the left hemisphere as the dominant one for language in most humans and that, in turn, contributed to the general concept of cerebral dominance (Schiller 1979).

Among psychological historians, historians of neuroscience, and medical historians in general, Broca is best known for his role in discovery of the speech center. Psychological historians usually misrepresent Broca's role in that discovery (by attributing it *only* to Broca; see Thomas 2007); whereas, other historians usually describe the essential roles performed by Jean-Baptiste Bouillaud and Simon Alexandre Ernest Auburtin. It will be useful to summarize the roles of Broca Bouillaud, and Auburtin.

Based on an accumulation of clinical cases, Bouillaud, a physician and father-in-law of Auburtin, had long advocated that control of human speech resided in the brain's frontal lobes. Auburtin, also a physician, had done important clinical research that supported Bouillaud's argument (Stokey 1954). During meetings of the *Société d'Anthropologie* in Paris in 1861, Auburtin, who was present but Bouillaud was not, asserted Bouillaud's argument that the human speech

center resided in the frontal lobes of the brain. Auburtin also argued for localization of cortical functioning in general. Localization of function was very much a minority view at that time owing to its dismal association with phrenology. Auburtin further asserted that he had a patient upon whom he would risk his argument, and if the patient failed to confirm his position, he would renounce his support for localization. As Secretary for the *Société*, Broca was an active participant in the discussion, but as shown by the quotation below, he took no position on the localization argument.

Using his words, “by strange coincidence,” Broca reported that he had a patient in his care that, upon Auburtin’s approval, he offered as substitute for Auburtin’s patient. Following examination of the patient, Auburtin approved the substitution, but as Leborgne (“Tan”) was Broca’s patient, on April 18, 1861, Broca presented the results of the postmortem examination to the *Société*. On May 2, 1861, Broca again discussed the brain of Leborgne and said, “But, while I inclined towards M. Auburtin’s opinion, I did not intend to take part in the debate. I am expressing myself neither for nor against specific localizations. . . .” (p. 495, Clarke and O’Malley 1968). Thus, Broca’s involvement in discovery of the speech center might not have occurred except “by strange coincidence.”

Broca did not misrepresent the discovery of the speech center; rather it was subsequent, mostly psychological, historians who did. Later in 1861 and unlike Bouillaud and Auburtin, Broca followed through with further research and presented the more convincing case of Lelong whose lesion was small and more definitive of “Broca’s area,” whereas Leborgne’s lesion involved both the frontal and parietal lobes. By 1863, Broca had accumulated a sufficient number of cases to be able to assert left hemisphere dominance for the speech center in most humans. Thus, Broca deserves a full but not exclusive share of the recognition for the discovery of the speech center. Subsequent research showed that Broca’s area is involved mainly with the motor aspects of speech and that other cortical areas also play significant roles in human speech and use of language.

See Also

- ▶ [Cerebral Dominance](#)
- ▶ [Evolutionary Psychology](#)

- ▶ [Flourens, Pierre](#)
- ▶ [Gall, Franz Josef](#)
- ▶ [Klüver, H.](#)

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Brown, Thomas

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Basic Biographical Information

Thomas Brown was born in Kirkmabreck, Kirkcudbright, Scotland in 1778, the son of a clergyman. He started studying at the University of Edinburgh in 1792, qualifying in medicine in 1806. He practiced medicine briefly but his principal interests were philosophical and literary, resulting in a critique of Erasmus Darwin’s evolutionary theory (1798) and ten volumes of poetry. Via his membership of a private Edinburgh club, the Academy of Physics, he developed libertarian political views and a skeptical approach to metaphysics and religion, while also helping to found the *Edinburgh Review*, one of the most influential British journals in the nineteenth century.

Major Accomplishments/Contributions

In 1808, Dugald Stewart, Professor of Moral Philosophy, University of Edinburgh, became ill. Brown was invited to assume some of his teaching duties, despite manifesting his philosophical unorthodoxy in a series

of books promulgating views on causation similar to Hume's. Brown enunciated his philosophy in his lectures, published posthumously as *Lectures on the Philosophy of the Human Mind*, steering a middle course between Thomas Reid's and Stewart's common-sense metaphysics and Hume's skepticism. Brown was appointed conjoint Professor of Moral Philosophy in 1810.

Like Hume, he espoused mental science, not metaphysics, and asserted that mind and matter were known only in their manifestations. Some of those manifestations (perceptions) arose outside the body. Brown was the first English-speaking philosopher to include muscle sense as a sixth sense, apparently borrowing the category, without acknowledgment, from Destutt de Tracy. Brown classified the states arising from within the body as either *suggestions* or *emotions*. Suggestions, such as thoughts, concepts, and beliefs, were intellectual and active, while emotions were passive.

Successive mental scientists treated the emotions similarly to Brown. Emotion was a relatively new term, appearing only in the mid-eighteenth century, replacing terms such as *passion*. More particularly, Brown treated the will not as a separate, active faculty but merely as one emotion among others, and therefore as passive. Moreover, he claimed we could not experience the will as such but only as realized within some particular conception or situation. Furthermore, he also seemed to believe that, in the case of bodily movements, acts of will were muscle-group specific (if I will my left forefinger to move, then only that finger moves).

The published version of Brown's *Lectures* went into 20 editions and influenced James and John Stuart Mill, who embraced his "mental chemistry" (the analysis of mental states into their components). Others advanced Brown's "mental physics" (charting successive mental states). Several proto-psychologists (e.g., Herbert Spencer, George Henry Lewes, and James McCosh) adopted Brown's division of mental states into sensations, thoughts, and emotions, while also, again following Brown, classifying emotions into retrospective, immediate, and prospective. In particular, Alexander Bain's analysis of motivation was Brownian. He postulated that emotions had bodily origins and that degree of arousal of psychophysical and mental states was automatically conjoined.

Brown did not marry (his household comprised himself and his sisters). He died in London on 2 April, 1820.

See Also

► [McCosh, James](#)

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Brown, Warner

DAVID C. DEVONIS

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Basic Biographical Information

Born: February 9, 1882; Died: February 6, 1956.

Born near Greensboro, Georgia, to New England parents, Brown received his B.A. (1904) and M.A. (1905) from the University of California, majoring in Philosophy, with George H. Howison. His earliest psychological training was with George Stratton, and then he proceeded to doctoral study at Columbia (Ph.D. 1908) with R. S. Woodworth, where he was also influenced by Cattell, Dewey, and F. J. E. Woodbridge. For his doctoral work, he measured voice prosody in poetry via a tambour recorder. He returned to Berkeley, rising through the ranks to professor by 1923 and serving both as Department Chair for 16 years and as Associate Dean in the College of Letters and Science in the late 1920s.

Major Accomplishments/Contributions

Edwin G. Boring, in the second edition of his *History of Experimental Psychology*, styled Brown the senior experimental psychologist at California. His varied

contributions between 1904 and 1920 included short reviews and experimental reports on habit interference in sorting cards, same vs. different sex recognition of faces, incidental memory (one of the earliest studies in this area), color and number naming, and the identification of shades of gray. Work of Brown's on difference judgments and the judgment of very weak stimuli had some persistence in the literature, but his most durable contributions are his later work on sensory cues in human maze learning (Brown 1932; Brown 1937): his work was cited to effect by the philosopher-geographer Yi-Fu Tuan in *Space and Place* (Tuan 1977). Brown also collaborated on the massive Boring, Langfeld and Weld textbook series in the late 1930s, contributing a chapter on spatial perception and wrote, with H. C. Gilhousen, a college text of his own (Brown and Gilhousen 1950). Brown's main effect on the field, however, was as a teacher and administrator, and as such he is representative of many psychologists coming into the academy at and after this time who bolstered early gains of earlier pioneers. In Brown's case, this meant following George M. Stratton and reinforcing the development of the Berkeley department, with its diversity both in points of view and gender. Brown also shared the commitment to a liberal outlook and action characteristic of the Berkeley department. In 1918, he played a role, with Kenyon J. Scudder, in abolishing corporal punishment at the Preston School of Industry at Ione, California, and in 1950 he was one of the members of the Berkeley faculty who along with Edward C. Tolman refused to sign a loyalty oath required by the University of California. Among his students were the influential California investment banker and philanthropist Walter Stern Heller, who studied the effects of advertising with Brown (Heller and Brown 1916), and the eminent methodologist Donald T. Campbell, who chose his first independent research project as an undergraduate member of Brown's Experimental Psychology course. Brown is memorialized at Berkeley by the Warner Brown Memorial Prize, which is awarded for outstanding undergraduate psychology research.

See Also

- ▶ Stratton, G. M.
- ▶ Tolman, E. C.

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Bugental, James F. T.

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Basic Biographical Information

Born in Fort Wayne, Indiana, on December 25, 1915, James Frederick Thomas Bugental was the son of Richard Francis Bugental, a smart, ambitious, and tough man, who struggled to find work during the depression and Hazel Jeanette Bugental, an aspiring pianist who sacrificed her career to marry, and supported the family by teaching music. Bugental spent his early childhood in Ohio, Illinois, and Michigan, until the family moved to California in 1927, where he finished high school and junior college. An avid reader from an early age, he did well in subjects he enjoyed, and poorly in those he did not like.

After completing junior college, Bugental married, received his B.S. from West Texas Teachers College in 1940, and earned a fellowship to George Peabody College in Nashville, Tennessee, where he received an M.A. in sociology in 1941. In 1943, his doctoral studies in the Peabody psychology department were interrupted by World War II, at which time he became the acting director of the Veteran's Guidance Center at the Georgia School of Technology. In 1945, he was drafted into the army and was assigned as a psychologist to the Lawson Army General Hospital in Atlanta. Bugental was discharged from the army in 1946.

Having been inspired by reading Carl Roger's *Counseling and Psychotherapy*, Bugental attended the doctoral program at Ohio State University under the G.I. bill, where in his own words, he gained a "new confidence in his intellectual abilities." He received his Ph.D. in psychology in 1948 from Ohio State, where he studied under two psychologists who had a significant influence on Jim, and an early influence on the development of humanistic psychology, George Kelly and Victor Raimy.

During his post-doctoral years, Bugental taught and did research at UCLA, concentrating on psychological interviewing. He soon changed directions and became a founding partner of Psychological Service Associates, a psychotherapy practice working with individuals and groups in Los Angeles.

During the 1960s and 1970s, Bugental was divorced and married Elizabeth Bugental, who became a central figure in his life. Also, during this period, he became involved in local, state, and American Psychologist Association (APA) activities. Throughout his career, he taught widely and published extensively on the humanistic and existential-humanistic orientation in psychology. In 2003, Jim suffered a stroke, and in September of 2008, he died at home in Petaluma, CA, at the age of 92.

Major Contributions

James F.T. Bugental played a key role in psychology, and in the early development of humanistic and existential-humanistic therapy. He became the president of the American Psychological Association from 1960 to 1961, and in 1962 and 1963, he was the first president of the Association for Humanistic Psychology (AHP). He wrote the journal article, "Humanistic Psychology: A New Breakthrough," which had a significant and profound influence on the establishment of goals and policies for the newly established AHP.

In 1964, a conference at Wesleyan University in Old Saybrook, CT, established humanistic psychology as a legitimate movement embraced by eminent and respected scholars. Among those present were James Bugental, Gordon Allport, Charlotte Buhler, George Kelly, Clark Moustakas, Abraham Maslow, Rollo May, Carl Rogers, Gardner Murphy, Henry Murray, Robert White, and other notable figures from various

academic fields, including psychology, education, biology, phenomenology, and more.

In 1965, Bugental wrote, *The Search for Authenticity: An Existential-Analytic Approach to Psychotherapy*, which elucidated an existential approach to the psychology of personality. To paraphrase Bugental, the depth existential therapist assists the client in seeking to become aware of and to express in words how she or he identifies her or his self and world. The client is encouraged to seek within for a sense of concern, a recognition of what truly matters to her or him in the very present now. According to Jim, this focus on the immediate present is central to the search for existential identity. "To talk about what matters in one's life is very different from talking out of that experience as it is being lived, even as one speaks."

In 1971, the Association for Humanistic Psychology established the Humanistic Psychology Institute (now known as Saybrook University), a graduate degree granting humanistic psychology institution in San Francisco, CA. Jim Bugental was an early supporter, a member of the executive faculty, eventually became an emeritus faculty member, and was awarded an honorary Doctorate from Saybrook University.

Some of the principle features of Bugental's version of an existential-humanistic psychology include:

1. Self-and-World Construct System – the how of a client/patient's constructed world.
2. Resistance – the client's blocks to being fully in one's being – the very illness which may impel the client to seek psychotherapeutic help.
3. Process Emphasis – giving primary attention to the client's process rather than to the content of her or his dialogue. The therapist monitors facial expressions, gestures, breathing patterns, body language, and much else besides the narrative of what the client is saying. These are signals from the preconscious level of the client's mind, and have therefore not yet been consciously recognized by the patient.
4. Transference – the patient's unconscious attempt to reestablish an earlier, symbiotic relationship with a person important in her or his life. If transference is a reality in the self-and-world construct of the client, and this transference is a form of resistance that prevents authenticity and genuine encounter

with the therapist or in the client's life, then that transference becomes a part of the conversation.

5. The remaining features include the Core Conception, Destiny, Searching, Concern, and the Therapeutic Alliance.

Bugental saw psychotherapy as a window to the human soul, its goal being to help people who are distressed about their lives and try to make their lives more satisfying.

Over the course of his career, James Bugental conducted workshops nationally; lectured internationally; received many prestigious awards; served on the editorial boards of many distinguished journals; and published numerous articles, chapters, books, reviews, and commentaries.

In addition to what has already been mentioned, over the course of his career, James F.T. Bugental was Professor Emeritus at the International Institute for Humanistic Studies; named Fellow of the American Psychological Association in 1955; Emeritus Clinical Faculty Member at Stanford University School of Medicine; a Rockefeller Scholar at the California Institute of Integral Studies; the first recipient of the APA Division 32, Humanistic Psychology, Rollo May Award; author of over 60 articles and chapters on Existential-Humanistic psychology and psychotherapy; author of seven books, including *Search for Authenticity*, *Psychotherapy and Process*, *Intimate Journeys*, *The Art of Psychotherapy* and *Psychotherapy Isn't What You Think*; and the editor of two versions of the *Handbook of Humanistic Psychology*. His books have been translated into many languages, and have been used widely in undergraduate and graduate schools of psychology and psychotherapy.

See Also

- ▶ Maslow, A. H.
- ▶ Rogers, Carl R.

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Bühler, Karl

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Basic Biographical Information

Karl Bühler was born in Germany in 1879. After receiving doctorates in medicine and philosophy, he went to the University of Würzburg to work with Oswald Külpe. Külpe was a former student of Wilhelm Wundt who had disagreed with his mentor over the appropriateness of experiments for studying thought. This was the area in which Bühler worked (Bühler 1907). It was the publication of Bühler's work that led to Wundt's famous attack on the methods of the Würzburg School (Wundt 1907). Bühler was not intimidated by the eminence of his critic and vigorously defended his work (Bühler 1908).

Bühler and Külpe must have formed a close bond since they moved together to the University of Bonn in 1909 and to the University of Munich in 1913. Upon the outbreak of the First World War, Bühler joined the German army and worked as a medical doctor on the western front. He was called back to Munich to take temporary charge of the psychology institute after the unexpected death of Külpe in 1915 at the age of 53. A few months later, Bühler married a graduate student from the institute, Charlotte Malachowski, after a whirlwind romance. As Charlotte Bühler, she was to become a famous psychologist in her own right.

Bühler was disappointed to learn that his position in Munich was not made permanent. He subsequently took up an appointment at the Technical University in Dresden. The position at a major university that he wanted came in 1922 when he became director of the psychology institute at the University of Vienna. Here, the Bühlers surrounded themselves with talented colleagues and graduate students, many of whom became

well known in the English-speaking world because of their subsequent emigration to Great Britain and the United States. They include Egon Brunswik, Else Frenkel, Paul Lazarsfeld, Marie Jahoda, and Karl Popper.

Bühler's eminence was recognized in 1929 when he was offered the chair in psychology at Harvard University which had been vacant since William McDougall had moved to Duke University in 1927. He decided to reject the offer. He and his wife were happy in Vienna and had no desire to leave. They were to regret this decision a few years later when they came to the United States as refugees and had a very different reception. Neither was able to obtain a permanent position at a major American university. Part of the problem was that refugees had started to arrive in large numbers from Germany after the Nazi takeover in 1933. The refugees who arrived after the German annexation of Austria in 1938 were relative latecomers, and there were few positions left. Another factor is that Bühler had become famous for his work on language in the 1930s, a topic that was neglected in American psychology during the years of behaviorist domination. It became important with the rise of cognitive psychology in the 1960s, but by then, Bühler was over 80 years old and in poor health.

After several unsuccessful attempts to obtain permanent positions at a major American university, the Böhlers became clinical psychologists at different hospitals in Los Angeles. Charlotte Bühler had a minor resurgence in her career after she became an enthusiastic advocate of humanistic psychology, but her husband was much less able to adapt. He died in relative obscurity in Los Angeles in 1963.

Major Accomplishments

If Bühler is mentioned at all in American textbooks on the history of psychology, it is in connection with his early work in Würzburg. The rest of his work is largely unknown. This stands in sharp contrast to Europe, where Bühler's books have been constantly reissued, and there is a substantial secondary literature on his work (e.g., Eschbach 1984, 1988).

Bühler's appointment in Vienna was largely due to his eminence in developmental psychology. His major work on the subject, *The Mental Development of the*

Child, was published in 1918 and was already in its sixth edition by 1930 (Bühler 1930a). An abridged version of the book, *Outline of the Mental Development of the Child*, was published in 1919 and had reached its fifth edition in 1929 (Bühler 1929a). An English translation of the latter was published in 1930 (Bühler 1930b). Bühler's main work from the 1920s is *The Crisis of Psychology* (1929b). Like many of his contemporaries, he was concerned about the bewildering variety of approaches to psychology that existed and put forward some cogent proposals for how they might be reconciled. Bühler's *Theory of Language* (1934) is generally regarded as his greatest work. It has been massively influential, being cited by scholars as diverse as Karl Popper, Roman Jakobson, and Heinz Werner (Brock 1994). Several Wittgenstein scholars believe that it was an important influence on Wittgenstein's thought (e.g., Bartley 1973). It was belatedly translated into English in 1990 (Bühler 1990).

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C

Carmichael, Leonard

DAVID C. DEVONIS

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Basic Biographical Information

Born: November 9, 1898; Died: September 16, 1973.

Leonard Carmichael was born in Philadelphia to a family with long ties to Tufts University where he matriculated in 1917. He did his graduate work at Harvard mainly with Walter F. Dearborn, but also garnered influence from E. G. Boring, Leonard Troland, and William MacDougall. For the first half of his career, Carmichael distinguished himself as a researcher; in its last half, he became even more eminent as a representative of public scientific culture, playing leading roles with the Smithsonian Institution and the National Geographic Society.

Major Accomplishments/Contributions

Carmichael's doctoral dissertation centered on the question of the amount and type of behavior that could be proven to be inherited or genetic and gave essential direction to his subsequent work (Carmichael 1925). After visiting several German psychological laboratories as a Sheldon Fellow after obtaining his Ph.D., he joined the Princeton University psychology department, where he became a protégé of Howard C. Warren. There he found that frog embryos, anesthetized during the period in which motor reactions to external stimulation develop, exhibited comparable levels of motor development to control organisms when the anesthesia was removed. This finding, along with his prior theoretical activity, led him to take a radically interactionist position in the heredity-environment debate (Carmichael 1926a). His interest in reflex

physiology led him to contribute historical work on Robert Whytt and especially on Sir Charles Bell: Carmichael even founded a Charles Bell club for colleagues and students (Carmichael 1926b; Pfaffman 1980). On Warren's recommendation in 1927, Carmichael moved to Brown University. At Brown, Carmichael continued his own work and revived the laboratory which became very productive under his direction and after him under Walter S. Hunter, especially in the area of sensory psychology. During the 1930s Carmichael continued his experimental investigations of organized prenatal behavior. Using novel preparations, he studied the development of behavior in utero in several modalities across several organisms ranging from amphibians to cats. These findings were a physiological counterpoise to the dominant behaviorist theories of learning of that time. Over time, Carmichael came to identify more with the maturationists than the environmentalists regarding early development: his contributions to that debate reached their apogee around 1940. After this time, Carmichael became a consummate administrator and turned his energies to the promotion of science and scholarship in a variety of public contexts. He left Brown in 1936 for a brief stint at the University of Rochester as Dean of Arts and Sciences, and then in 1938 became President of his alma mater Tufts, a position he held for 15 years. During the Second World War he was the Director of the National Roster of Scientific and Specialized Personnel, responsible for assigning scientific talent to war-related projects, and he continued to contribute articles about personnel issues in science through the rest of his career. His scientific work during this period focused on perceptual and cognitive issues, including a study of reading and visual fatigue with his old graduate mentor W. F. Dearborn and also studies correlating brain activation measured by EEG activity with cognitive tasks. In mid-life, Carmichael found his calling in managing major

public scientific educational institutions. In 1953, he assumed the Secretaryship of the Smithsonian Institution in Washington D. C. and oversaw a major expansion of its programming including its new Museum of History and Technology in 1964 (now the National Museum of American History). He retired in 1964 and he moved to the National Geographic Society as Vice President for Research and Exploration, where he oversaw several important initiatives including the work of Jane Goodall on chimpanzees in the wild (earlier he had served as one of the scientific directors of the Yerkes Laboratories for Primate Biology) and contributed several forewords and other chapters to Society publications (e.g., Carmichael 1971). Carmichael was a prolific editor, serving as Psychology editor for Houghton Mifflin for many years and in that capacity bringing several psychologists to prominence including Carl Rogers. His expansive and nonpartisan approach to science in general and developmental science in particular was reflected his editorship of two editions of the *Manual for Child Psychology* in 1946 and 1954. He also continued to write on early development in a variety of contexts, including the very early development of the capacity for language (Carmichael 1964). From 1970 until the end of his life, he was President of the American Philosophical Society, where his papers, valuable both for their comprehensiveness and their insights into the development of public science during his career, reside. His vision of public service is also memorialized at Tufts in the Leonard Carmichael Society, a student volunteer community service organization.

See Also

- ▶ Dearborn, Walter F.
- ▶ Troland, Leonard T.
- ▶ Warren, Howard Crosby

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Catholics in Psychology

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For centuries the question “What does Athens have to say to Jerusalem?” has framed the perennial issues pertaining to reason’s relationship to faith and science’s relationship to theology. Catholicism, throughout its long tradition, has consistently asked this question seeking to integrate the various dimensions of faith and reason. At the end of the nineteenth century, in its embryonic stage, psychology a word whose etymological roots suggest “the study of the soul” faced this question as it sought to become a scientific discipline. The purpose of this essay is to explore how psychology from its inception as a discipline has evolved in its theoretical relationship to a faith tradition, namely, Roman Catholicism, whose central purpose has involved the salvation of souls. An examination of how this relationship evolved in the last 125 years may be especially useful in framing both the past and contemporary trends in which there have existed conflicts and collaborations between the clinical and experimental disciplines of psychology and relevant Catholic psychological principles and practices.

The relation between faith and reason can be construed in a number of ways. One recent model derived from the faith and reason relationship is a four-category model proposed by John Haught in his book *From Conflict to Conversion* (1995). For Haught, the relationships between science (and for our purposes psychology) and religion (for our purposes Catholicism) may be related in terms of the categories conflict, contrast, contact, and confirmation.

Toward the end of this article, we will return to Haught's model so as to help us understanding the ways in which important ideas and insights of psychology have set a tone of conversation, at times conflicted and at other times collaborative, with Catholic ideas expressed by Catholic individuals and institutions. In this respect, we may find that there continues the perennial conversation between reason and faith, namely, between Athens and Jerusalem.

A historical overview of some of the more significant Catholic individuals and institutions involved in the relations with psychology is in order. We will present this entry within a framework of ideas formulated by Church authorities and carried out by individual Catholic psychologists and scholars. This entry will consider how some influential Catholic psychologists, first in Europe and then in the United States, through their publications and respective institution's programs became bridges between mainstream psychological and Catholic thought. As we shall see, their efforts, while at times fraught with conflict, led to breakthroughs in understanding and ultimately cooperation and collaboration. We will also find that at times some Catholic psychologists may have become too accommodating in some area of psychology (see below the critiques of Vitz and Groeshel) such that "Athens's" gain was "Jerusalem's" loss.

The framework of this study will be threefold, encompassing a consideration of issues pertaining to perennial ideas, pertinent institutions, and individuals who promoted the conversation or provoked controversies relating to Catholicism and psychology. First, we will tackle the initial acceptance and then significant resistance Roman Catholic leaders and thinkers initially had toward the major currents of psychology as they emerged in the later part of the nineteenth and early part of the twentieth centuries. As will be seen, this resistance represented the perennial concerns of philosophy from which a "new psychology" emerged in the later part of the nineteenth century. Next, we will explore how psychology's tendency toward atheism, determinism, materialism, and reductionism, most notably found in Freud and other psychoanalytic writers, prompted often hostile responses from Catholic Church leaders. We will then explore the lessening of these tensions between mainstream psychology and Catholicism during the second half of the twentieth

century to the point where Catholic institutions were promoting and at times requiring many of its clergy and religious to be trained in psychology.

From this brief survey of issues, key individuals whose professional endeavors in psychology enhanced Catholicism's project of balancing issues of faith with the explorations of reason will be presented. Especially considered will be the emergence of Catholic psychological endeavors beginning with developments of The Catholic University of America up to the current institutional response to the crisis of clergy abuse. Consideration will also be given to how the once ambivalent and even antagonistic relationship between mainstream psychology and Roman Catholicism has, at least from the Church's perspective, become an important alliance, both clinically and experimentally. Though Catholics have for decades been involved and even been leaders in disciplines such as counseling, education, psychiatry, and social work incorporating psychological insights and theories into their practices, for the purpose of this entry we will primarily be focused on how Catholicism has related to mainstream experimental and clinical psychology and the latter's auxiliary discipline of psychoanalytic thought.

Catholicism's Response to the New Psychology

When Wilhelm Wundt's experimental laboratory opened in Leipzig in 1879 ushering in the "new psychology" and its systematic experimental methods to study perceptual phenomena and psycho-physiological responses, the Catholic world was also ushering in new systematic philosophical and theological approaches to beliefs and moral values. In 1879, Pope Leo XIII promulgated the encyclical *Aeterni Patris* (On Restoring Christian Philosophy). The encyclical built upon one of the decrees of the First Vatican Council (1869–1870) in which it was asserted that faith and reason rather than at odds mutually support one other. For the pope the mutual relation of faith and reason could be found most persuasively in the thought of the medieval philosopher and theologian Thomas Aquinas (1225–1274). By means of *Aeterni Patris*, the pope formally resurrected Thomistic intellectual thought as a means for encountering the issues of the modern world. In this way, the encyclical served to spearhead a renaissance in Catholic philosophical and theological thought.

Through *Aeterni Patris*, the pope challenged Catholic scholars to acquaint themselves with the changes that the emerging sciences had presented this historical epoch. Such a challenge signaled the beginning of a new era in the relations between science and Catholicism, as it marked a turn from many reactionary stances that the Church had held since the dawn of the Enlightenment. Moreover, the pope sought to promote greater dialogue between the emerging modern sciences and Catholicism. The encyclical, in effect, represented an attempt to depart from the defensive posturing and reactionary stances the Church had taken since the theological disputes of the Reformation, the philosophical problems of the Enlightenment, and the political repercussions of the French Revolution and European nationalism.

In some respects, the pope's efforts were successful. The encyclical served to foster a movement away from Catholicism's medieval scholastic thought and promote a return to scholastic synthesis known as Thomism, which the pope felt combined a greater philosophical depth and anthropological breadth through which the Church could more effectively dialogue with the modern world. In issuing *Aeterni Patris*, then, Pope Leo XIII seemed to offer ways of reconciling the Church with the modern world. The challenge and concern for Catholicism's encounter with the contemporary culture and intellectual world, voiced by Pope Leo XIII in *Aeterni Patris*, were echoed more than a century later by Pope John Paul II in his 1998 encyclical *Fides et Ratio* and in 2006 by Pope Benedict XVI in his controversial address at the University of Regensburg entitled, *Faith, Reason and the University: Memories and Reflections* (2006). In all these instances, the popes reaffirmed the Catholic position of seeking a strong compatibilism between faith and reason and therefore between theology and science.

Toward the end of the nineteenth century, a century in which revolutions in Europe led to Catholic postures of retrenchment, e.g., Pope Pius IX's 1864 promulgation of *The Syllabus of Errors*, Pope Leo XIII (1810–1903) recognized that relations between religion and science needed a renaissance and even reconciliation in their relationship. In his encyclical *Aeterni Patris* (1879), he asserted that a contemporary Catholic conversation with science could only be made through a revitalization of philosophy, which for the pontiff meant an

updating of the philosophical integrative system of Thomas Aquinas (1225–1274).

For the Church, an essential dimension to this unity required a shared understanding of metaphysics. The positivism that emerged in mid-nineteenth century sciences, however, proposed a naturalism whose methods were disassociated from metaphysics. For instance, while Wundt still saw the need for psychology's relation to metaphysics, figures such as Freud, Watson, and even James did not. Given the fact that Church authorities tended to take a critical and even a reactive stance toward the scientific advancements of the period (e.g., Darwin's and Spencer's evolutionary theories), it made it difficult and almost heretical to study a discipline divorced of a metaphysical foundation. As we shall see, exceptions were made and distinctions developed that would allow for the emergence of first experimental and then the clinical dimensions of the "new psychology" within various Catholic institutions and among Catholic scholars and practitioners.

Among the early Catholic proponents engaging in experimental psychology while remaining linked to a Neo-Thomistic perspective were Fr. Desiree Mercier (1851–1926) and Fr. Edward Pace (1861–1938). Both priests were allowed and indeed encouraged by Church authorities to study under Wundt in Leipzig. Mercier, who in 1891 was appointed the director of Louvain's "Institut de philosophie," became a Catholic apologist for both the rational psychology of Thomism and the empirical psychology of Wundt through his three books, *Psychologie* (1892), *Les Origines de la Psychologie Contemporaine* (1897), and *La Psychologie Experimentale et la Philosophie Spiritualiste* (1900). Mercier, the first Catholic priest-psychologist, later was elevated to the rank of a Cardinal in the Church. Furthermore, he became a prominent international figure during and after the First World War and was influential in promoting not only neo-Thomistic thought at Louvain University in his native Belgium, but psychological programs as well. His influence eventually led to Louvain's prominence in European studies in the psychology of religion.

Edward Pace, meanwhile, following his studies in Leipzig returned to become in 1892 one of the first five psychologists elected to the American Psychological Association by its charter members. Later in 1905,

after teaching several courses in psychology through the University's philosophy department, Pace founded the first psychology department at any Catholic institution in America. By establishing this department as well as a department of education at The Catholic University America, Pace influenced generations of Catholic priests, religious brothers, and women religious to be trained in some of the tents of psychology as they applied to education and social work.

At the start of the twentieth century, Catholic scholars were generally sympathetic to the "new psychology." Besides Mercier and Pace, E. Boyd Barrett, an Irish Jesuit scholar, was generally favorable to experimental psychology and in 1911 expressed a complimentary tone to the work of Wundt, James, Kulpe, and Michotte for the popular English Catholic periodical *The Month*, whose readership consisted mostly of priests in Great Britain and in America. Within a short time, however, while the promotion of the "new psychology" by Mercier, Pace, and Barrett would prove influential within certain educational circles, the overall relationship between Catholicism and psychology would become hostile and suspicious. Catholicism's defensiveness became evident in two related movements against modern thought. One, known as Americanism, was specifically applied to progressive Catholic thought in the United States, while another, known as "Modernism," was specifically applied toward progressive Catholic thinkers in Europe. These reactions to progressive Catholic theological thought at the dawn of the twentieth century reinforced the defensive posture of Roman Catholicism to increased antagonism between the fledgling fields of both experimental and clinical psychology and the Church. The most significant antagonism occurred with the emergence of Freud's psychoanalytic writings.

Barrett offered one of Catholicism's first criticisms of Freud's psychoanalytic method and philosophy in an article published in 1921 in *The Month*, an influential Catholic scholarly journal. In the article, Barrett considered issues pertaining to the relations between psychoanalysis and Christian morality and concluded the article with critical concerns about Freud's method of dream interpretation and free association as well as Freud's "sex obsession" and the materialism underlying Freud's philosophy. As we shall see shortly, as the popularity of Freud's psychoanalytic method and

philosophy increased conflicts between psychology and religion grew.

In 1925, as a professor at Georgetown University, Barrett published *The New Psychology*. Here, he presented to a Catholic audience some of the major developments in the "new psychology." His purpose was to respond to Catholic dilemmas about psychology in general and psychoanalysis in particular. Many Catholics wondered for example if it was moral to see a psychoanalyst. Following his earlier criticism of Freud, Barrett expressed reservations about the determinism and materialism inherent in the Freudian philosophy, as well as about Freud's attacks on religious ideas and practices. For instance, Freud was critical of religion in his 1907 essay, "Obsessive Actions and Religious Practices" (1907) and his book, *Totem and Taboo* (1913). What was especially offensive to religious believers was Freud's statement asserting that the origin of religion was essentially the resolution of the Oedipus complex. Consequently, it was not surprising that Catholic writers, as well as writers representing other religious denominations were critical of Freudian theory and therapy. Barrett was one of the first Catholics to voice such criticism, but as will be seen, he certainly was not the last.

Arguably the most significant contribution to Catholic understandings of the emergent fields of psychology was the witness and work of Fr. Thomas Verner Moore (1877–1969). For decades (from 1900 until 1960) no other individual embodied the integration of Catholic identity and psychological research, both clinical and experimental. Not only was Moore trained as an experimental psychologist but he subsequently received training as a psychiatrist; and not only was Moore a priest, but later became a Benedictine monk and eventually a Carthusian monk.

Moore's career in psychology began during the summer of 1896 when he met Pace and later wrote a dissertation under Pace that led to a publication entitled *A Study in Reaction Time and Movement*. In 1903, Moore received his doctorate from Catholic University and then went on to Leipzig where he, like Pace before him, studied under Wundt. Upon his return to the United States in 1906, Moore went to the University of California in Berkeley where, besides serving as a Catholic chaplain at the university, he taught as an adjunct psychology professor. One of the

central motivations for Moore's career in psychology was that he found no incompatibility between the findings of experimental psychology and the principles of Catholicism. During a time when the clouds of conflict between religion and science filled the air, Moore approached psychology in a manner consistent with the principles of neo-Thomistic philosophy and theology and in this respect he sought to create a "neo-scholastic psychology."

Moore's interest in psychology was not to be confined to the experimental realm. Inspired by Lightner Witmer's clinic at the University of Pennsylvania, Moore established a Children's Clinic at Washington's Providence Hospital in 1916. The establishment of this clinic was preceded by Moore's medical training, first at Georgetown University and then in Germany where he attended courses by Kraepelin on psychiatry, Von Muller on neurology, and Kulpe on imagery. Returning to the United States, Moore continued his medical education by enrolling at Johns Hopkins University where he specialized in psychiatry. He completed his medical degree in 1915. It may be readily ascertained that Moore had an enormous impact in Catholicism's appropriation of psychology and psychiatry. For instance, from 1924 until his retirement in 1947 he trained several generations of Catholic teachers, many of them Catholic clergy and nuns. He also presented talks dealing with psychological issues to Catholic organizations as well as published numerous articles in Catholic publications. Through talks and publications, then, Moore reduced the perceptions and even prejudices that many Catholics had toward psychology.

Conflict and Controversies

Perhaps the most notable Catholic antagonists toward psychology were his professional colleagues at Catholic university, the philosophers Rudolf Allers and Fr. Fulton J. Sheen. As we shall see, the former played a critical role in criticizing Freud's method, theory, and philosophy within largely academic circles, while the latter critiqued Freud not only within the Catholic hierarchy, but among Catholic laity and even a larger non-Christian audience. The combined effect of Allers and Sheen's criticisms of Freud made their listeners wary not only of psychoanalysis but psychology in general.

An Austrian psychiatrist, Allers' training included attending Freud's last class at the University of Vienna. He later was significantly influenced by his association with the famous Italian priest-psychologist Agostino Gemelli. In working with Gemelli he witnessed how Catholic categories could absorb clinical and even psychodynamic categories without falling victim to what he considered the extremes of Freudian theory. Instead of Freud, therefore, Allers turned to the psychodynamic work of Alfred Adler and wrote both from psychiatric and philosophical perspectives.

Allers' first notable criticism of Freud came in his book, *The New Psychologies* (1933), where he attacked Freud's theory and method along five fronts. First, he found that psychoanalysis, with its psychoenergetic conception of libido, was based primarily on biological principles and hence was limited in its generalizability to the human condition. Secondly, Allers critiqued psychoanalysis as approaching mental phenomena from a materialistic perspective in explaining mental phenomena to be analyzed into distinct psychic energies. Thirdly, for Allers, Freud's theory of motivation tended to be hedonistic in its emphasis of psychic drives seeking pleasure, especially sexual pleasure. Allers also saw Freud's theory as essentially deterministic leaving no room for human freedom. Finally, Allers believed Freud's position was agnostic leaving no place for the soul. Subsequently in 1939, Allers further criticized Freud in *The Successful Error*. Allers expressed great concern over what he interpreted as Freud's influence as infecting not only psychology but also the fields of education, sociology, and most especially religion.

Allers' criticisms of Freud were supported by his Catholic University colleague, Fr. Fulton Sheen. Having completed a doctorate in theology at Catholic University in 1920 and in philosophy at Louvain in 1923 where he received the Mercier Prize for the outstanding dissertation, Sheen was well acquainted with the Thomistic project for Catholicism called for by Pope Leo XIII's encyclical *Aeterni Patris* and espoused by the "Institut de philosophie" founded at Louvain by Mercier. Trained with a keen philosophical mind and possessing rhetorical persuasive skills, Sheen served as a professor of philosophy at Catholic University from 1926 to 1950. From 1930 to 1950 he broadcast NBC's *The Catholic Hour*. From 1952 to 1957 he was

the ABC television host of *Life Is Worth Living*, which at the time was one of the most popular programs on television. His antagonism toward psychoanalysis combined with his rhetoric led generations of Catholics to be skeptical of psychology in general and what he would refer to as “Freudianism” in particular. Among his first of more than 65 books was *Old Errors and New Labels* (1931) in which he saw the emerging psychology of behaviorism as a new form of mechanism and Freud’s psychoanalysis as ushering in a new Pelagianism. Since the time of Augustine’s and others arguments against the fifth century writings of Pelagius, deemed heretical by the Church, Catholics have been wary of any philosophy that postulated that human beings can achieve fulfillment and perfection through their own efforts and did not need God’s grace to do so. Sheen found the goals of psychoanalysis as having Pelagian purposes. In other writings, Sheen also questioned the Freudian focus on pleasure and sexuality as well as the ethics involved in free association. It seemed that such a practice eliminated the use of one’s conscience.

Sheen, a scholar known for his style of seeking truth through controversy, asserted his best-known attack on psychoanalysis in 1947 when he castigated proponents of psychoanalysis from the pulpit of St. Patrick’s Cathedral, claiming it based on four faulty assumptions, namely, materialism, hedonism, infantilism, and eroticism. Moreover, in response to Joshua Lieberman’s best seller *Peace of Mind* (1946), which incorporated psychoanalytical insights into religious belief, as well as to assert more clearly his concerns about psychoanalysis, Sheen published *Peace of Soul* (1949). In this work, Sheen again expressed his criticism of psychoanalysis, although less antagonistically. Among his concerns was that among Catholics, therapy would soon take the place of confession. Other criticisms that Sheen launched toward psychoanalysis had to do with the ethics of the method of free association, as the practice of “saying anything that comes to your mind” suspended, according to Sheen and others, the use of one’s conscience (i.e., the superego in Freudian terms). For Sheen the purpose in life was not to be found in the pleasure seeking of needs and drive, but in the ends for one’s actions and the virtues by which one lives and pursues them.

For many years, then, Sheen was Catholicism’s most public opponent of psychoanalytic therapy and theory,

whether from the pulpit, in publications, or on his nationally syndicated radio and television shows. While Sheen later refined and even apologized for the vociferousness by which he opposed psychoanalysis, much of American Catholicism’s antagonism toward psychoanalysis and even psychology was the result of Sheen’s persuasive powers.

In Europe, meanwhile, Catholic scholars had similar criticisms of psychoanalysis though this was tempered by a series of publications which led to a greater openness. Perhaps the most significant of these was *Psychoanalytic Method and the Doctrine of Freud* (1936) by Roland Dalbiez (1893–1976). Dalbiez, a French Catholic psychoanalyst, distinguished psychoanalytic method from psychoanalytic philosophy and from the personality of Freud. He saw the contribution the Freudian psychoanalytic method had toward understanding the unconscious though he recognized that psychoanalysis leaves the fundamental problems of the human soul where it found them. Dalbiez’s writings influenced the noted French Thomistic scholar Jacques Maritain and led to Maritain’s significant article, “Freudianism and Psychoanalysis” through which he accepted and popularized among Catholic readers Dalbiez’s distinction of the psychoanalytic method, Freudian psychology, and Freudian philosophy. The former he viewed as acceptable while the latter clashed with Catholic philosophical values and theological tenets.

Dalbiez’s work was complemented in the United States by Gregory Zilboorg. The author of *A History of Medical Psychology* and a prominent psychoanalyst, Zilboorg challenged the atheistic tendency of psychoanalytic theory. For example, in *Freud and Religion* (1958), Zilboorg challenged the interpretation of Freud’s editor, Ernest Jones’, that atheism is necessary for psychoanalysis. For Zilboorg it was possible for psychoanalytic thought to be open to religious values and beliefs. He proposed this nuanced understanding of psychoanalysis to Catholic associates both in Europe and in the United States. He, moreover, served as a colleague of Thomas Verner Moore at the Catholic University. Zilboorg also gave lectures at the Jesuit seminary in Woodstock, Maryland, where he befriended such Jesuit theologians as John Courtney Murray and Gustave Weigel, who were major American Catholic figures during the Second Vatican Council. In addition, Zilboorg presented lectures at the St. John’s

Summer Institute in Collegeville, Minnesota where in 1956 he met and even counseled the noted Catholic author, Thomas Merton.

While psychoanalysts such as Dalbiez and Zilboorg had begun to make important distinctions so that important dimensions of psychoanalysis could be appropriated by Catholicism, the quest for a neo-Thomistic psychology inspired by *Aeterni Patris* and launched by Mercier, Pace, Moore, and others did not fare as well. In his *History of American Psychology* (1952), A.A. Roback critically assessed the value of Catechism's neo-scholastic approach to psychology. He found that mainstream psychology neglected neo-scholastic psychology for two reasons. First, seeking to deal with topics related to the soul was seen by most psychologists as not relevant to the field. For most psychologists the soul was seen as a construct which could not be quantifiably measured or proven. In addition, psychologists like many scientists still viewed the Catholic Church with suspicion recalling how authorities in its past silenced predecessors such as Galileo and Copernicus and even burnt Giordano Bruno at the stake.

Roback, nevertheless, sought to give neo-scholastic psychology a fair hearing by providing an overview of the psychology of Thomas Aquinas and referred to the works of Pace and Moore. At the same time, he found such psychology limited in scope as he concluded that research by Moore and his students at Catholic University under Moore and others often had inadequate standards and meager results. In this respect, Roback's book may be seen as sounding the death knell for neo-scholastic psychology.

On the other hand, in the mid-twentieth century Henryk Mysiak and Virginia M. Staudt (later Sexton) published *Catholics in Psychology: A Historical Survey*. Published in 1954 the book was part of the McGraw-Hill Psychological Series and included an introduction by the noted historian of psychology, Edwin G. Boring (Mysiak and Staudt 1954). In this respect, the book served as both a scholarly effort and a symbolic event. Designed to draw more Catholics to the field of psychology as well as to help non-Catholics understand Catholicism's openness to use of psychological theory, the book served to build bridges.

The same year, Magda Arnold, a psychologist, combined with a Jesuit philosopher, Fr. James Gasson, to

publish an edited book, *The Human Person: An Approach to an Integral Theory of Person* (1954). The book, in which Arnold wrote four chapters, sought to combine personality theory with a Christian, i.e., Thomistic, understanding of human nature. At the time of the book's publication, she was a professor at Loyola University in Chicago but she would then move to Spring Hill College (a Jesuit institution in Mobile, Alabama). She performed groundbreaking research in clinical research in the Thematic Apperception Test as well as in emotions theory. Her book, *Emotion and Personality* (1960), represented an integrative theory of emotions which later came to serve as the foundation for a cognitive appraisal theory of emotions. Incorporating a Thomistic theory of values into her clinical research Arnold demonstrated the relevance of moral theory to a psychology of emotions. In 2006, an entire issue of *Cognitive and Emotion* evaluated Arnold's appraisal theory and its influence on the contemporary cognitive theory of emotions.

Similarly, another female Catholic psychologist, Sr. Annette Walters, provided an important work by editing *Readings in Psychology* (1962). Designed for students at Catholic colleges and universities, Walters selected 121 excerpts from mainstream psychologists and psychoanalysts. While upholding the Catholic principles against atheism, determinism, materialism, positivism, and reductionism, Walters nevertheless introduced her readers to the works of the major psychologists of the period. Among these she included her former professor at the University of Minnesota and lifelong friend, B.F. Skinner. In the introduction of each section Walters critiqued some of the approaches that were inconsistent to Catholic thought. These included psychological determinism which posits that the will is not free but determined by instincts and drives (Freudian) or patterns of reinforcement (Skinner); materialism and its lack of a transcendent teleology; positivism in its tendency to see science as the only path to truth and in its focus on valid theory construction; and operational behaviorism which opposed metaphysics and its negation of other epistemologies.

It should be noted, that Walters, a professor of St. Catherine's College in St. Paul, Minnesota, and later the first Chair of the Psychology Department at St. Ambrose College in Davenport, Iowa, served for four decades as a major conduit of psychology toward

a wide variety of Catholics, most especially her fellow women religious. For example, her position as the Executive Secretary of the Sisters Formation Conference of Catholic Women Religious influenced the spread of psychological testing for applicants to religious life as well as clinical care for nuns who needed it.

Sr. Annette was also one of the organizers of the interreligious St. John's Institute in Collegeville, Minnesota, which from 1954 to 1971 enabled clergy from a variety of denominations to attend workshops from leading psychiatrists, psychologists, and even psychoanalysts of the period. Over the nearly 20 years of the Institute, the clergy received presentations from Walters and Zilboorg as well as prominent psychologists, psychiatrists, and psychoanalysts who included psychological luminaries such as Nathan Ackerman, Leo Bartemeier, Francis Braceland, Dana Farnsworth, Rev. James Gill, S.J., Hyman Lippman, Noel Mailloux, O.P., Elvin Semrad, and Karl Stern.

Perhaps not coincidentally, the Institute began within a year after Pope Pius XII gave his blessing to participants at the International Congress of Psychotherapy and Clinical Psychology that met in Rome in 1954. Although the pope expressed the Church's concerns about the atheism, determinism, and materialism espoused by many psychoanalysts, he, nevertheless, affirmed the significant contribution of clinical psychology noting how practitioners assisted the Church's quest "for the knowledge of the soul." The pope's affirmation of psychology certainly influenced the inauguration in 1954 of the St. John's Summer Institute at St. John's College, Collegeville, Minnesota, where clergy from Catholic and other religious denominations met with leading psychologists and psychiatrists of the era. From 1954–1973 the Institute served to inform a whole generation of Catholic religious leaders on such topics as mental illness, personality dynamics, and the influence of the unconscious.

Curran, much like Thomas Verner Moore, embodied the changes in Catholicism's relations with mainstream psychology more than Fr. Charles Curran. A graduate of Ohio State's psychology department where he trained under Carl Rogers, Curran introduced Roger's client-centered approach to the Catholic culture. His bridge building is evident in that Rogers wrote the introduction to Curran's first book, *Personality*

Factors in Counseling (1942), while Curran's bishop Michael J. Ready wrote the book's preface.

Throughout his 30 years of teaching and research, Curran's thought integrating his psychological expertise with his faith identity evolved. This evolution may best be seen in his movement from a focus on virtue to that of value. For example, his book, *Counseling in Catholic Life and Education* (1952), shows that counseling from a client-centered perspective is consonant with the Thomistic model. In this work, besides introducing his readers (mostly Catholic) to the basics of counseling, he makes reference to moral virtues such as "good counsel" and "prudence." Almost two decades later his post Vatican II book, *Religious Values in Counseling and Psychotherapy*, Curran avoids any Thomistic reference as he shifts from a focus on virtue to values and uses such post-Council catch words as "encounter," "engagement," and "experience."

Catholic scholars had an approach-avoidant attitude to the psychodynamic concepts and methods of Carl Jung. For instance, Fr. Victor White, a British Dominican priest, corresponded with Jung and even had Jung write the foreword to his book *God and the Unconscious* (1953). As one of the first Catholic writers to find value in Jung's approach to religion, White, during the 1940–1950s, wrote eloquently and popularized Jungian concepts to a Catholic audience which also included the book *Soul and Psyche* (1960). The two, however, had a falling out over White's criticism of Jung's theoretical approach to the problem of evil.

Besides White, Fr. Raymond Hostie, S.J., a professor at Louvain, also gave Jung's work serious consideration in the book *Religion and the Psychology of Jung* (1957). Hostie's presentation of Jung became influential within Catholic circles as Catholic scholars and therapists alike began to explore Jung's thought with fewer reservations than they had with Freud. Indeed beginning shortly after the Second Vatican Council Catholic, clergy and religious began to apply Jung's insights to spiritual practices at Catholic retreat houses and in programs of religious formation. For example, Jung's theory of archetypes and symbols were readily used by retreat directors and Catholic liturgists to explore how to tap into the unconscious individually and collectively so as to enhance an individual and a community's life of prayer. The *zeitgeist* of the 1960s, moreover, with its plethora of institutional issues and social changes made

the conversation between Jungian theory and spirituality even more significant. Catholic theologians found in Jungian thought bridges between western and eastern spirituality as well as pathways to revitalize traditional spiritual practices.

Similarly, neo-Freudian developmental constructs found in ego psychology and object relation theories have been appropriated by Catholic scholars, psychologists, and even Catholic moralists. For example, Bernard Haring an influential German moral theologian incorporated humanistic psychology as well as Erikson's eight stages of development into his approach to moral theology. Haring's use of developmental constructs had the effect of incorporating psychological developmental constructs into the Church's approaches to sin, especially those related to sexual maturation, for example, masturbation. Such an approach became used widely by Catholic theologians and taught in Catholic seminaries.

Meanwhile Argentinean psychoanalyst, Ann Marie Rizzuto, made a significant contribution in her *Birth of the Living God* (1979) in which she used D.W. Winnicott's recasting of Freud's concept of illusion to show how a child's image of God emerges. The Jesuit priest, psychiatrist, and psychoanalyst, William Meissner, built upon Rizzuto's use of Winnicott's transitional phenomena to assert in *Psychoanalysis and Religious Experience* (Meissner 1984) that religious belief should not be seen as an escape from reality, but a necessary condition for healthy engagement with reality.

It should be noted that Meissner has spent a lifetime incorporating and integrating constructs from Freudian theory (especially ego psychology and object relations theory) into an integrative dialogue with Catholicism. Since 1961 Meissner has published voluminous collections of articles and books on the psychology and religion. Often relying on the Thomistic axiom *gratia perficit naturam* (grace perfects nature), he has sought to demonstrate the way religious experiences can be effectively described through psychoanalytical constructs. For example, in his 1984 work, *Psychoanalysis and Religious Experience* (for which Meissner received the Oscar Pfitzer award), he reinterprets Freud's *Future of an Illusion* through the lenses of Winnicott's theory of transitional objects and space. Here, Meissner considers illusions as transitional phenomena necessary for psychological growth. In this

respect, Meissner sees religion as providing forms of these transitional phenomena, the experience of which can serve as the basis as well as the supports for ongoing psychological growth.

In a subsequent work, *Life and Faith* (1987), Meissner developed a psychology of grace founded on the position that the order of grace is perfective of the order of nature. He thereby is led to postulate that the actions of grace, while not immediately experienced, can be understood as having influence on the ego which can change a person's relationship to self, others, and to God. Moreover, he asserts that grace, although operating ultimately in mystery and without conscious awareness, does have an intimate influence on psychic functioning, including the unconscious. For Meissner then, while grace cannot be directly experienced, its effects can be both experienced and observed. To demonstrate these assertions in *Ignatius of Loyola: The Psychology of a Saint* (1992), Meissner provided a detailed case study of the conversion experiences of Ignatius of Loyola.

In a later work, *Psychoanalysis and Catholicism-Dialogues in Transformation* (2008), Meissner summarized his efforts of showing the confluences between psychoanalytic concepts and Catholic doctrines. Besides reviewing his work on psychology of grace and his work on Ignatius of Loyola, Meissner also considers the psychological aspects of sacramental theology from a psychoanalytical perspective as well as the cultic origins of the Church. He concludes his overview calling for a dialogue in which psychoanalytic understandings of Catholicism are "more sophisticated and religiously attuned."

Psychology and Catholic Institutions

If it can be presumed that educational institutions embody the beliefs and values of the individual scholars teaching and writing in them, then a picture of how relations between psychology and Catholicism evolved may be viewed from the perspective of how professors at Catholic colleges and universities appropriated the insights of clinical psychology and the findings of experimental psychology. Certainly, while controversies involving psychoanalysis swirled around the Catholic world for decades, programs related to educational and experimental psychology, especially in areas related to child development began to be appropriated by

Catholic educators. As noted above, The Catholic University of America under Pace had the first Catholic psychology department, and under Moore the department expanded its program to include clinical research. In 1912, St. Louis University introduced its first experimental psychology classes and in 1926 formally established a psychology department under the Jesuit psychologists Frs. Herbert Gruender and Raphael McCarthy. Gruender, who obtained doctorate from the University of Bonn, did work at Columbia University under Robert S. Woodworth, while McCarthy earned a combined doctorate in psychology, philosophy, and physiology. Both psychology professors through their publications and presentations became active proponents of incorporating the findings of psychology into the Catholic world.

Prominent psychology departments were also founded at Fordham University and Loyola University of Chicago. As we shall now consider, both departments figured significantly in improving Catholic attitudes toward the field of psychology and the appropriation of many of its methods and theories.

Founded in 1934 by Fr. Walter Sommers, S.J., Fordham's Department of Psychology played an important role in relations between mainstream psychology and Catholicism. Among the notable contributors was Fr. William Bier, S.J. As a doctoral student under T.V. Moore at Catholic University, Bier accepted the challenge of his mentor to develop psychological tests to screen applicants to Catholic convents and seminaries. For his dissertation Bier developed a MMPI scale for such applicants and in 1948 began using it to screen applicants to his Jesuit order. Later, beginning in 1955 and lasting until 1977 Bier directed a series of 11 pastoral psychological programs for Catholic clergy, religious, and laity. Perhaps Bier's most important contribution was his helping to found the American Catholic Psychological Association (ACPA) in 1949 and becoming its first executive secretary. As stated in its charter the ACPA's mission was twofold: (1) to interpret to Catholics the meaning of modern psychology and to advance its acceptance in Catholic circles; (2) to work toward the integration of psychology with Catholic thought and practice. By the time of ACPA's demise in 1969 these goals had largely been achieved. It should be noted that a few years later many members of ACPA helped to form the group

Psychologists Interested in Religious Issues, which in 1975 was approved as Division 36 in the APA and later bore the name of Psychology and Religion. Catholics such as William Bier, Mary Reuder, Virginia Staudt Sexton, and Eugene Kennedy were among the founders of the division. An annual award is given by this division in Bier's name.

During the same period Loyola University's Department of Psychology further developed bridges of collaboration between mainstream psychology and Catholicism. Led by Fr. Vincent Herr, S.J., Departmental Chair from 1945 to 1965, and aided by clinicians and researchers such as Magda Arnold, Charles Curran, Martin D'Arcy, and Eugene Kennedy, the Department was both innovative and industrious in its clinical research. For example, as recipients of a substantial grant from the National Institute of Health, Loyola conducted a psychological study on Catholic seminarians from 1957 to 1962 and then on priests from 1968 to 1972 and supported The National Conference of Catholic Bishops. In 1971 the results were published in *The Catholic Priest in the United States: Psychological Investigations*. The study raised serious questions about the emotional maturity of American Catholic priests and called for significant changes in the psychological preparation of priests. Subsequently aided by another grant, during the mid-1970s Loyola's Department conducted a psychological study using several psychometric tests of 81 active and retired US Catholic bishops including archbishops and cardinals. Among these findings was that compared to the priests, the bishops showed significantly more "trust, successfully formed identity, self-esteem, positive affectual experience, expressiveness and comfort in social contexts."

Vatican II and Its Consequences of Conflict and Collaboration

From 1962 to 1965 a general convocation of Catholic bishops convened at The Second Vatican Council and engaged in a wide-ranging dialogue among themselves as well as representatives from other faith traditions. The outgrowth was a series of documents and promulgations that promoted substantial changes in the way in which the Roman Catholic Church related to the world's religions, cultures, and disciplines of knowledge. Among these changes was how the Church's

authorities, scholars, and institutions appropriated psychological constructs.

For example, the Documents called for “appropriate use” of the secular sciences, especially psychology and sociology. One example of such “appropriate use” was how the Church emphasized the intimate partnership in the sacrament of marriage that required a free and mature capacity for making such a commitment. In cases when a marriage tribunal determined that one or both partners were not psychologically capable of making such a commitment then the sacrament of marriage could be annulled. In order to reach this interpretation, the Church’s diocesan marriage tribunals needed to call upon the expertise of those trained in clinical psychology.

As we have seen earlier in this essay, Catholic authorities such as Bishop Fulton Sheen challenged Freud’s approach to sexuality. Freud’s connecting religion with neurosis and sexual repression certainly made Catholic authorities dismissive of not only Freud but many other psychologists. During the middle of the twentieth century, the conflict between psychological disciplines and Catholicism began to subside. Controversial concerns however flared up again in 1968 when Pope Paul VI published *Humanae Vitae: On the Regulation of Birth*. In which the pope promulgated to Catholics that artificial contraception was an unlawful birth control method. Considerable controversy ensued both within and outside the Church, some of which was due to the fact that the pope went against the advice of the majority of his commission who were asked to consider the issue. Moreover, the American Catholic Psychological Association weighed in on the matter by issuing a statement at its 1968 convention. In the statement the ACPA criticized the encyclical’s understanding of human relationships and psychology of personality. Moreover, ACPA raised questions as to the encyclical’s seemingly lack of awareness of the conscious and unconscious factors involved in marital intimacy. The organization of Catholic psychologists also believed that the pope had organized his conclusion based upon an outmoded faculty psychology.

While many Catholic psychologists challenged the Catholic’s position on artificial contraception, the late 1960s was a period when the Church was removing the last vestiges of hostility toward psychology and

psychoanalysis in particular. During the 1970s it was general practice for candidates for the priesthood or religious life to be given psychological tests, such as the MMPI, Rorschach, and Thematic Apperception test, and to be interviewed by a clinical psychologist. Moreover, many clergy and religious would be encouraged by their religious superiors to see a psychologist or a counselor.

Ongoing and midlife formation programs for priests and religious were encouraged, with many of them having a psychological emphasis. At the same time, pastoral programs in dioceses, parishes, schools, and retreat centers began using the methods and understandings advocated by psychologists in initiating and deepening programs for those considering marriage, those already married, and those who had experienced separation, divorce, or the death of a spouse.

This dialogue between psychological constructs and practices and Catholic moral principles and beliefs took significant twists and turns when there occurred developments in clinical diagnostic categories. In 1973 there occurred the removal of the diagnoses of homosexuality from the DSM (The Diagnostic and Statistical Manual) list of pathological diagnosis. Similarly in 1975 the American Psychological Association instructed its members to avoid the stigma of mental illness associated with individuals having homosexual orientations; significant controversy ensued between the findings of clinical psychology and the principles of Catholic morality. Later, in 1986, one of the Church’s most significant teaching bodies, The Congregation for the Doctrine of the Faith, issued a pastoral statement on the pastoral care of persons with homosexual orientation. Written by Cardinal Joseph Ratzinger (the future Pope Benedict XVI), the statement addressed prejudices against those men and women whose orientation was homosexual. At the same time, the letter set forth distinctions and principles that in subsequent years has led to the Church’s objections not to a person having a homosexual orientation but to his or her practice of homosexual acts. While Church authorities have made pastoral statements against prejudice toward those with homosexual orientations, the Church has, nevertheless, been seen by many in the psychological community as often opposed to the rights of homosexuals and thereby impeding a homosexual’s mental health and self-esteem.

Also significant in the Church's relationship with the psychology community has been the inclusion of the diagnosis of Post Traumatic Stress Disorder (PTSD) in 1980 in DSM II. The incorporation of this diagnosis in the DSM had an enormous effect on the Catholic Church, initially in the United States and then elsewhere for the diagnostic category served to bring to light the amount of abuse suffered at the hands of Catholic clergy and religious. Once some of PTSD's diagnostic symptoms were listed, for example, distress from flashbacks and experiences from a past physical and/or psychological trauma, the courts were more able and willing to respond to the complaints of victims who reported in therapy recalling how they had been sexually abused. By 1982 the clinical diagnostic shift brought the issue from the clinics to the courts. Due to the ecclesiological system of the Catholic Churches with its diocesan and religious order structures, law suits were filed and won not only against the individual perpetrator but against bishops and other religious leaders who were seen as allowing such abuse to continue.

On the other hand, what became known as the clerical abuse scandal has led to a great deal of collaboration between Catholic religious leaders and the clinical psychology community. What in the 1950s may have been seen as an emerging trend toward collaboration between Catholicism and the psychological community became in the 1980s a necessary and even legal requirement. Not only did the Church's vocation offices that served as the gate-keeping offices become more careful in the type of person they admitted, but bishops and religious superiors were also more willing to pay for extended outpatient and even inpatient treatment of priests and religious. Moreover, by 2002, after paying out more than a billion dollars of legal fees the Church had established strict psychological boundary regulations for its priests, religious, and for any of its lay people who work in their ministries. Such regulations, it should be noted, were the result of intensive collaboration with the clinical psychological community.

The post Vatican II Church witnessed a greater number of Catholics engaged in psychological disciplines. What is more is that Catholic psychologists became best-selling authors, not only among Catholics, but in a larger world. The writings of the Dutch priest-

psychologists, Fr. Adrian van Kaam, started the trend as he incorporated his religious training with his clinical training at the Adlerian Institute of Chicago. Another Dutch priest, Henri Nouwen, used his clinical training at the Menninger Clinic to incorporate psychological themes into his more than 40 books on psycho-spiritual themes. Other best-selling Catholic psycho-spiritual authors include Eugene Kennedy, Joyce Rupp, Thomas Moore, and Robert Wicks. Each of their writings demonstrate how psychological themes can be appropriated within a spirituality sympathetic, although not exclusively, to the Catholic faith and its spirituality. On the other hand, two Catholic psychological authors, Paul Vitz (*Psychology as Religion*) and Benedict Groeschel (*The Psychology of Spiritual Development*), have expressed reservations about the over-psychologizing of psychological themes leading to the neglect of faith.

From the clinical research perspective, Edward Shafranske and Len Sperry have made important recent contributions to the field of psychology of religion and by so doing enhanced the dialogue between psychology and Catholicism in particular. Shafranske, a psychoanalyst and former president of APA's Division 36, has written numerous articles pertaining to the relationship between religion and psychology within the clinical context. Perhaps his most significant contribution was his editing of *Religion and the Clinical Practice of Psychology*. Published by the American Psychological Association Press in 1995, the book represented a breakthrough in mainstream psychology's recognition of religious research. It also was one of the first of a series of APA books on the subject. Leo Sperry, meanwhile, has authored more than 300 publications, among them works pertaining to priestly ministry in the Catholic Church. Furthermore, Thomas Plante has also emerged as a leading Catholic psychologist. Among Plante's host of publications in the area of psychology and spirituality is his 2009 publication *Spiritual Practices in Psychotherapy: Thirteen Tools for Enhancing Psychological Health*.

In recent years the field of psychology of religion has produced a large number of articles, books, and journals that has relevance to Catholic beliefs and practices. While not themselves Catholic, the research of Kenneth Pargament about religious factors used in coping, Harold Koenig concerning spiritual factors in aging, Crystal Park pertaining to variables of religion and

meaning-making frameworks, Robert Emmons about gratitude, and Robert Enright and Everett Worthington on forgiveness have proved complementary to Catholic beliefs. Moreover, the research by Catholics such as Michael Donohue's in the area of social-psychological research on sexual abstinence, Ralph Piedmont's psychometrical work on spiritual transcendence scales, Joseph Ciarrocchi on scrupulosity and positive psychology, and Nichole Murray-Swank's work on spiritual struggle have made important contributions to the field that complements their Catholic backgrounds.

Looking ahead to the future of psychology's relations with Catholicism, it should be mentioned that the philosophical contributions of Bernard Lonergan and Charles Taylor have served to enhance Catholicism's theoretical appropriation of scientific thought, including psychology. Lonergan's book, *Insight: A Study of Human Understanding* (1957) has only begun to become assimilated by scholars within and outside the Catholic community as it offers a new epistemology whereby cognitive experiences are seen as experiments in thoughts which in turn have fostered new forms of dialogue between religion and science. Taylor meanwhile through his commentary of the self and identity in *Sources of the Self* (1989) and the individual and community in *A Secular Age* (2007) has opened up pathways of Catholic thought through which Catholic philosophers and theologians can engage the scientific world, including the clinical and experimental disciplines of psychology.

Categorizing and Conclusion

Let us turn now to consider how Haught's four categories of relating science and religion may help us understand the historical interactions of mainstream clinical and experimental psychology with Catholic thought in terms of ideas, individuals, and institutions. The categories are: (1) conflict by which religion is utterly opposed to science or science invalidates religion; (2) contrast by which conflict is impossible since religion and science are clearly different from one another; (3) contact by which science and religion, while distinct, always can have implications and consonance for one another; and (4) confirmation by which it emphasizes ways in which religion supports scientific discovery. The following is a list of some of the events that may be categorized into one of the Haught's four categories.

Conflict: Seen in such Catholic scholars as Rudolf Allers and Fulton Sheen. Conflict surrounded Freudian psychoanalysis due to its tendencies toward atheism, determinism, and mechanism; also Catholicism clashed with psychologist proponents of Behaviorism and Operational Positivism, such as Watson and Skinner, due to the theoretical positions of determinism, materialism, and reductionism; the controversy between Catholic psychologists and theologians and the Catholic hierarchy as a result of Pope Paul VI's encyclical *Humanae Vitae*; the controversy surrounding the diagnosis of homosexual identity being removed as a diagnosis in the Diagnostic Statistical Manual.

Contrast: The emergence of the "new psychology" apart from philosophical psychology; the avoidance of religious topics by psychotherapists or research psychologists.

Contact: Pope Leo XIII's encyclical *Aeterni Patris*; The work of Frs. Mercier, Pace, Moore, and Barrett; the formation of the American Catholic Psychological Association and its success in helping mainstream psychology understand Catholicism and enabling Catholics to understand psychology; the psychoanalytical works of Dalbiez, Zilboorg, Rizzuto, and Meissner; the incorporation of Jung into Catholic thought by White, Hostie, and later others; publication of *Catholics in Psychology* (1954) by Mysiak and Staudt, *The Human Person: An Approach to an Integral Theory of Personality* (1954), Walter's *Readings in Psychology* (1962), and Meissner's *Ignatius of Loyola A Biography of a Saint* (Meissner 1992).

Confirmation: Pope Pius XII's unifying statement "for the knowledge of the soul" in his talk to psychotherapists; St. John's Summer Institute; the studies performed by Herr, Curran, Kennedy, and others at the psychology department at Loyola University involving the psychological testing of seminarians, priests, and bishops; pertinent Documents of the Second Vatican Council that led to a more psychological understanding of marriage; Catholic moral theologians such as Haring using Erikson's stages of development; recent APA publications dealing with religious and spiritual themes

Categorizing some of the more prominent events in this historical overview in terms of Haught's four categories enables us to recognize how psychology as an experimental and clinical discipline has had and still has different ways of relating to Catholic ideas as

embodied in its institutions and its individual representatives. These categories also may help us see more clearly in what ways the reasoning of psychology has and may continue to complement the faith dynamics of Catholics. Seen in the light of this historical overview of ideas, individuals, and institutions that have shaped the conversation between the theories of psychology and the tenets of Catholicism, we may conclude that the respective individuals and institutions are taking each other's positions more seriously and sympathetically. It would seem that gone are the days of an embattled faith reluctant to accept or apply the findings and insights of psychology. At the same time, psychologists generally seem more open to studying religious variables and employing spiritual strategies when appropriate in clinical settings. In this respect, then, we may conclude that Athens and Jerusalem indeed continue to have something to say to one another.

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Cattell, Raymond B.

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Basic Biography

Raymond B. Cattell was born on March 20, 1905, in Hilltop, England. He described having a positive upbringing throughout his childhood and youth at home and at school. Cattell had a love for the sea and

sailing ships. At the age of 9, World War I broke out and a mansion by his home had been transformed into a hospital for wounded soldiers. This event inspired Cattell to understand the brevity of life and the need to accomplish during one's life. Although his parents did not attend University, Cattell managed to excel in his studies, received his undergraduate degree in chemistry in 1924 at the University of London, and continued there for his Ph.D. in psychology in 1929.

Due to the combination of his overloaded work schedule, unhealthy eating routine, and poor living conditions, Cattell developed a chronic stomach problem. Despite those challenges, he did not let that get in the way of his work.

After teaching and working at a psychology clinic, Raymond Cattell moved to the United States in 1937 to teach at Columbia University, and later in Clark and Harvard Universities. By 1946, he settled teaching in University of Illinois for 27 years.

After retiring in 1973, Cattell moved to Colorado and then to Hawaii where he worked part-time in the University of Hawaii. There, he not only taught, conducted research, and wrote, but also spent family time with his third wife, five children, and two stepchildren.

Numerous factors contributed to Cattell's understanding of the psychology of people. Firstly, the carnage from World War I caused Cattell to question human drives that lead to chaos in society. Secondly, Cattell was highly influenced by Bertrand Russell, George Bernard Shaw, H.G. Wells, Aldous Huxley, and Haldane, all of whom he met with in London. Cattell also related his studies of human nature to the scientific method. He thought he was fortunate to work with people like Charles Spearman.

Cattell remained active in writing even through his weaker days when he was diagnosed with colon cancer, prostate cancer, and heart disease. At the age of 92, Cattell died in February 2, 1998, at his home in Hawaii.

Accomplishments

Cattell studied the multivariate approach to psychology in which he believed that behavior should be studied as a whole rather than broken down into dimensions and studied in isolation. This allowed life events to be studied outside the laboratory, which otherwise would not be able to be studied in an unnatural environment.

Cattell focused on the uniqueness of individuals, or what is known as trait theories. His theory suggests that motivation and learning shape behavior. He also attributed changes in behavior to neurophysiological, genetic, familial, social, and cultural factors.

During WWII, Cattell not only taught, but also worked for the military, creating psychological tests. Throughout his career, he created other such tests that would measure intelligence and personality traits. He is best known for his 16 Personality Factor questionnaire, published in 1949, which is used to profile individuals under 16 different source traits. Cattell measured personality in three ways: L-Data (observing one's life), Q-Data (questionnaire), and T-Data (personality test). Today, Cattell's questionnaires are used by companies and organizations to match individuals with certain occupations, depending on their psychological character.

Additionally, Cattell, together with Horn, created the Theory of Fluid and Crystallized Intelligences. He was an early proponent of using Factor analysis, in which correlations are made from long lists of information to make smaller categories. Cattell also discovered advanced statistical techniques he applied to the study of intelligence. He wrote up the Culture Fair Intelligence Test, with the intentions of it preventing the biases of written language and cultural background from defining one's intelligence.

Cattell was the author or coauthor of more than 50 books and 400 articles. Many of his books were written in collaboration with others. One of his most influential books was *Personality: A Systematic, Theoretical, and Factual Study*, which explained differences in individual's cognition, motivation, and temperament.

In 1960, Cattell brought together numerous international research-oriented psychologists, which later formed the Society for Multivariate Experimental Psychology, and the journal *Multivariate Behavioral Research*. Cattell organized researchers from all over the world to work in his laboratory in the University of Illinois.

Cattell was voted as the 16th most eminent psychologist of the twentieth century influential figure. Among the numerous awards received, Cattell turned down the American Psychological Foundation Gold Medal Award for Lifetime Achievement in the Science of Psychology (1997) because of a controversy.

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Cerebral Dominance

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The concept of cerebral dominance refers to the functional inequality of the cerebral hemispheres. It does not hold that the right hemisphere controls the muscles of the left side of the body or that it receives the bulk of the sensory information relating to the left side, and that the opposite is true for the left hemisphere. Rather, it relates to differences of a different sort – differences in cognitive functions such as speaking, consciously comprehending spoken language, and dealing with the spatial world, as exemplified by using a map or trying to draw a clock or a house.

The current literature on cerebral dominance is massive and has experienced very rapid growth after the 1950s, stimulated in part by what was being discovered with split-brain patients. It is based on healthy and brain-damaged subjects, and a wide variety of tools. Some of the information gained has come from post-mortems and other anatomical studies, and even more is now coming from physiological studies, especially those using the latest scans to measure cerebral activity under different conditions. What we now know has benefitted greatly from increasingly sophisticated behavioral tools for assessing specific functions.

Large books can and have been written about the latest findings related to cerebral dominance. Yet much

less has been written about how the concept itself emerged in the nineteenth century (for some reviews, see Oppenheimer 1977; Harrington 1985, 1987; Finger 1994). In this contribution, the focus will be on the formative years of cerebral dominance. Needless to say, the idea of hemispheric inequality was not something that made intrinsic sense when it first emerged, and this fact, combined with variability across individuals, clearly hindered its immediate acceptance.

Early Thoughts

Prior to and into the opening decades of the nineteenth century, the general belief had been that the two hemispheres are structurally and functionally identical. The idea of equivalence was based more on philosophical notions and just looking superficially at the hemispheres than on well-organized studies of people with unilateral brain lesions. Indeed, it had long been known that damage to the left side of the brain is more likely to cause a paralysis on the right side of the body, and that damage to the right side of the brain is more likely to affect the left side of the body. Yet there seemed to be little recognition of the fact that speech difficulties are far more likely to be associated with a paralysis the right arm than the left, signifying left-hemispheric damage.

This is not to say that there were no loose speculations about hemispheric differences over this long expanse of time, for there were. The earliest is known from a twelfth-century medical treatise that has roots that date back to about the fourth century BC (Lokhorst 1985, 1996). Its originator is unknown and it is found in a section of the codex dealing with phrenitis, the ancient term for a febrile disorder associated with delirium, frenzy, and raving. To quote: “There are accordingly two brains in the head. The one gives us our intellect, the another provides the faculty of perception. That is to say: the brain on the right side is the one that perceives, whereas the left brain is the one which understands” (trans. in Lokhorst 1996, p. 302). But before we read too much into this thought, it must be noted that the anonymous author then goes on to say that “this is also being done by the heart, which lies under the latter organ, and which is also continually vigilant, hearing and understanding, because it too has ears to hear.”

The Hippocratic physicians, like the Egyptians before them, had observed that unilateral head wounds

tend to result in convulsions and paralyse on the opposite side of the body. In one Hippocratic treatise we even find that, “an incised wound in one temple produces a spasm in the opposite side of the body,” and later, that a loss of speech can occur along with a “paralysis of the tongue or of the arm and the *right side of the body*” (Chadwick and Mann 1950, pp. 263, 248; italics added). From these lines, one would think that loss of speech, right hemiplegia, and damage to the left side of the brain would have been firmly associated with each other in Greek antiquity. But this did not even happen during the Roman Period.

At the height of the Roman Empire, there was greater acceptance of the idea that the cerebral hemispheres control the opposite sides of the body, a fact now supported by examining cases with brain damage. For example, Aretaeus the Cappadocian, who lived into the third century AD, wrote that following damage to one side of the head, there would be a paralysis on the opposite side, owing to the crossing of the nerves. Still, the association between the left-hemispheric damage and speech defects did not gain critical attention at this time (Benton 1976, 1984). One problem was that not everyone was willing to accept a crossing of the nerves to the muscles; another was that a paralysis on the opposite side could always be attributed to overlooked brain damage on the supposedly still healthy side.

Thus, the prevailing view was that the two sides brain simply mirror or duplicate each other, both structurally and functionally. This remained true even when the emphasis shifted to the hollow ventricles, which seemed to have been assigned different higher functions (perception, cognition, and memory) after Galen’s death, which was around 200 AD (Finger 2000). Further, it continued into the Early Modern Period, when some philosophers (e.g., Descartes 1649) went searching for a unitary structure (e.g., the pineal gland) that might serve as the seat of the soul, so as to account for the fact that we have but a single unified consciousness.

Two Minds?

Late in the eighteenth century, the idea that we might have not one but two minds began to emerge, and during the 1800s, speculation grew that the two hemispheres might be associated with two distinct minds. Karl Friedrich Burdach (1826) even suggested that the

corpus callosum might unite the two psyches, writing: “By means of the corpus callosum both hemispheres can act together in perceiving sensations. The activity aroused by impressions on corresponding points in the two hemispheres will therefore be able to produce one and the same perceptive image” (trans. in Neuburger 1981, p. 280).

Franz Joseph Gall and Johann Spurzheim had introduced the concept of cortical localization just before this time, calling it “organology,” although “phrenology” became Spurzheim preferred word (Finger 2000). Their primary method was to correlate overt skull features, such as bumps, with unusual behaviors (faculties of mind), although they also turned to developmental changes, cross-species differences, and occasional cases of brain damage to bolster their structure-function relationships. Although both Gall and Spurzheim were exceptionally skilled in dissection, they did not recognize structural or functional differences between the hemispheres. Gall paid no special attention to the fact that all of his aphasic cases had sustained left-hemispheric damage (Gall 1822). What was important to him was only that the damage was in the front of the brain, behind an eye, in those with severe speech difficulties.

The theory advanced to account for any defects following unilateral cerebral damage was that unilateral lesions must disrupt the balance between the two equal hemispheres. François Xavier Bichat (1805/1827), who taught anatomy, physiology, and surgery in Paris, had promoted this way of thinking, writing: “The Nerves, which transmit the impressions received by the senses, are evidently assembled in symmetrical pairs. The brain, the organ (on which the impressions of objects are received) is remarkable also for the regularity of its form. Its double parts are exactly alike...” (1827 trans., pp. 20–21). He then added that any change in this equality could disrupt one’s ability to meld the impressions coming from the two hemispheres into one.

Marie-Jean-Pierre Flourens (1824, 1842), the leading French experimentalist of the first half of the nineteenth century, was greatly influenced by Bichat and found no reason to question this type of thinking. Neither did Charles Bell (1811/1936, p. 112), who wrote: “Whatever we observe on one side has a corresponding part on the other; an exact resemblance and symmetry is preserved in all the lateral

divisions of the brain. And so, if we take the proof of anatomy, we must admit that as the nerves are double, so is the brain double.”

Nevertheless, the notion of perfect symmetry was beginning to be questioned, at least in humans. In 1805, Félix Vicq d’Azyr wrote that the pattern of convolutions is more variable on the two sides in humans than it is in lower forms (Vicq d’Azyr 1805). And in 1836, a contributor to *The Phrenological Journal and Miscellany* wrote that some inequality between the hemispheres allows them to perform antagonistic actions or to act jointly (Watson 1836). To Henry Holland (1852), the London physician and author of *On the brain as a double organ*, the ability of the two hemispheres to function cooperatively must be due to the commissures uniting the two sides.

By mid-century, the belief that the two hemispheres might not be functionally equivalent had more backers, with at least one writer analogizing that we have a take-charge male paired with a weaker female hemisphere (Anon. 1850, p. 528). In addition, some physicians and asylum directors were now attributing mental illness to cerebral pathology that could disrupt the normal harmony between the hemispheres (Harrington 1985, 1986, 1987). This idea can be found in the writings of Jean Esquirol (1838) in France and Henry Holland (1852) and Arthur Ladbroke Wigan (1844a, b) in England.

Holland specifically mentioned the “incongruous action” that could set the two hemispheres against each other. Wigan, the author of *A New View of Insanity: The Duality of Mind*, maintained that although each hemisphere is a perfect and distinct whole, capable of independent thinking and action, one hemisphere is normally superior to the other, taking the lead so there is minimal conflict. He reasoned the left hemisphere is normally be superior to the right, since most people prefer to use the right hand for writing and other manual functions. The normal control is lost, he opined, in cases of insanity, resulting in internal conflicts. Since the functional harmony that would constitute normalcy is a learned skill, he reasoned, it follows that better education could prevent this from happening and also serve as a treatment for mental derangements.

Neither Esquirol, Holland, Wigan, nor any of the others writing at this time had been aware of the fact

that a paper showing just how different the two hemispheres really are had just been written in the south of France. Its physician-author claimed that speech is much more likely to be disrupted following left-hemispheric damage than right-hemispheric damage, and he backed up this statement with a large number of clinical cases.

Notably, another Frenchman, Jean-Baptiste Bouillaud (1825), who agreed with Gall that speech is an anterior lobe function, had not made this claim, even though he had published findings on 25 cases with lesions confined to a single hemisphere. Had he analyzed his data for right–left differences, instead of just for front–back differences, he would have seen that 73% of the cases with left hemisphere damage had what we would now call aphasias, whereas only 29% of those with right-hemispheric damage were aphasic (Benton 1984; this author points out that Morgagni and Andral had also sufficient case studies to begin to link the aphasias to left-hemispheric damage and right-sided paralyzes).

Marc Dax's 1836 Memoir

Details of the Marc Dax manuscript of 1836, including its history, can be found in several publications (Souques 1928; Ravoire 1933; Joynt and Benton 1964; Critchley 1964; Schiller 1979; Cubelli and Montagna 1994; Finger and Roe 1996, 1999; Roe and Finger 1996). Marc Dax was a physician who worked at a home for the elderly in Sommières, France, and he recorded his first case of *alalie*, or what would later be called *aphémie* or aphemia, and then *aphasie* or aphasia, in 1800. At the time, he thought little of the fact that the left hemisphere was damaged, but supposedly after a second case of his own and reading about another, he began to wonder whether damage to the left cerebral hemisphere was more likely to impair speech than damage to the right. By 1811, he was collecting cases in earnest, ultimately amassing 40 of his own and an equal number from the literature.

Dax then wrote a short paper on the topic and called it *Lésions de la moitié gauche de l'encéphale coïncidant avec l'oubli des signes de la pensée* ("Lesions of the left half of the brain coincident with the forgetting of the signs of thought"; for an English translation, see Joynt and Benton 1964). His thesis was that lasting speech disorders are always due to lesions of the left

cerebral hemisphere. In his words: "I believe it possible to conclude not that all diseases of the left hemisphere necessarily impair verbal memory but that, when this form of memory is impaired by disease of the brain, it is necessary to look for the cause of the disorder in the left hemisphere, and to look for it there even if both hemispheres are diseased" (trans. in Joynt and Benton 1964, p. 852).

Dax did not distinguish among the various types of speech defects, mixing various aphasic disorders together when coming to his landmark conclusion. Further, he did not conduct autopsies on his patients, but instead judged the side of the damage from what he observed (e.g., sword wounds, cranial defects) or from the fact that there was a paralysis affecting the right side of the body. Still, he had it right and he even recognized that slow growing tumors might not produce the same signs as acute brain damage, such as would accompany a stroke or a saber wound.

Marc Dax's chose the 1836 *Congrès Méridional* in nearby Montpellier, where achievements from the south of France were to be presented, as his platform. Although Gustave Dax, his son, maintained repeatedly that his father presented his material there, no hard evidence has been found to support this contention. Paul Broca (1865) even went so far as to check the local newspapers and with the Montpellier librarian, Monsieur Gordon. The librarian interviewed 20 physicians who had been present at the time, but not one remembered anything about Marc Dax or a presentation on language or the brain.

In this context, we must remember that things were different in the first half of the nineteenth century than they are today. A "presentation" did not necessarily mean that a paper was read out loud. The presenter might have done little more than place the paper on a table for a set amount of time for any interested party to read it, and there might not have been interested parties at the *Congrès Méridional*, since it was not a medical meeting, but rather one that dealt more with farming and technological innovations.

Along with this information, some more facts must be added. One is that Marc Dax died a year later, in 1837, and this could be why his paper was not published at the time. He was also a devout Catholic and might have concluded that his findings challenged the belief that an immaterial vital spirit can account for

higher-order behaviors, the very issue on which Gall had been attacked in Vienna just a few decades earlier.

There has been considerably less controversy about whether the paper had been written in 1836. Marc Dax, with his son's help, made copies of the paper at the time, and one copy was discovered among the possessions of a deceased Dean of the Faculty of Medicine at the University of Montpellier. This copy showed that Marc Dax had attempted to get feedback from at least one member of the medical establishment and might have been trying to spread the word before he died. In 1879, a note was published with this discovery to dispel doubts about the document's authenticity and to help set the record straight (Caizergues 1879; trans. in Roe and Finger 1996).

Gustave Dax and the 1865 Publications

Gustave Dax was born in Sommières 21 years before the *Congrès Méridional* and he too studied medicine at Montpellier. He completed his medical dissertation in 1843, 6 years after his father's death, and then went to work in the town of his birth. He was described as a short, combative man, who was intelligent and cared deeply for his patients. In between seeing his patients, he found the time to continue his father's work on aphasia.

In 1858, he finished a lengthy paper of his own confirming the importance of the left side of the brain for speech. Although Gustave's paper was not published at this time, it was handed to several other physicians whose names were made public in 1866, when the dates of what he and his father had previously written were being questioned in Paris (Roe and Finger 1996). It remained shelved until 1863, during which time Paul Broca (1861a, b) had become famous for localizing fluent speech in the frontal lobes.

In March 1863, Gustave sent a manuscript to Paris titled *Observations tendant à prouver la coïncidence constante des dérangements de la parole avec une lésion de l'hémisphère gauche du cerveau* ("Observations seeming to prove the constant coincidence of speech disorders with a lesion of the left hemisphere of the brain"). It was comprised of his father's memoir and his own material, actually 140 additional case studies, which supported and extended his father's case for a left-hemispheric specialization for speech (see Dax

1877). The material was registered with the *Académie des Sciences* on March 23, 1863, and with the *Académie de Médecine* one day later.

The *Académie des Sciences* sent it to a committee (Serres, Flourens, and Andral) for review, but this committee either did not comment on it or did not make their assessment public. As for the *Académie de Médecine*, they assigned it to Jean-Baptiste Bouillaud, Jules-Augustin Béclard, and Louis François Lélut. After an 18-month delay, Lélut, the head of the committee, presented his own negative verdict (see Finger and Roe 1996 for a translation of Lélut's document). He called the Dax findings a return to the pseudoscience of phrenology. Bouillaud, who had not published his own evidence for cerebral dominance, and might now have realized that he had missed a golden opportunity, did more than distance himself from Lélut's pronouncement. He opposed it, arguing that the idea of speech being asymmetrical should not be brushed aside since, as we all know, at least one other function, namely handedness, is asymmetrical.

Gustave Dax, clearly enraged by the reception his paper received in Paris, was not one to remain silent. He submitted what he had to the *Gazette Hebdomadaire de Médecine et de Chirurgie*, which published the material as two separate submissions, one immediately after the other, on April 28, 1865 (G. Dax 1865; M. Dax 1865). His father's memoir appeared first. It retained its original title and was published in its entirety. His own contribution was now given the title *Sur le même sujet* ("On the same subject") and was presented in abridged form (see Finger and Roe 1996, for an English translation). Here and in his later publications (see below) we find the younger Dax pointing to the left temporal lobe as the site of the lesion most likely to impair speech (see Finger and Roe 1999).

Paul Broca on Dominance

Before the Dax manuscript arrived in Paris, cerebral dominance had not been discussed in Paul Broca's *Société d'Anthropologie*, or in the other scientific and medical societies, as can be judged from the notes of these organizations. Paul Broca did not publically raise the possibility that the left hemisphere might be special for speech production until after it arrived. About a week later, in his April 2, 1863, report to the *Société*

d'Anthropologie, Broca stated that all 8 of his cases with fluent speech difficulties, beginning with Monsieur Leborgne (“Tan”) and Monsieur Lelong in 1861, had damage in the left cerebral hemisphere. But still believing in Bichat’s prevailing theory of paired organ equivalence, and being cautious, Broca (1863) initially said nothing more than that the side difference was an unexpected finding in need of confirmation.

Clearly, Broca could well have been influenced by what Marc Dax had sent to Paris, even though it was reviewed behind closed doors. Not only might there have been leaks (Schiller 1979), but also the title of the submission was published for everyone to see, and it pretty much told the story. Notably, it appeared on the very same page where Broca’s own application for membership in the *Académie de Médecine* appeared. This information alone might have given Broca, who was cautious by nature, the confidence to make his first public statement about cerebral dominance, a perplexing finding he nonetheless claimed he had recognized before March 24, 1863, the date of the Dax submission.

Later in 1863, Jules Parrot presented the case of a patient who had a lesion of the right frontal lobe without an articulate language disturbance. Broca recognized that this finding also pointed to the special role of the left hemisphere in speech. A year later, Broca described a colleague’s two patients with traumatic head injuries on the left side and speech difficulties, and now referred to the rapidly mounting evidence for left-side involvement, writing: “Numerous observations gathered during the last three years have a tendency to indicate that lesions of the left hemisphere are solely susceptible for causing *aphémie*. This proposition is no doubt strange, but however perplexing it may be for physiology, it must be accepted if subsequent findings continue to indicate the same view point” (trans. in Berker, et al. 1986, p. 1066).

Broca published his thoughts linking the left hemisphere to speech production in 1865. His paper was titled *Du siège de la faculté du langage articulé* (“On the Site of the Faculty of Articulated Speech”) and it appeared in the *Bulletin de la Société d'Anthropologie* 6 weeks after the two Dax manuscripts had been published elsewhere (see Berker et al. 1986, for the English translation). In contrast to the Daxes, he concentrated on just one speech defect, a loss of speech production. Although he dealt with fewer cases, he,

unlike the Daxes, had autopsy reports to supplement his clinical findings. The post-mortems also allowed him to be anatomically more precise than the Daxes.

Although he now took a firm position about the left hemisphere being the leading hemisphere for articulate speech (and handedness), he was careful to add that fluent speech is not the exclusive function of the left hemisphere. His views were shaped by the sparing of function that could be witnessed after early brain damage or with congenital defects (“I am convinced that a lesion of the third left frontal convolution, which is enough to cause a definitive *aphémie* in an adult, will not prevent a young boy from learning to speak”; see Broca 1865; Berker et al. 1986, p. 1070). They were also influenced by the fact that some recovery can be seen with speech therapy in adults, provided the damage does not severely impair a patient’s intellect, which, unfortunately, it often does following large strokes. Additionally, aphasic patients (e.g., Tan) might still retain the ability to curse involuntarily and, as found by others before him, to sing familiar hymns when prompted.

Broca clearly wrestled with the basis of the left-hemispheric specialization. Not willing to reject Bichat’s “laws,” he concluded that the two hemispheres are intrinsically equal, but that the left hemisphere matures faster than the right in the great majority of people. Hence, the more precocious left hemisphere takes the lead and dominates in speech, the most human of all functions. His late colleague Pierre Gratiolet had studied the development of the cerebral convolutions, and his anatomical findings were fundamental to his thinking (Gratiolet and Leuret 1839–57, II, pp. 241–242; see Broca 1865). More data suggestive of small anatomical differences would now follow, including some collected by Broca himself (see below).

Broca also wrote that he believed the right hemisphere might mediate speech in left-handed people, although he did not tie handedness (a motor function) and speech (an intellectual function) tightly together (see Eling 1983, 1984; Harris 1991, 1993). During the twentieth century, researchers would recognize that the majority of left-handed people (most notably those with left-handedness running in their families) depend more on the left than the right hemisphere for speech. The matter is complex, however, because a fair percentage of left-handed people exhibit varying degrees of

“split dominance.” Fluent right-hemispheric speech, in contrast, seems to be fairly rare.

Revisionist History

After Broca’s 1865 paper appeared, people erroneously began to backdate the discovery of cerebral dominance to 1861 and his case of Monsieur Leborgne, even though Broca did not recognize the left hemisphere as special for speech at that time. Since Marc Dax died in 1837, it was left to Gustave Dax to protest, which is precisely what he did.

His first public comments about the backdating of Broca’s contribution date from 1865 and took the form of letters, which were then published as a part of a larger piece in the *Montpellier Médical* of 1866. In this piece, he presented precise dates and the names of witnesses. As for Broca, he had this to say:

- ▶ I read the two reports written by Mr. Broca [in 1861]. Indeed, I found them very valuable. One cannot describe with more accuracy, classify the symptoms and the lesions in a more systematic way, and analyze more consistently. These cases are valuable. Besides, in my memoir, I regretted that there were not more cases of this sort and pointed out that only a small number of them would be enough to shed some light on the truth.

As I read his studies, I realized I had a deep esteem for the philosophical mind of the author. With a few more cases studied in the same accurate way, in time he would have made the discovery. But where in these two works did Mr. Broca generalize and conclude that the speech faculty was localized in the left hemisphere? Nowhere.

His observations are very valuable for the doctrine, but he never formulated the law. (Dax 1866; Trans. in Roe and Finger 1996)

Gustave Dax came forth with another impassioned defense of his and his father’s work in 1875 (Dax 1875), also in the *Montpellier Médical*. Finally, in 1877, he published the complete and unedited manuscript that he said he had registered with the two French academies in 1863. This publication was preceded by a new preface detailing how the Daxes were the first to discover and confirm left-hemispheric specialization for speech.

During the nineteenth century, some people gave the Daxes the credit they deserved, others pointed to

Broca alone, and still others called the discovery the Dax-Broca or Broca-Dax “law” or principle (Finger and Roe 1999). But with the passage of more time, the Daxes seemed to fade into oblivion, at least until the hundredth anniversary of cerebral dominance in the 1960s, when some historians took a fresh look at the literature. Today, Marc Dax is being increasingly recognized for his achievement in 1836. As for Paul Broca, clearly the third person on this chain, there can be no doubt that he was the most influential advocate of the new doctrine in the 1860s – and the most precise. Thus, there are good reasons to continue to refer to the discovery with the combined eponym, i.e., as the “Dax-Broca doctrine.”

Wernicke’s Aphasia

The idea that the left hemisphere is special received a boost in 1874, when Carl Wernicke demonstrated that left-hemispheric injuries are also associated with a more “sensory” sort of aphasia – a variety in which speech is fluent but filled with word substitutions and neologisms that make it less meaningful. In contrast to Broca’s type of aphasia, which he tied to the left frontal lobe, Wernicke (1874) most closely associated this condition with damage to the temporal lobe.

Although cases of Wernicke’s sensory aphasia can be found in the older literature, a fluent speech disorder had not previously been singled out and linked with a lesion in just one lobe of one hemisphere. Wernicke did not mention Gustave Dax, who was not specific about the speech deficit when he pointed out that the left temporal lobe was in the center of the lesion sites he was mapping. Then again, he also did not mention Theodor von Meynert, with whom he had studied, or Johann Baptist Schmidt, two of his predecessors who had gone even farther and associated auditory comprehension deficits with left temporal lobe lesions (Meynert 1866; Boller 1977; Whitaker and Etlinger 1993).

At least with regard to language, the left hemisphere now looked even more like the leading hemisphere. Not surprisingly, it would be soon called the major or the dominant hemisphere, whereas the right hemisphere would be referred to as the minor or non-dominant hemisphere. The problem with this terminology, which is based on speech and is still very much with us, is that additional clinical observations from the nineteenth century would show that the so-called dominant

hemisphere is, in fact, not the dominant one for some functions, most notably spatial and constructional skills.

John Hughlings Jackson and the Right Hemisphere

John Hughlings Jackson's first reference to cerebral dominance appeared in 1864, when he endorsed the idea that aphasia is most likely to occur after damage to the left side of the brain (Jackson 1864a; Greenblatt 1970). Later that year, Jackson (1864b) published another report, this time writing that he had examined many patients with speech loss or defective speech, and that the hemiplegia was on the right side in all but one of them, indicating problems with the left side of the brain. Nevertheless, Jackson had trouble with Broca's concept of an actual center for spoken language, explaining that to locate the damage that destroys speech and to locate speech are two very different things. Jackson, unlike Broca, tended to look at the brain in terms of sensory-motor relationships, even with regard to "higher functions" such as language, and he shied away from what he called "abrupt geographical representations."

Jackson (1874a), a follower of Charles Darwin, contended that propositional speech might be the most voluntary activity we humans possess. But although the left hemisphere might predominate for voluntary speech activities, involuntary activities, such as cursing, are probably governed both sides. He would maintain that the right half of the brain is for the automatic use of words, whereas the left half is for both automatic and voluntary functions. This, in effect, is why aphasic patients can still curse, yet cannot repeat, the same oath when asked to do so. Jackson also believed that understanding speech is an automatic or involuntary function, and thus one that involves both hemispheres, although only the left seems capable of consciousness in words.

Jackson is better known today for drawing attention to the fact that spatial abilities are more likely to be impaired after damage to the right than the left hemisphere, and the special significance of the posterior part of the right hemisphere in this domain. A year before Broca even published his 1865 paper on laterality, he was writing: "If, then, it should be proved by wider evidence that the faculty of expression resides in one hemisphere, there is no absurdity in raising the question as to whether perception, its corresponding

opposite, may not be seated in the other" (Jackson 1864b, p. 604).

In 1868, Jackson elaborated further on cerebral differences. One of his major points was that left-hemispheric patients with aphasia often retain their perceptual abilities (Jackson 1868). But this was "negative" evidence, and he recognized that positive instances were required to strengthen his case for right-hemispheric specialization for perceptual abilities. These cases began to be documented in the 1870s (Zangwill and Wyke 1990).

In 1872 Jackson described a man with a left hemiplegia who could not recognize people, including his wife, places, and things, and who had trouble finding his way back home (Jackson 1872). He presented a comparable case 4 years later. Elisa P., 59 years old, had trouble dressing and had lost her directional sense.

- ▶ She was going from her own house to Victoria Park, a short distance and over roads that she knows quite well, as she has lived in the same house for 30 years, and has had frequent occasion to go to the park; on this occasion, however, she could not find her way there, and after making several mistakes she had to ask her way, although the park gates were just in front of her. When she wished to return she was utterly unable to find her way, and had to be taken home by a country relation to whom she was showing the Park for the first time. (Jackson 1876, p. 438)

Elisa P. deteriorated and died 3 weeks after the onset of her illness. William Gowers, who examined her brain, found a large glioma in the posterior part of the right temporal lobe.

Jackson (1874b, 1876) coined the term "imperception" to describe the "loss or defect of memory for persons, objects, and places" (others preferred visual agnosia, mind-blindness, etc.). He associated imperception with posterior right-hemispheric lesions and felt that this association was just as important as Broca's association of fluent language with damage to the frontal lobe of the left hemisphere. As for why this is the case, he had previously accepted Broca's contention that the left frontal lobe develops faster than the right frontal lobe. Jackson (1868) extended this reasoning to the right posterior region, which he thought must grow in advance of its counterpart on the left, taking the lead in object recognition and related spatial-perceptual functions.

There were, of course, new questions to be asked in this domain. For example, does the spatial deficit found in posterior right-hemispheric patients cut across sensory modalities? In this regard, Jules Badal (1888) presented a case in which he found that the visuo-spatial defects in a case with good visual acuity were, in fact, linked to problems with other sensory systems. His patient with higher-order visual problems also had difficulty identifying the location of sounds, had body schema defects (e.g., right vs. left part confusions), and exhibited finger agnosias, among other things. With time, specific spatial defects would be correlated with lesions of individual parts of the right hemisphere (Benton 1982).

Anatomy, Dominance, Madness, and Society

By this time, additional anatomical support could be cited for these contentions, although there were notable exceptions (Harrington 1985, 1987). For example, Hans Carl Barkow (1864) had reported that he had made an extensive study of human skulls and had found the left frontal region more pronounced than its corresponding member on the right side. Notably, he also observed a trend for the right posterior region to be larger than the left posterior region. A report soon followed showing that there was more gray matter in the left frontal region than in the right frontal region (Roques 1869). As for Broca's own anatomical findings, he found no meaningful differences between the hemispheres as a whole, although he noted that the left frontal region was four grams heavier than the right (Broca 1875).

In 1890, Oskar Eberstaller, a Viennese anatomist, examined 170 human brains and found the left sylvian fissure to be 12% longer than the right. Two years later, D. J. Cunningham (1892) confirmed Eberstaller's (1890) findings and showed that a longer left Sylvian fissure could also be seen in near-term fetuses and newborns, although the difference was not as marked. He added that a small difference between the Sylvian fissures also exists in chimps and some (but not all) monkeys.

The emerging literature on cerebral dominance had a profound impact on society. During the second half of the nineteenth century, many people, including Broca (1869) and Charlton Henry Bastian (1880), believed that the asymmetry was greater in the brains of Caucasians than in "inferior races" (e.g., "Negroids"), which in turn meant that some groups were more educable

than others (Thurnam 1866). Along similar lines, some scientists contended that male brains are more asymmetrical than female brains, and again, that adults show more asymmetry than children (Delaunay 1874; Harrington 1985, 1987; Finger 1994).

In Italy, Cesare Lombroso even maintained that "born" criminals are more likely than upstanding citizens to have more animal-like symmetrical nervous systems, which correlated with them being more ambidextrous (Marro and Lombroso 1883; Lombroso 1903). His ideas had much in common with the newer literature on insanity, which was based in part on changes in personality after damage to the different hemispheres; differences in the weights of the two sides of the brain disappearing or even reversing in the insane (e.g., Luys 1879, 1881); and the idea that the right hemisphere has more in common with the animals, since it is less involved with speech, the most human of all functions.

Evidence could be cited to show that auditory hallucinations are more likely to be associated with the left ear, and that hysterics are more likely to affect the left side of the body (for both, read right brain). Brown-Séquard (1874a, pp. 10,14), for instance, wrote: "We have collected cases of paralysis in one-half of the body, caused by hysteria . . . in 121 of these cases, there was disease of the brain on the right side 97 times and disease on the left 24 times."

If this state of affairs is reminiscent of Robert Louis Stevenson's (1886) *Strange Case of Dr. Jekyll and Mr. Hyde*, it should be. His Victorian shocker about two opposing personalities – one good and the other evil – that are locked in a single body appeared in 1886. To a large extent, Dr. Jekyll personifies the Victorian image of the left hemisphere, while Mr. Hyde represents what was then believed about the more primitive right hemisphere, which in its brutish form could even commit murder.

In 1895, 9 years after Stevenson's book appeared, Lewis Bruce, the director of an asylum in Scotland, published a paper on a real individual who seemed to have two distinct consciousnesses (Bruce 1895; Finger et al. 2001). One was "absolutely demented and did not understand a word that was said to him," and he frequently jabbered in a language that sounded like Welsh. When this personality predominated, the man used his left hand for writing. The second personality was fluent in English and understood what was said to him,

although it was “restless, destructive and thievish” – and had no memory for anything that had occurred when the other consciousness dominated. This personality was right handed. On the basis of the exhibited handedness and what he knew about brain physiology, Bruce thought the two consciousnesses related to the respective actions of the right (with “little power of mental action”) and left (“educated”) hemispheres. Nevertheless, it took 2 more years for Bruce to point to a physical mechanism to explain the switching back and forth (Bruce 1897). In 1897 he pointed to evidence of epilepsy in such patients, contending that when seizures “paralyze” the more intellectual or human left hemisphere, the right hemisphere is released and can show its more primitive mental self.

If one thing seemed clear in some Victorian circles, it was the need to suppress and even change the basic nature of the right hemisphere. To some reformers, including Brown-Séquard (1874a, b, 1890), this meant educating the right hemisphere to bring it up to the level of the left, since “the right side of the brain was a natural breeding ground for madness” (Harrington 1985, p. 623). The obvious and easiest solution was to stimulate the right hemisphere intellectually, such as by asking right-handed people to write letters with the left hand. These notions were put into practice in a few schools in Great Britain, in the United States, and elsewhere, before it was increasingly realized that tampering with Mother Nature was not such a good idea (Crichton-Browne 1907).

Conclusions

The idea of cerebral dominance emerged in the nineteenth century, when the theory of cortical localization of function was gaining traction. To many onlookers and participants, it was an even more profound idea than the thought different parts of a hemisphere might have different functions, because the hemispheres look so much alike. Along with Bichat’s thinking about paired organs being functionally equivalent, this sort of thinking hindered the acceptance of the new concept, although it eventually caught on. As to who should get the lion’s share of the credit for the discovery, Marc Dax clearly preceded Broca in recognizing it, and the two Dax manuscripts were submitted and published before Broca’s tentative statement of 1863 and his important paper of 1865. Yet at the same time, Broca’s precision

and prestige were also very important in disseminating the new concept and making it acceptable in the 1860s.

The idea of cerebral dominance initially pertained to speech production. But during the 1870s, John Hughlings Jackson showed that the right hemisphere is special in its own way, particularly with regard to spatial functions. Since finding one’s way home, even consciously, was not thought to be on the same level as speaking, the right hemisphere continued to be viewed as intellectually inferior to the left, the seemingly more human of the two hemispheres. This association had many significant ramifications, and it was used to “explain” differences between the genders, differences among the races, criminality, and mental illness. It also spawned societies and schools to educate the right hemisphere, which was viewed as dangerous when “released” following damage to the left hemisphere.

Clearly, the material presented here is not the whole story of what transpired in the nineteenth century, the formative years of the theory of cerebral dominance. As can be imagined, there were extensions to other functions, distinctions within a function, and attempts at finer and finer localizations. Differences of opinion led to many contentious debates, due partly to two important facts. One is that there are individual differences in cerebral dominance and in how tightly some of the investigated functions are linked to each other. The other is that there was a tendency to think too simplistically about the phenomenon – that is, to view the two sides of the brain and their functions as dichotomous, rather than as being on a continuum with shades of gray between the extremes of black and white.

Today, with our more sophisticated tools, we know much more about cerebral dominance and structure-function relationships in general. Still, there are many questions that remain unanswered. Prospectors will discover that there is still much to uncover in the earlier literature and, at the very least, that digging into the past will help to put even our newest ideas into better perspective.

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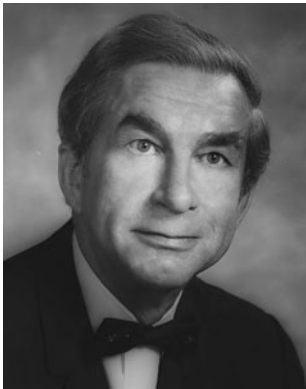
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Chapanis, Alphonse

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Biographical Information

Born: March 17, 1917, Meriden, CT, USA

Died: October 4, 2002, Baltimore, MD, USA

Alphonse Chapanis was born in Meriden, CT, USA, on March 17, 1917, and passed away on October 4, 2002, in Baltimore, MD, USA. Dr. Chapanis received his Ph.D. in psychology from Yale University in 1943. Aside from 22 years of consultancy in Human Factors and Ergonomics, Dr. Chapanis served as a 2nd Lieutenant at the US Army's Aero Medical Laboratory and was professor of experimental psychology at The Johns Hopkins University from 1946 through 1982.

Major Accomplishments/ Contributions

Alphonse Chapanis has been warmly described as the “Godfather of Human Factors and Ergonomics.” His contributions to the fields of applied experimental psychology, human factors, and ergonomics spanned a career of over 60 years.

The 95 books and articles cited in his memoir (Chapanis 2002) are only a portion of publications he has authored, many of them significant in the evolution of the fields of human factors and ergonomics. Much of his work displays his interest in merging the fields of basic psychological research (notably vision and perception) with the practical application of research to engineering design and led to his being recognized as a distinguished leader in the fields of human factors engineering and ergonomics.

Chapanis wrote the first ergonomics textbook (Chapanis et al. 1949) and wrote an award-winning *Scientific American* article on color blindness (Chapanis 1951). These were partially a result of some groundbreaking work he did for the US Army's Aero Medical Laboratory (AML) during World War II, as well as subsequent systems research conducted at a US Navy sponsored field laboratory at The Johns Hopkins University.

While completing his Ph.D. in psychology at Yale, Chapanis joined AML as a 2nd Lieutenant, and began training in aviation psychology. His early work involved the design of night-vision displays and the effects of anoxia and high g-forces on vision loss.

In one famous study, Chapanis was studying the high incidence of postlanding crashes of the B-17 “Flying Fortress” aircraft. Not satisfied with the common classification of “pilot error,” Chapanis studied the incidents and concluded that the problem was, instead, a matter of “designer error.” As the controls for the flaps and the landing gear were identical and placed side by side, tired pilots landing at night after a long flight could easily select the wrong control. Chapanis solved the problem by “shape-coding” the controls (one resembling a wheel, the other resembling a flap), and providing a fail-safe control connected to pressure sensors in the landing gear (preventing retraction if the aircraft's weight was on the gear).

From 1946 until 1982, Professor Chapanis was a prolific member of the psychology department faculty at The Johns Hopkins University, graduating, among others, 29 Ph.Ds. In the early years, Chapanis, working under contracts from the US Navy, made fundamental contributions to the emerging field of systems engineering. His book *Research Techniques in Human Engineering* (Chapanis 1965b) had a great impact on the field.

It was also during this time that Chapanis adapted a critical incident approach to safety issues (such as hospital medication errors) and wrote a widely cited paper entitled “Words, words, words” (Chapanis 1965a) in which he decried the prevalence of confusing and conflicting wording in signs and labels in contexts ranging from highways to instruction placards to elevators, often leading to errors and safety issues.

In 1953 and 1954, Chapanis consulted with Bell Labs, doing ergonomics design studies of new toll-operators’ keypads that eventually contributed to the design of the push-button telephone.

In 1970, Chapanis started the Communications Research Laboratory (CRL) at The Johns Hopkins University. In the 12 years that followed, he and his graduate students did seminal work in the nascent field of multimodal communication – technology-mediated human–human communications and human–computer communications using video, audio, handwriting, and keyboard. This work led to significant advances in telecommunications, teleconferencing, video conferencing, and the intelligibility of digitized speech. Among many significant advances to come out of CRL was the “Wizard of OZ” method for development and assessment of natural language recognition systems in wide use today.

From 1959 through 1995, Chapanis had a long-term consulting relationship with IBM. In addition to setting up training programs to educate executives, managers, engineers and programmers about man–machine interface considerations (human–computer interaction) in the design of computing technologies, he also received support from IBM (and later, from GTE) for various communications graduate student research projects.

In the 1960s, Chapanis was an active international proponent of human factors and ergonomics which included lectures, and publications about cross-cultural issues in human factors and ergonomics. He was elected to the Council of the International Ergonomics Association (IEA) in 1967 and became President of that organization in 1973. There are interesting anecdotes in his memoir concerning his role in reporting observations from his travels, especially behind the Iron Curtain, back to the Office of Naval Research and the US military.

Alphonse Chapanis was actively involved in professional organizations throughout his career. In addition to his role with the IEA, Alphonse Chapanis was the 1960 President of the Society of Engineering Psychologists (Division 21 of the American Psychological Association), and 1964 President of the Human Factors and Ergonomics Society (HFES). In 1982 he won the IEA’s Distinguished Service Award and, in 1987, the HFES President’s Distinguished Service Award. He was also an advocate for professional qualification standards, helping to establish the Board of Certification in Professional Ergonomics in the mid-1980s.

Professor Chapanis, always a fierce advocate of his students, is remembered with great fondness by the many graduate students he shepherded into successful careers, despite (or, perhaps, because of) his legendary attention to detail and insistence on clear writing style. In recognition of his contributions in education, the Human Factors and Ergonomics Society, in 1983, renamed its prestigious Best Student Paper Award the “Alphonse Chapanis Award.”

All the more poignant the closing words in his memoir:

- ▶ There is one thing I have never regretted – and that is my choice of profession. Human factors has always been challenging, frustrating at times, rewarding at others, but never dull. I can honestly say in retrospect that I have had a full life – an exciting life –and that I have enjoyed telling people about human factors, educating students and others to take over where I have had to leave off, and grappling with problems of trying to make our material world safer, more comfortable, and easier to cope with. In fact, there is only one thing I truly regret -
- I’m sorry I’ve come to the end.

See Also

- ▶ [Human Factors Psychology](#)
- ▶ [Industrial-Organizational Psychology](#)

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Chiarugi, Vincenzo

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Basic Biographical Information

Born: 1759; Died: 1820

Vincenzo Chiarugi was a pioneer in mental health care, one of the first to introduce humane treatment to institutions caring for the emotionally ill in Europe (Mora 1959). Trained as a physician in Italy, Chiarugi's contributions to mental health reform were frequently overshadowed by others, particularly the French physician, Philippe Pinel. Nonetheless, his contributions were innovative and substantial.

Chiarugi was born in the village of Empoli, near Florence, in 1759 (Mora 1959). It is significant that this was a period before the emergence of a modern, united Italy. He received his medical training in Pisa, graduating in 1780. After graduation, he worked in several hospitals, including the Santa Maria Novella hospital and the Santa Dorotea hospital, both in Florence. It was at Santa Dorotea that he first outlawed the use of chains as a means of controlling patients. In the instances where a patient might need some form of restraint, Chiarugi replaced the metal chains with restraints made of fabric and felt in order to reduce the number of sores and abrasions on patients.

Chiarugi was fortunate in that during his time in Florence, the state was governed by the Grand Duke Pietro Leopoldo (Gerard 1997). The Grand Duke was a social reformer who introduced a series of changes to Florence. (In 1790, he would become Leopold II, Holy Roman Emperor.) In 1774, he had enacted legislation requiring the mentally ill to be transferred to hospitals for treatment. Such legislation was a landmark in Europe – there had been nothing like it before (Mora 1959; Pallanti 1996). Among his other contributions, the Grand Duke directed the building of a new

facility, the Bonificio Hospital. In 1788, he made Chiarugi the “physician-director” of the Hospital. It was here that Chiarugi began to introduce some of his humane methods.

Major Accomplishments/Contributions

With the government behind him, Chiarugi implemented his *Regolamento dei Regi Spedali di Santa Maria e Bonifazio* (hospital regulations) in 1789 (Mora 1959). This precedes any action by Pinel and his colleagues by 8 years. The *Regolamento* covered areas of administration, treatment of patients, and maintenance of the hospital. The portion of the rules pertaining to the treatment of patients addressed such issues as respect for the patient, the limited use of restraints, the importance of hygienic practices, and the need for play and exercise. Also included was a statement discouraging visits by family and friends (Gerard 1997). All but the last item is consistent with present-day practices for the treatment of the mentally ill in hospitals.

Chiarugi's major book *On Madness* (Italian: *Della Pazzia*), was a three-volume set, written and organized much like a psychiatry textbook. It was initially translated into German, and only the first volume was translated. The second volume contained more of Chiarugi's clinical theories. It was not until Mora's English translation that Chiarugi's models and methods of treatment were made available for mainstream consumption (Mora 1959, 1989). Chiarugi placed little emphasis on his own humanitarian reforms in his writing (Gerard 1997); he was more interested in making known his approach to psychiatric care.

Chiarugi's main focus was on establishing a biological model of mental illness much of which is depicted in *On Madness*. His writings on melancholia (depression) and manic-depressive disorder (bipolar disorder) caught the attention of the famous psychiatrist Emil Kraepelin. However, it is worth noting that Chiarugi ran hospitals in which he was in charge of all patients, not just the mentally ill. His emphasis on a medical model should be understood in that context.

Chiarugi left no “successor” in his place after his death in 1820 to continue his tradition and make known his accomplishments beyond the Italian states. But there are other reasons for Chiarugi's lack of visibility, including his personal qualities, his difficult writing

style, his position outside of the mainstream, and the fact that he wrote in Italian. There were also major socio-political events happening elsewhere at the time in this age of major humane reform, such as the French Revolution (Fee and Brown 2006). Still, in recent years, Chiarugi's work has achieved substantially greater recognition (Mora 1989) and he has been given increasingly greater credit for his pioneering contributions.

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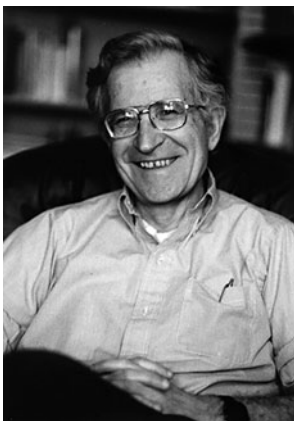
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Chomsky, Noam

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Chomsky Noam (7 December 1928) was an American linguist most renowned for his extensive work in the area of language development.

Biographical Information

Noam Chomsky (full name Avram Noam Chomsky) was born on December 7, 1928, in Philadelphia, Pennsylvania, to William and Elsie Chomsky. His father, a professor of Hebrew, spoke Yiddish as his primary language. However, Chomsky was discouraged from speaking Yiddish in his house during childhood. Though the community he grew up in was described as being a “Jewish Ghetto” composed of mainly Hebrew speakers, Chomsky was surrounded by anti-Semitism both in the surrounding communities and in school.

Chomsky was highly influenced by his uncle. His uncle owned a newsstand, where professors and other intellectuals would gather and debate various topics which were great sources of stimulation for Chomsky. Chomsky also involved himself in a variety of Zionist organizations early on, though his later perspectives on Zionism would become controversial.

In 1945, Chomsky began studying philosophy and linguistics at the University of Pennsylvania under the direction of Professor Zellig Harris. He earned his bachelor's degree in 1949 and completed graduate courses in linguistics, philosophy, mathematics, and Hebrew. He continued to study linguistics at the University of Pennsylvania in pursuit of a Ph.D., which he completed in 1955. From 1951 to 1955 Chomsky was a Junior Fellow of the Harvard University Society of Fellows. His completed dissertation in 1955, entitled *Transformational Analysis*, began the process of converting linguistics from an abstract concept into a well-examined science.

Following his studies, Chomsky taught at the Massachusetts Institute of Technology (MIT) in the Department of Linguistics and Philosophy where he continues to teach to this day. He earned a full professorship in 1961, became the Ferrari Ward Professor of Linguistics in 1966, and was appointed Institute Professor in 1976.

In 1949 Chomsky married fellow linguist, Carol Schatz, with whom he has two daughters and a son. They remained married for 59 years until Schatz died of cancer.

Major Contributions

Chomsky, a linguist, political activist, and writer is arguably most well-known for his prolific writing and lecturing on topics as diverse as linguistics, philosophy,

intellectual history, contemporary issues, international affairs, and US foreign policy. Some of his principal works include: *Aspects of the Theory of Syntax*; *Cartesian Linguistics*; *Sound Pattern of English* (with Morris Halle); *Peace in the Middle East?*; *Reflections on Language*; *The Political Economy of Human Rights*, Vol. I and II (with E.S. Herman); *A New Generation Draws the Line*; 9–11; and *Understanding Power*. While much of his earlier work focused on linguistics, many of his more contemporary writings focused on a variety of political issues.

With respect to his theory of language development, Chomsky focuses on mentally represented grammar that delineates the native speaker's knowledge of his language and the biologically innate language faculty, or "universal grammar," that enables the developmentally typical language learner, as a child, to construct a grammar of the language to which he is exposed. For Chomsky, the primary purpose of linguistic science is to create a theory of universal grammar that offers a descriptively adequate grammar for any natural language given only the type of "primary linguistic data" available to children in their social environments. This goal has galvanized the gradual refinement of Chomskyan linguistic theory from the initial transformational grammar of the 1950s and 1960s to the Minimalist Program of the 1990s and beyond.

More specifically, Chomsky believes that humans are genetically endowed with mental structures that afford them a linguistic capacity. In contrast to kittens, for instance, humans will acquire an ability to produce and comprehend language after being exposed to a linguistic environment, while kittens will not. Chomsky labeled this relevant linguistic capacity of humans: the "language acquisition device" (LAD). He proposed that linguistics should help determine what LAD is and what constraints it places on the range of potential human languages. He called the universal features that result from these constraints, "Universal Grammar" (UG). Despite revision to his theories, his core premise suggests that humans possess a "language faculty that helps them acquire linguistic knowledge that entails various facets of language-use, including both the expression and reception of utterances.

Chomsky was primarily interested in how the initial stage of this faculty transforms with children's exposure

to linguistic information. Chomsky was more interested in grammar than semantics or phonology. In many ways, he believed that vocabulary needed to be directly learned (though the LAD proposes Operating Principles to speed up the process) while grammatical forms cannot be learned. In this sense, linguistic theory attempts to "sufficiently" characterize the grammars (and thus mental states) attained by native speakers and to delineate how grammatical competence is attained. Theories are "explanatorily adequate" if they can demonstrate how one can attain adequate grammar from "primary linguistic data" (what children are exposed to and glean from their native grammars) and on the detailed theory of the general principles and parameters that characterize the initial, biologically endowed mental structures of language. Put simply, linguistics must explain all the grammatical utterances native speakers produce as well as describe the rejection of ungrammatical utterances by such speakers.

Chomsky was also intrigued by the following areas of language development: knowledge of language and its general epistemological implications, indeterminacy and underdetermination in linguistic theory, person-specific "I-languages" versus socially constructed "E languages" as key areas of scientific inquiry. Chomsky also deliberated over "the logical problem of language acquisition" concerning how children achieve mastery of their native languages despite their rather sparse databases.

In addition to Chomsky's innovative approaches to language development and linguistic theory, Chomsky, a self-described libertarian socialist, has written prolifically on what he deems to be the antidemocratic character of American capitalism and its influence on the country's politics and foreign policy, mass media, and academic and intellectual culture. His strong political activism was instigated early on due to his outspoken critique of the Vietnam War. In his 1966 essay, "The Responsibility of Intellectuals," Chomsky encouraged intellectuals "to speak the truth and expose lies," and he carried his protests beyond his writings: he became a tax resister and was arrested in 1967 at the Pentagon while protesting military involvement in Southeast Asia. Chomsky continued his criticism of US governmental policies since then. For instance, in *Deterring Democracy* (1992) and in other writings, he has honed in on trade

and economic controversies and has criticized the government for being a “rogue superpower.” “I’m a citizen of the United States,” says Chomsky, “and I have a share of responsibility for what it does. I’d like to see it act in ways that meet decent moral standards. It’s back to moral truisms: it’s of little value to criticize the crimes of someone else – though you should do it, and tell the truth. I have no influence over the policies of [other countries] but a certain degree over the policies of the U.S. It’s not a matter of expectation but of aspiration.” He also writes and speaks extensively about controversial issues in the Middle East.

Over the course of his life, Chomsky delivered a variety of impressive lectures: He gave the John Locke Lectures at Oxford in 1969, the Bertrand Russell Memorial Lecture at Cambridge University in January 1970, the Nehru Memorial Lecture in New Delhi in 1972, and the Huizinga Lecture in Leiden in 1977. Chomsky has also received honorary doctorates from more than 25 reputable institutions including the University of Pennsylvania, Georgetown University, Harvard University, Scuola Normale Superiore, Pisa, and the Universidad Nacional De Colombia.

Chomsky served as a Fellow of the American Academy of Arts and Sciences and the National Academy of Science. Additionally, he is the recipient of the Distinguished Scientific Contribution Award of the American Psychological Association, the Kyoto Prize in Basic Sciences, the Helmholtz Medal, the Dorothy Eldridge Peacemaker Award, the Ben Franklin Medal in Computer and Cognitive Science, and others.

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See Also

B.F. Skinner

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City University of New York, Doctoral Programs in Psychology at

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The Psychology Doctoral Programs of the City University of New York (CUNY) have a short history compared to the doctoral programs at such well-known private colleges as Harvard and Yale. However, the public CUNY programs offer degrees in a remarkable breadth of topic areas, eleven as of this writing, taught by distinguished faculty who mentor a diverse and worthy group of students (see CUNY website for individual CUNY colleges).

Municipal colleges in New York City date back to 1947 with the creation of the College of the City of New York for men (later called City College or CCNY). A college for women, The Female Normal and High School for the Education of Teachers (later called

Hunter College), followed in 1870. By the 1960s, there were 11 senior colleges and a number of community colleges in New York City as well. Some of these schools granted masters degrees, but doctoral-level education began in 1961 when the State of New York and the Governor created the City University (CUNY). All of the colleges were combined into one system and a well-funded Graduate School and University Center (GSUC) was added – situated most appropriately across the street from the New York Public Library. The Funding and turf issues among the various departments and college presidents were among the arguments against the merger. Originally, faculty lines included both central and noncentral faculty positions. The noncentral faculty “belonged” to their individual CUNY college and received extra course credits as incentives under Dean Harold Proshansky, a feature eliminated by subsequent administrators.

The ability to tap into the rich resources of all the colleges, their faculty and programs, and labs, while providing advanced graduate education to the diverse population of New York City, offered significant potential benefits that motivated this ambitious venture. The establishment of the Graduate School and University Center provided some unique opportunities. Proshansky (then Executive Officer of the Psychology department) was known to be interested in establishing a Holocaust Studies Center; in 1967, he used the hook of a full professorship with tenure to lure the reluctant (and untenured) Stanley Milgram whose controversial work in obedience had been related to the holocaust, to the Personality and Social Psychology program at the GSUC.

By 1965, the CUNY graduate programs had graduated their first two Ph.D.s, one of whom was Daniel Robinson out of the psychology program. Forty-four years later in 2009, by then a distinguished professor in psychology and philosophy at Oxford, Robinson returned to hood the 10,000th graduate of the CUNY graduate school.

There were nine original doctoral “subprograms” in psychology. *Social Personality*, *Developmental Psychology*, and *Environmental Psychology* are based at the Graduate School and University Center, and the others remain centered at the CUNY college psychology departments where they originated. These others include *Clinical Psychology* at City College,

Experimental Psychology (now *Cognition, Brain and Behavior*) at Brooklyn College, *Biopsychology*, and *Behavioral Neuroscience* at Hunter College, and *Neuropsychology* and *Learning Processes and Behavior Analysis* at Queens College. *Industrial/Organizational Psychology*, at Baruch College, was added in 1981, and *Forensic Psychology* at John Jay College of Criminal Justice in 1999–2000. All of the doctoral degrees are granted by the CUNY Graduate Center. The 11 subprograms can draw on the faculty and resources of all of the CUNY psychology departments including laboratories and special programs at the College of Staten Island and Lehman College in the Bronx. This organization provides a unique opportunity for cross-disciplinary interweaving of psychology, hardly to be found elsewhere.

The CUNY psychology doctoral programs can boast of an array of eminent faculty, as well as a number of graduates who have gone on to distinguish themselves in psychology. While a complete listing of these notables would exceed the space available here, the representative sample that follows provides a picture of the breadth and depth of their contributions to psychology.

Distinguished faculty have included Harold Proshansky (pioneer in environmental psychology); Mort Bard (criminal justice) Stanley Milgram (best remembered for his studies in obedience to authority and urban psychology); Florence L. Denmark (one of the original researchers and writers in the field of gender issues; she has also served as president of the American Psychological Association (APA), and APA representative to the UN); David C. Glass (ground-breaking researcher in effects of noise, health, and stress); Ethel Tobach (eminent researcher in comparative and physiological psychology); Howard Ehrlichman (researcher in neuropsychology of emotion and memory); Peter Moller (researcher in animal behavior, specifically the interrelationships of organisms and environment); Michelle Fine (innovative researcher in social justice – encompassing issues of race, education, access, etc.); Maureen O’Connor (lawyer and psychologist – researcher in social issues in forensic psychology particularly sexual harassment and stalking); and Edwin P. Hollander (researcher known for classic studies in leadership and organizational behavior).

Doctoral program graduates have emerged to distinguish themselves by their research in many areas: for example, in *Developmental Psychology* – Richard M. Lerner (Tufts University – Theory of relations between life-span human development and social change, and research about the relations between adolescents and their peers, families, schools, and communities.); in *Urban Psychology* – Harold Takooshian (Fordham University – research in urban psychology, prosocial behavior, and active in work to internationalize psychology); in *Health Psychology* – Richard J. Contrada (Rutgers University – research on psychophysiologic mechanisms linking personality to cardiovascular disease); in *Program Evaluation and Public Health* – Leonard Bickman (Associate Dean for Research, Vanderbilt University – research in program evaluation and mental health services for children and adolescents); Beatrice J. Krauss (Hunter College CUNY – research on HIV Aids and adolescents); in *Social Psychology* – Samuel Gaertner (University of Delaware – research on intergroup relations, winner of the Allport Intergroup Relations Prize and Lewin Memorial Award from the Society for the Psychological Study of Social Issues); John Sabini (the University of Pennsylvania – research on morality, character, and emotion); in *Gender Issues* – Suzanne Kessler (State University of New York at Purchase – research in transgender issues, social influence, and women and prison); and in *Neuroscience* – Jeffrey Halperin (Queens College CUNY – research on experimental cognition); Catharine H. Rankin (University of British Columbia – research on behavioral, cellular, and molecular mechanisms involved in learning and memory); David Crockett (Robert Wood Johnson Medical School in New Jersey – research on spinal cord injury and repair in animals).

In summary, CUNY graduates have conducted significant research, taken leadership positions in universities, and have been honored by professional organizations. Thus, the CUNY psychology doctoral programs, through the work of their faculty and graduates, have had national and international influence as well as an impact on the field in general. The programs also continue to offer exemplary opportunities for development and accomplishment to new faculty and new students.

Acknowledgments

Personal communications with present and former CUNY faculty to whom we are deeply indebted.

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Website for The City University of New York Psychology Doctoral programs at <http://web.gc.cuny.edu/Psychology/>

Clark University, History of Psychology at

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Basic History of the Department

A Bright Beginning

Clark University was, in a sense, created for psychology. G. Stanley Hall was anointed founding president in 1888, having previously earned the first psychology Ph.D. granted in the United States, and having founded the *American Journal of Psychology* (AJP). In addition to all his empirical and theoretical contributions to the field, while at Clark, Hall founded the Pedagogical Seminary (now the *Journal of Genetic Psychology*), the *Journal of Applied Psychology*, the *American Journal of Religious Psychology and Education* (later renamed the *Journal of Religious Psychology*), the American Psychological Association (APA), and the Association of American Universities (AAU). Hall began Clark University as the first dedicated graduate institution in the United States, and only the second to offer formalized Ph.D. programs (Johns Hopkins was first). Further, the University was dedicated to scientific pursuit first and foremost, a progressive idea at the time. While it is widely rumored that Jonas Clark, the University's namesake and initial financier, envisioned a purely undergraduate college for Worcester's needy orphans, evidence from the time suggests he envisioned a prestigious, full-service university following the recent models of Hopkins and Cornell. The rumor is understandable however. Jonas Clark wanted to start with an undergraduate college, which he intended as

“a blessing to the community,” and there were long struggles between the founder, the president, and the trustees over the destiny of the institution. Further, Hall continuously misled the faculty in the early years about available resources, and blamed any financial shortcomings on Jonas Clark.

Undergraduate education was forced in only with Mr. Clark’s death in 1900: He left gifts to the University and the campus library, but reserved half his estate to found an undergraduate college. Clark College opened in 1902 and was managed independently of Clark University, even having different presidents, until Hall’s retirement in 1920. While the College did not become co-educational until 1942, the University admitted women after Mr. Clark’s death, and the first female Ph.D. in psychology was awarded in 1908 (a few women had been allowed to work with faculty earlier, including Mary Calkins). It is also worth noting that early Ph.D. students in psychology were, as we would now phrase it, ethnically diverse, with several early graduates being Japanese, and in 1920 Francis Sumner became the first African American to earn a Ph.D. in Psychology (Koelsch 1987).

Clark University remained a nexus for the field of psychology during Hall’s tenure. In addition to the many articles and books produced, *AJP* published at least 33 articles dedicated to “Minor Studies” from the University’s psychology laboratory. Edmund Sanford authored the majority of those publications, typically reporting results gathered by use of a new apparatus, complementing his 1898 publication of the first laboratory manual for psychology (Koelsch 1987). Students’ reports of these years provide a vision of a faculty and student body passionately dedicated to theoretical and empirical mastery of psychology, broadly conceived (e.g., Sheldon 1946; Terman 1930). There was no formal registration process, nor formal enrollment in the lectures and seminars. Research was primary, and the ample research and library facilities, as well as the priorities of the faculty, encouraged and allowed for self-directed work. The widely agreed upon highlight of the educational experience was Hall’s Monday evening seminar, which lasted from 7:30 until after midnight, in which works in progress (either experimental results or literature reviews) were aggressively discussed.

The University’s role as a pioneer of research education could not endure on the grand scale Hall

envisioned. A series of debacles ensued, and by 1905 the University had only ten faculty members, five in psychology. However, even with a small faculty, the University managed to award a significant number of Ph.Ds in its different fields. For quite some time, they awarded the majority of the country’s psychology Ph.Ds, including the American pioneers of educational psychology and intelligence testing: Arnold Gesell, Henry Goddard, and Lewis Terman. Others graduates of note include Linus Ward Kline, who provided the first studies of rats running Y-mazes, and Willard Stanton Small, who provided the first studies with more complex mazes. In biology, Margret Morse Nice, the great ethologist, received her M.A. in 1915. The faculty also maintained its prestige, with more than half being members of the National Academy of Sciences (Koelsch 1987).

The most historically crucial event of that period was Clark’s twentieth anniversary celebration held in 1909. The event involved an extended celebration with academic talks on a wide variety of topics, most open to the public. Included were programs focused on Child Welfare and Psychology, including lectures on psychology by Boas, Burgerstein, Jennings, Meyer, Stern, Titchener, and, from across the seas, Freud and Jung. At the time Freud’s work was relatively unknown; he was not the first choice for a speaker at Clark, and the appearance added much to his reputation, garnering him extensive coverage in academic and lay media. Regarding the lectures, Freud wrote that: “In Europe I felt as though I were despised; but over there I found myself received by the foremost men as an equal. . . it seemed like the realization of some incredible day-dream: psychoanalysis was no longer a product of delusion, it had become a valuable part of reality.” This was Freud’s only appearance in the United States and these lectures were later published as *Five Lectures on Psychoanalysis* (original publication, Freud 1910). This event significantly affected the trajectory of psychology, and Western culture (Fancher 2000) and have been written about in great detail (Rosenzweig 1994, see also Evans and Koelsch 1985; Koelsch 1984; Roazen 1977; Simon 1967).

Departmental faculty from the Hall era included Sanford (who was also the first president of the undergraduate College), neurologists Henry Donaldson and Clifton Hodge, Titchener disciples Wallace Baird and

E. G. Boring (then still an experimentalist), pedagogist William Burnham, psychiatrists Adolph Meyer and Edward Cowles, and anthropologists Franz Boas and Alexander Chamberlain. The productivity of the psychology department during Hall's tenure was influential in convincing other institutions to create positions for the scientific study of psychology, which, ironically, diminished Clark's importance to the field (Koelsch 1987).

Seeking Direction

Following Hall's tenure, the psychology department dropped rapidly in esteem. Within 3 years, there were practically no faculty left, and President Atwood (who succeeded Hall and Sanford to head the combined University and College) actually got the board of trustees to vote to cancel the psychology Ph.D. program in 1923 (though the decision was quickly reversed after it became public). Atwood appointed Carl Murchison head of the department, and it slowly started to rebuild. Faculty of this period include behaviorist Walter Hunter as the first G. Stanley Hall Professor of Genetic Psychology. Perhaps most importantly in this era, Murchison and Atwood founded the Clark University Press in 1927 which published, among other things, the *International University Series in Psychology* and *History of Psychology in Autobiography* books series, as well as *Journal of Genetic Psychology*, *Genetic Psychology Monographs*, *Journal of General Psychology*, *Journal of Social Psychology*, and *Journal of Psychology*. However, Murchison's publishing acumen could not make up for his personal and professional style, which drove off many faculty members. When he finally left the department in 1936 Vernon Jones, the only remaining member of the psychology faculty, became chair of a joint Department of Psychology and Education, and turned the focus toward education. Meanwhile, in biology, Hudson Hoagland attempted to start a Ph.D. program in neurophysiology. Lacking University support, he ended up with a program in physiology, with staff limited to grant-funded researchers, operating out of a repurposed carriage house. Hoagland went on to perform pioneering studies of neural functioning, including some of the first electroencephalograms of mentally ill patients, though with no apparent connection to the psychology department. In psychology, the only events of interest for the next decade were a series

of big-name hires, who came and went rather quickly: Raymond Cattell spent a short time as the Hall chair, as did Karl Buehler, with his wife Charlotte Buehler as a lecturer. Just before retirement, President Atwood appointed Roger Baker to the Hall Chair, but seeing little hope of establishing his desired field station, he soon left for Kansas (Koelsch 1987). Cattell quipped that the problems at the University were largely explainable by the "ghosts of Hall and Clark continuing their deadly struggle for an elite university and a poor boy's college" (Cattell 1974).

In 1946, Howard Jefferson became Clark's new President, drawn by the remnants of the intellectual enthusiasm characteristic of the University's early years. His efforts to revitalize the University were bolstered by the increased resources resulting from the G.I. Bill and the steady increase in female enrollment. He prioritized the reinvigoration of psychology and when Baker left for Kansas in 1949, Jefferson separated psychology from education, and hired Heinz Werner to head the psychology department as Hall Chair. In the 1950s, when deficits returned, Jefferson helped defend the department against another push to shut down its Ph.D. program (Lane et al. 2005; Koelsch 1987).

A Second Wind

Clark once again rose to prominence after Werner's arrival. Werner arrived with an established international reputation. One of his first public acts was to host the 1950 meeting of the Eastern Psychological Association at Clark, in celebration of the University's sixtieth anniversary (Koelsch 1987). Among other speakers, Anna Freud delivered a series of lectures, including one in the symposium on Genetic Psychology (Freud 1950). Werner was given permission to build the department around himself. With Jefferson's support, and with his skills at securing external funds, Werner grew the department significantly and divided the Ph.D. program into developmental and clinical tracks (Koelsch 1987), though a rigid separation of the subjects was thoroughly rejected (Kaplan et al. 2005). A first priority was to hire his collaborator, Seymour Wapner. Other very prominent new faculty included Kurt Lewin's student, Tamar Dembo, who worked on rehabilitation psychology, and Richard Lazarus and Mort Weiner who made empirical contributions to clinical psychology. Werner established

collaborations with numerous community institutions and mental health centers around Worcester and Boston, greatly expanding the resources available to faculty and graduate students. The grant funds allowed for post-doc and graduate student funding, and improved facilities. Werner and Wapner also had an important role in orienting the departmental resources downward toward undergraduates in a way that had never occurred before, and the department grew until it represented over 20% of all undergraduates at Clark (Koelsch 1987; Lane et al. 2005).

Werner's research focused on psychological development, broadly conceived to require an understanding of comparative psychology, clinical psychology, and biological development, all guided by an eye toward the interface of philosophical thinking and empirical investigation. In the 1950s, psychology as a field prioritized developmental psychology, and Werner's work was seen as central to the field (Valsiner 2005b). Werner was offering the first courses in America to cover the work of Piaget and Vigotsky (Franklin 1990). His past research covered many topics, but always focused on development, and within that category it focused on changes in psychological processes, rather than sequences of outcomes. Werner's theoretical work continued to be process oriented, but the new empirical research, much carried out by his colleagues and students, consisted mostly of short, outcome-oriented experiments, amenable to statistical analysis. The primary lines of this research were work on sensory-tonic theory, continued by Wapner, and symbol formation, continued by Bernard Kaplan (Valsiner 2005b). These included extensive studies of the factors, internal and external, that effected space perception (Wapner 2005) and the learning of word and symbol meanings (Kaplan et al. 2005).

Times were good, and the department developed a characteristic style of combining empirical investigation with sophisticated theory. This was often seen as a "school of thought" from the outside, but not recognized as such from within (Lane et al. 2005; Morant 1966; Valsiner 2005a). Perhaps encouraging the outsider's view, several department graduates were hired as faculty members, including Kaplan, Robert Baker, Lenard Cirillo, and Roger Bibace. Thus, Werner's influence persisted in shaping the department long after his retirement, and even his death (Franklin 1990; Lane

et al. 2005). This also means that Werner's influence did not spread as much as it might have. Some have concluded that, as the field of psychology shifted its priorities, Werner's approach waned in perceived importance, and the program's reputation diminished (Koelsch 1987; Lane et al. 2005). It has also been suggested that the Werner's theory suffered because Werner was not inclined to repackage his ideas into contemporary jargon, and also because its openness and flexibility made it more difficult to adapt to straightforward hypothesis testing than, say, Piagetian theory (Franklin 1990). That said, Werner's thinking has a sizable legacy of influence on work in developmental and clinical psychology (Bibace 1966; Glick and Zigler 2005; Miller 2005).

In 1957, the Institute for Human Development was founded (later the Heinz Werner Institute of Developmental Analysis), and in 1966 it began hosting the prestigious Heinz Werner lecture series and published the monographs thereof. In 1960, Wapner followed Werner as department head and Hall Chair. In 1965, the Eastern Psychological Association and Massachusetts Psychological Association held memorial services in Werner's honor (Wapner and Kaplan 1966).

Wapner was a skilled academic politician, a ferocious advocate of psychology as a discipline, empirical research as an activity, and Clark's psychology department as an institution. He held many offices in the American Psychological Association (APA), founded the Council of Graduate Departments of Psychology (COGDOP), and had the record for the longest continuous grant funding of any psychologist. In 1970, Wapner engineered a substantial departmental developmental grant, which funded positions in the psychology department designed to cement research relations with sociology and biology, and to lend some of psychology's prestige to those departments (Koelsch 1987). This led to a long struggle in the department between the integrative Wernerian tradition and a more conventional understanding of psychology as a multi-perspective discipline.

During the 1970s and 1980s, the department continued to have faculty with strong reputations as individuals, and there was a general focus on development. The studies were eclectic: Roger Bibace worked on issues in clinical work with children, Nancy Budwig on linguistic development, Leonard Cirillo on

sensory-tonic theory, Hobb Crocket on social psychology, Rachel Falmagne studied logic, Bernard Kaplan continued developmental research in the Wernerian tradition, James Laird worked on self-perception of emotions, Joseph de Rivera combined Lewin's field theory with contemporary social and personality issues, David Stevens on operant conditioning and the psychometrics of smell and taste, Donald Stein on localization of brain functions, Nicholas Thompson worked on communication in animals and humans, Ina Uzgiris on the interaction of behavioral and cognitive development, Morton Wiener on verbal development, Marianne Wiser on conceptual development of children, and Jack Wohlwill on experimental approaches to Piagetian theory. One characteristic of the faculty at that time, having been hired predominantly during the Werner/Wapner era, was a drive toward empirical and conceptual integration of ideas. The department was still characterized by an interest in higher-level theorizing; while the faculty seemed highly specialized to each other, within their subdisciplines their interests often seemed unusually broad.

After Werner and Wapner

Wapner maintained chairmanship of the department until his retirement in 1986. The year before, he presided over a symposium on "Freud in Our Time" marking the seventy-fifth anniversary of Freud's trip to America (Koelsch and Wapner 1988). Though Wapner continued to inspire both graduate and undergraduate students, psychology as a field had grown cognitive, and the computer model of the mind rendered Clark's Wernerian tradition, both in its specialized subject matter and in its broad approach to any psychological problems, no longer central to the field. Also, the Wernerian tradition, of deep thinking, and searching for the "critical experiment" to test ideas, did not fit in well with the rapid-fire publication trends developing during these times.

The bright spot of this period came in 1989 when Jacob Hiatt, University graduate and longtime trustee, gave a large endowment to name the Frances L. Hiatt School of Psychology. During the early 2000s, the Clark University Press closed shop (following the national trend of small university presses), the Werner lecture series ended, and the Heinz Werner Institute ceased to be active. There still remains a small reading room

containing a collection of Werner's files and many of his books under the label The Heinz Werner Library. Since Wapner's retirement, the Hall Chair has remained empty, though there also remains a reading room bearing Hall's name and containing a large part of his personal library.

A Current Assessment

The psychology department is still one of the flagship programs at Clark University, offering Ph.Ds through the development and clinical programs, as well as the social, evolutionary, and cultural program. Despite the downturn in prestige and departmental coherence following the Werner/Wapner era, the situation in the department never became nearly as grim as it was during the post Hall years. Bolstered by Hiatt funds, the department remains the largest on campus in terms of faculty and students, and enjoys recently renovated facilities. It has been very successful in getting its undergraduate students into graduate programs and its graduate students into tenure-line positions.

The department's current state reflects its history. The ghosts of Clark and Hall continue to fight in its hallways, and many tensions in the department reflect the modern difficulties in trying to run a prestigious graduate school and a prestigious liberal arts college simultaneously. The faculty members as individuals maintain strong reputations, publishing well and maintaining prestigious roles in niche professional societies. Michael Addis and James Cordova, for example, bring a strong neo-behaviorist flavor to the clinical program. Nancy Budwig was recently president of the Jean Piaget Society, Rachel Falmagne was president of the International Society for Theoretical Psychology, Michael Addis was president of the Society for the Psychological Study of Men and Masculinity (Division 51 of the APA). Joseph de Rivera directs the peace studies program. Michael Bamberg edits the journal *Narrative Inquiry* and the book series *Studies in Narrative*. Jaan Valsiner edits the journals *Culture and Psychology* and *Integrative Psychological and Behavioral Science*, and the book series *History and Theory of Psychology*, *Advances in Cultural Psychology*, and *Cultural Psychology of Social Representation*. Behind these individual accomplishments, the department as a whole lacks clear focus. This can be seen at both the faculty and student levels, made worse by increased

strictures in gaining APA accreditation for the clinical program, as well as struggles over campus resources. The problem can be seen most clearly, perhaps, in the artificiality of the department's division structure: Separations that were once lamented, such as those between clinical and developmental psychology (Kaplan et al. 2005), or between developmental psychology and cultural psychology, are now used to categorize students and faculty in highly reified ways.

The most notable continuity with the department's past is Valsiner, who continues the developmental psychology legacy of Werner and Hall through both original research and historic scholarship on developmental theories. He holds a weekly international meeting comparable to Hall's seminar from a century before, but without the aggression. Department faculty (most notably Bamburg, Bibace, Kaplan, Thompson, Weiner, and topologist Lee Rudolph) are joined by several students (graduate and undergraduate), international visitors, and, by video link, colleagues in South America and Europe, to discuss research in progress.

In 2009, the University celebrated its 120 year anniversary, the centennial of Freud's visit, with a combination of public and private events. Another conference to mark the Freud centennial was held by the New York Academy of Medicine.

The Future

The ghosts of Clark and Hall are still present at the University: The goals of running a research University and a small College are difficult to balance. Clark is not well positioned to compete with the enormous, well-funded research universities that currently dominate mainstream psychology. That said, the school has the potential to continue as a place of innovation, a place where not-quite-mainstream approaches to psychology, especially integrative approaches, can grow and thrive. In that sense, it retains its ability to once again become central to the field. However, there is little way of knowing in what form it will next arise.

Significance

The significance of the department to the history of psychology has been great, particularly during the Hall and Werner/Wapner eras. As one of the first departments of psychology, it produced the majority of psychology Ph.Ds in the country, and was essential in

raising the field to a prominence that led other universities to create psychology departments. Hall's developmental perspective, his journals, and the societies he helped found still shape psychology. The Murchison era saw the creation of the Clark University Press, which published many important journals and book series. Werner brought back a developmental focus to the department, and in addition to his historic importance, there is a current resurgence of interest in his work, which Kaplan and Wapner continued. Throughout that time, Clark has provided a pulpit for many notable speakers through its anniversary celebrations, its Werner Lecture Series, and its professorships (visiting and permanent). Several graduate and undergraduate students have gone on to become important members of the field.

See Also

- ▶ Boas, Franz
- ▶ Boring, E. G.
- ▶ Hall, G. Stanley
- ▶ Werner, Heinz

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Clark, Kenneth B.

ERIC JAMES, JOHN D. HOGAN
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Basic Biographical Information

Born: 1914; Died: 2005

Kenneth B. Clark was a social psychologist and educator, whose research, writing, and activism had

a significant impact on racial issues within the USA. Clark was born on July 14, 1914, in the Panama Canal Zone. His Jamaica-born parents, Arthur Bancroft Clark and Miriam Hanson Clark, had immigrated to the Panama Canal Zone because of employment opportunities there. However, Miriam desired a better life for her children and, in 1919, left her husband and moved to New York City with Kenneth and his younger sister, Beulah, ultimately settling in Harlem (Guthrie 1976).

While many young African-Americans of the period were strongly encouraged to attend vocational schools, Miriam insisted that her son, Kenneth, pursue an academic track. In 1931, Kenneth Clark graduated from George Washington High School and was admitted to Howard University where he earned a bachelor's and master's degree. While there, he met Mamie Phipps, a young mathematics student who would become his partner in life and in research. They married in 1938. Clark continued his studies at Columbia University with Otto Klineberg, a psychologist who conducted studies debunking racial and genetic myths concerning intelligence.

In 1940, Kenneth became the first Black American to receive a doctoral degree in psychology from Columbia University. His wife earned a doctorate in psychology from Columbia in 1943, the second Black American to do so. The work for which Kenneth Clark became best known early in his career was a continuation of his wife Mamie's master's thesis in which she had examined self-concept and self-esteem in Black children. His report on the individual impact of racial prejudice prepared for the 1950 Mid-Century White House Conference on Children and Youth was viewed as important evidence for the NAACP, which was preparing lawsuits to challenge legal racial segregation in public schools. Eventually, Clark's work would make a substantial contribution to the noted Supreme Court decision, *Brown vs. the Board of Education*, which outlawed racial segregation in public schools.

Kenneth Clark achieved many firsts. He was the first Black American to hold a permanent professorship at the City College of New York, the first Black educator to join the New York State Board of Regents and, in 1970, he became the first and only (to date) Black American to serve as president of the American Psychological Association (APA). During his 20 years as a member of the New York State Board of Regents, Clark was often

described as the conscience of the board. When he became president of the APA, he provided that organization with the same conscience through his pursuit of ethnic and social responsibility. This foresight and dedication earned Clark the APA's Gold Medal Award for his contributions to public interest in 1987 and, in 1994, the APA's Lifetime Achievement Award.

Kenneth and Mamie Clark raised two children, Kate (born in 1940) and Hilton (born in 1943). Kenneth Clark died in his home in Hastings, New York, on May 1, 2005, at age 90. His wife, Mamie, died in 1983 (Jones and Pettigrew 2005).

Basic Accomplishments/Contributions

The early studies by the Clarks (e.g., Clark and Clark 1940) employed picture coloring and dolls in order to evaluate the racial identifications of young African-American children. In 1952, one segment of their experiments was repeated for the National Association for the Advancement of Color People (NAACP) with 16 children (ages 6–9) in Clarendon County – a segregated and racially polarized region of central South Carolina. Of the 16 children tested, 11 said the Black doll looked “bad,” 9 said the White doll looked “nice,” and 7 of the 16 tested said that the White doll looked like them when asked “show me the doll that’s most like you.” Because this part of their experiment was the most dramatic, it came to be known as “the doll test” (Jackson 2006).

In 1953, Thurgood Marshall and the NAACP Legal Defense and Educational Fund used the doll test and Kenneth and Mamie Clark’s early research on self-identity of Black children to challenge the constitutionality of “separate-but-equal” educational opportunities for Black and White children. Kenneth Clark also coauthored the Social Science Statement, an appendix to the legal brief submitted to the Supreme Court in *Brown vs. the Board of Education*. This was the first time social science research was presented as evidence to the Supreme Court and was said to have played a key role in the decision.

Together Kenneth and Mamie Clark founded the Northside Center for Testing (renamed the Northside Center from Child Development in 1948), an organization that provided vocational counseling to adolescents, psychological testing and consultation of children with

behavior issues, and parental education in childcare. In 1962, they organized Harlem Youth Opportunities Unlimited (HARYOU), an organization that provided school-based services to Harlem youths. In addition to HARYOU, Kenneth and Mamie Clark also established a consulting firm designed to improve race relations within the business community (Phillips 2004). Kenneth Clark, often with the assistance of this wife, published more than 20 articles pertaining to the psychological study of ethnic and minority issues and authored/coauthored more than half a dozen books including *Prejudice and Your Child* (1955) and *Dark Ghetto* (1965).

See Also

► [Sumner, Francis Cecil](#)

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Cole, Michael

MOHAMED ELHAMMOUMI

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Basic Biographical Information/Major Accomplishments

Michael Cole, the American psychologist, has been studying the development of human thinking from

a cultural historical perspective for more than 50 years. Only in the last decade, however, has worldwide psychology come to recognize that Cole is in fact one of the giants of cultural psychology. He is arguably the most influential cultural, developmental, child psychologist, and educator of his North American generation. His work is studied by eminent contemporary academics, psychologists, philosophers, and educators. His influence is international. He reached across the world to a generation of teacher educators who passed on his ideas to succeeding generations. The impact of Cole's ideas upon the present-day cultural psychology is becoming increasingly evident. He is a thoughtful and immensely erudite scholar whose deep understanding of cultural historical mediating activity and children's thought processes have been admired and discussed by eminent scholars. Cole synthesized the work of earlier Soviet, European, and American psychologists and educators into a particularly North American package, suited to the practical bent of American education and psychological science. And always, at the heart of his work lay the belief that deep observation and practical activity are the keys to understanding the complex and unique realities of human development.

A pioneering psychologist, Cole is also a highly prolific intellectual thinker. His major works span dozens of books and monographs and over 400 scientific articles, written over roughly 50 years, from his early works in the USA, USSR, South America, and Africa to the field of cultural psychology. Cole's interests in the areas of cultural psychology, developmental psychology, educational psychology, child development, epistemology, and methodology are extremely diverse and interdisciplinary. His creative work in cultural psychology includes several key concepts such as social interaction, mental tools, cooperation, collaboration, activity, mediation, internalization, distributed cognition, distributed collective activity, collective cognition and memory, microgenesis, zone of proximal development, oral word, written word, reading, and writing. His work covers such diverse topics as literacy, concept formation, cognitive development, cultural development, after school learning activity, relation between learning and teaching processes, and the origin and development of higher mental functions.

Cole's theoretical insights are reported to have influenced the development of a wide range of educational and psychological theories such as activity system theory, distributed cognition, apprenticeship, and cultural historical psychology. Cole has a strong influence on a number of thinkers such as Sylvia Scribner, James Wertsch, Vera John-Steiner, Barbara Rogoff, and Urjo Engeström among others. He is largely responsible for introducing Vygotsky, Luria, Leontiev, and Soviet psychology to the US. He was the first who stressed the need for international cooperation in advancing a new science of human development capable of contributing to theoretical and practical solutions. This new science must overcome not only the theoretical fragmentation and controversies that characterize the present-day human sciences, but also the geographic or national isolation within which most theoreticians and researchers operate.

Cole first developed the Fifth Dimension educational project in 1986; and since then it has been implemented in many countries throughout the world. It is based on Vygotsky's cultural historical theory. Cole developed a major field of research known as cultural historical activity theory (CHAT). He took to the test Vygotsky's zone of proximal of development, concept of mediation, and concept formation in the learning process. According to Cole, the goal of education is not the individual adjustment to society, but rather the deliberate cultivation of ability to think creatively, to reason critically, and to operate abstractly.

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Introduction

In November 1885, 5 months away from earning his doctorate in psychology at the University of Leipzig with Wilhelm Wundt (1832–1920), James McKeen Cattell (1860–1944) wrote to his parents extolling his latest accomplishment, one of his first published articles (Cattell 1886): “I received today both ‘Brain’ and the ‘Studien’ with my paper. . . . A paper like this gives me a very secure place in the scientific world, makes me equal with any American living” (Sokal 1981, p. 192). The grandiosity of this statement from the 25-year-old Cattell was not atypical of self-descriptions that Cattell relayed to his parents, for example, in an earlier letter commenting that Wundt seemed to appreciate his “phenomenal genius” (Sokal 1981, p. 160). Clinical psychologists reading Cattell’s letters today would find much evidence there to make a diagnosis of narcissistic personality disorder (NPD). Whether such a diagnosis is merited for Cattell we cannot know. NPD, however, is not a debilitating condition; indeed, many individuals with NPD prove to be extraordinarily accomplished. Historian Michael Sokal, the leading authority on Cattell has characterized Cattell’s personal style as “self-righteous egotism that led him to expect others to defer to his views. . . . To Cattell, all was black or white, and he always knew which was which” (Sokal 2009, p. 90).

Although Cattell’s high opinion of himself may not have served him well in his interpersonal relationships, it likely played a critical role in his considerable entrepreneurial accomplishments as a psychologist, accomplishments that made him equal to any psychologist living in his time. Among his many achievements was his founding of a doctoral psychology program that can be argued to have been the most significant training ground for American psychologists for a 60-year period – the psychology program at Columbia University. In this entry, we trace the

histories of the psychology departments at Columbia University, first in the graduate program on the main campus, then at Teachers College, and finally at Barnard College.

Founding the Psychology Laboratory

James McKeen Cattell graduated from Leipzig in 1886 and remained in Europe, in Leipzig for a while and then in Cambridge, England, where he studied with Francis Galton (1822–1911). He returned fulltime to the USA in January 1889 to accept a professorship at the University of Pennsylvania where he established his first psychology laboratory (Cattell 1890a, 1928). But 2 years later, he was lured away to initiate a second laboratory at Columbia College in New York City.

Nicholas Murray Butler (1862–1947) was chair of the philosophy department at Columbia in 1890. He was aware of the new experimental work in psychology and sought an instructor in the subject. In a collection of brief articles in an 1890 issue of the *American Journal of Psychology* that described the status of the new science of psychology at American Universities, Butler (1890) wrote that the department at Columbia hoped “to secure within a few months not only a specialist in Experimental Psychology, but a well arranged laboratory and a fair stock of apparatus” (p. 278).

When Cattell joined the Columbia faculty in 1891, the college was on East 49th Street. He was housed in the attic of the administration building where he set up his psychology laboratory. One of his first students was Margaret Floy Washburn (1871–1939) who worked on a problem given her by Cattell, an assessment of the validity of Weber’s law for two-point thresholds on the skin. Although Washburn was fully supported by Cattell, Columbia College policies allowed women to attend graduate classes only as a hearer. And so she transferred to Cornell University in 1892 where she would earn her doctorate with Edward B. Titchener (1867–1927) (Washburn 1930). Cattell’s first doctoral student, who was a classmate of Washburn, was Harold Griffing (? – 1900), who completed his degree in 1894 with a dissertation on tactile perception (Griffing 1895). Apparently, Griffing never held an academic position. He was responsible for the financial support of his mother and an invalid sister and thus was “unable to accept such university positions with small salary as were open to him” (Anonymous 1900,

p. 639). Instead, he practiced law for a few years before his untimely death in 1900. Both Cattell (1900) and Washburn (1930) wrote of him as a scholar of great promise.

In 1893, Columbia hired Livingston Farrand (1867–1939) to teach courses on the brain and nervous system and on abnormal psychology. His initial training was in medicine at Columbia and then experimental psychology with Cattell, but he later functioned primarily as a professor of anthropology after training with the eminent anthropologist Franz Boas (1858–1942). Farrand taught 20 years at Columbia, the first 10 in psychology and the next 10 in anthropology (Woodworth 1940a).

Boas, who is considered the founder of modern anthropology, was already a world famous anthropologist when he joined the faculty at Columbia in 1896 as part of the Department of Philosophy, Psychology, and Education. Not surprisingly he and Cattell clashed, the meeting of two exceptional talents and egos to match. Cattell continued to be in charge of psychology but in 1899 the administration renamed his department Psychology and Anthropology. Yet 3 years later, Boas had his own separate department, leaving Cattell in charge of the once again renamed Department of Philosophy and Psychology.

In 1896, the same year in which Boas joined the Columbia faculty, Cattell made another hire that was critical to the success of his psychology program: Charles Augustus Strong (1862–1940). After studying psychology and philosophy with William James (1842–1910) at Harvard University and Carl Stumpf (1848–1936) at the University of Berlin, Strong founded the psychology laboratory at the University of Chicago in 1893. He joined the Columbia faculty in a similar role and also taught courses in analytic psychology. By 1903, the year in which he published his first book – *Why the Mind Has a Body* – Strong had shifted his teaching almost entirely to courses in philosophy, a subject he taught for the last decade of his 18 years on the Columbia faculty (Woodworth 1940b). Strong had married Bessie Rockefeller, the daughter of John D. Rockefeller in 1889. This connection would lead to a gift of \$100,000 in 1899 from Rockefeller to endow Cattell's professorship.

Cattell would not produce his second doctoral student until after the college moved to its Morningside

Heights campus in 1896. The psychology laboratory occupied nine rooms on the fourth floor of Schermerhorn Hall, which included, in addition to office space and classrooms, four rooms for research plus a shop (Woodworth 1942). Those first few years in the new labs would be among Cattell's most productive, resulting in eight doctoral students in 1898–1899 including Edward L. Thorndike (1874–1949), Shepherd Ivory Franz (1874–1933), and Robert S. Woodworth (1869–1962), two of whom would have especially important roles in psychology's history at Columbia as will be discussed later. Ever the entrepreneur, Cattell greatly expanded his psychology laboratory, acquiring additional research space in 1899 that covered half of the fifth floor.

Mental Testing at Columbia

In his studies with Galton at Cambridge University in the late 1880s, Cattell was much taken with Galton's anthropometric tests, even participating as a subject in Galton's test battery. He would meld a version of Galton's testing program with the experimental procedures he had learned in graduate study at Johns Hopkins University and Leipzig to initiate the earliest form of intelligence testing in America, an activity whose outcome would become an obsession nationwide for parents and school teachers and the mainstay of psychological practice for those who worked under such labels as clinical psychologist or consulting psychologist in the first half of the twentieth century.

Cattell is credited with coining the term “mental test,” first used in an article in the journal *Mind* in 1890. In arguing for the importance of such tests, he wrote:

- ▶ Psychology cannot attain the certainty and exactness of the physical sciences, unless it rests on a foundation of experiment and measurement. A step in this direction could be made by applying a series of mental tests and measurements to a large number of individuals. The results would be of considerable scientific value in discovering the constancy of mental processes, their interdependence, and their variations under different circumstances. (Cattell 1890b, p. 373)

Galton's testing program was an outgrowth of the philosophy of British empiricism that emphasized the primacy of the senses as the means by which all knowledge is acquired, by his hereditarian views of the

determination of genius, and by his goals for the betterment of the human race as expressed in his program of eugenics. Galton's testing program had emphasized sensory measures such as acuity and discrimination; reaction time; and physical measurements, including measures of head size (Fancher 1997). If all knowledge comes to the mind via the senses as the empiricists had asserted, then those with superior sensory abilities should be more intelligent. Reaction time to sensory stimuli was also considered a measure of intelligence because it was a measure of the speed of neural processing in the brain, a subject that Cattell had investigated at Johns Hopkins and Leipzig (see Cattell 1885, 1886/1887). Further, because brain size was believed to be important for mental ability, such that bigger brains were better, head size was also assumed to be a valid component in a test battery to measure intelligence. For Galton, his intelligence tests provided the means to select those individuals who should be part of a eugenics program aimed at improvement of the human species (Galton 1865).

Cattell's (1890) tests included some of the same measures. He began his anthropometric testing program in his laboratory at the University of Pennsylvania and soon settled on a battery of ten tests that included sensory measures (weight discrimination, two-point thresholds, pain perception), motor measures (rate of arm movement), physical measures (strength of hand grip), reaction time measures (to a sound stimulus and in naming colors), and cognitive measures (memory for letters, time perception).

Cattell (1893) touted the value of his tests in an article for teachers in the journal *Educational Review*. He claimed that "such tests give a useful indication of the progress, condition, and aptitudes of the pupil" and that conducting such tests "might serve as a means of training and education" (p. 257). At the same time that Cattell was promoting the value of his tests to educators, he was making a similar pitch to Seth Low, the President of Columbia University, asking for permission to test Columbia students to determine their "condition and progress. . . [and] the relative value of different courses of study" (Sokal 1982, p. 324). He confessed that he was not sure how his tests would determine such educational efficiency, but argued that the "best way to obtain the knowledge we need is to make the tests, and determine from the results what

value they have" (p. 324). Cattell received the authorization he requested in 1894 and, with Farrand's help, they began testing every student upon their entering Columbia University (Cattell and Farrand 1896). That program continued throughout the 1890s, and Cattell and his graduate students regularly reported on the results at various scientific meetings and educational conferences (Sokal 1982).

By the end of the 1890s, Cattell had a mountain of data from Columbia students. And he had a new statistical way to assess the validity of his tests as measures of intelligence. Galton introduced the concept of correlation in 1888 as a means by which the relationship between things could be statistically determined. His student, Karl Pearson (1857–1936), developed a formula to measure correlation, and it was this new statistic that Cattell learned about in the late 1890s. Here was a means by which Cattell's tests could be compared to student performance in college classes. Cattell enlisted the services of a graduate student, Clark Wissler (1870–1947), to perform the correlational analyses. Wissler compared each of Cattell's tests to the grades students earned in their classes and found that the resulting correlations were all in the near-zero range indicating no relationship. Thus, as predictors of academic performance they had no validity. It was the death blow for Cattell's decade-long research program. Sokal (1982) wrote, "Wissler's analysis struck most psychologists as definitive and, with it, anthropometric mental testing, as a movement, died" (p. 340).

Cattell would work another 17 years at Columbia, but his career as an experimental psychologist largely ended with his anthropometric studies. Instead, he focused much of his energies on the journals that he owned and edited. He had purchased the journal *Science* in 1894 and would edit that until his death in 1944, having created perhaps the most important scientific journal in the world (Sokal 1980). He edited other journals as well such as *School and Society* and *The Popular Science Monthly*, as well the early years of *Psychological Review* which he cofounded with James Mark Baldwin (1861–1934) in 1894.

Robert Woodworth and the Columbia Psychology Department

Woodworth finished his doctorate in 1899 under Cattell with a dissertation on the accuracy of

voluntary movement. Woodworth was a close friend to E.L. Thorndike whom he had met when they were students at Harvard together. They finished their doctorates at Columbia within a year of each other and were, without a doubt, Cattell's two most successful doctoral students. For many years, they would be the senior voices in the two graduate psychology departments at Columbia: Woodworth in the psychology department and Thorndike in the educational psychology department at Columbia's Teachers College. After graduation, Woodworth worked part time at Columbia as a lecturer prior to a 2-year sojourn to Europe where he worked with physiologist Charles Sherrington (1857–1952). Cattell invited him back to Columbia in 1903 and he would remain there for the rest of his life teaching until almost the age of 90 and directing the psychology department during some of its most successful years (Woodworth 1932).

Cattell was listed as executive officer of the psychology department from 1891 to 1912. Woodworth succeeded him formally in 1912 and served in that role until 1926. But in fact Cattell relinquished his duties much earlier, meaning that Woodworth had the work without the title or the salary (Winston 2006). In fact Cattell, whose home was 50 miles from the university, had an agreement with the Columbia administration that he was required to be on campus only 2 days each week. That left most of the administrative duties and much of the contact with graduate students, including research supervision, on Woodworth's shoulders (Poffenberger 1962).

By 1906, Woodworth handled the bulk of doctoral student supervision. That year, he founded a new journal, *Archives of Psychology*, which he edited until 1945. This was a monograph series that principally published doctoral dissertations of Columbia's psychology students, although other contributions were occasionally made, often by Columbia faculty or former students. For example, the first monograph in the series was by Naomi Norsworthy (1877–1916) and her dissertation was on "The psychology of mentally deficient children." She was hired by Columbia's Teachers College. The second and third monographs in the series were published the following year by Shepherd Franz and E. L. Thorndike. By 1945 when Woodworth's editorship ended, the journal had published 300 monographs, a number of which would prove to be

particularly significant contributions to psychology, for example, monographs by Otto Klineberg (1899–1992) on the psychology of race, Rensis Likert (1903–1981) on the scaling technique that would eventually bear his name, and Muzafer Sherif (1906–1988) on social factors in perception. Klineberg was Woodworth's student and the other two were mentored by Gardner Murphy (1895–1979) who Woodworth recruited to the graduate program and later to the faculty. Gardner Murphy, who taught at Columbia from 1920 to 1940, is often considered the founder of experimental social psychology based on his 1931 book by the same name. His social psychology students at Columbia included Solomon Asch (1907–1996) and Theodore Newcomb (1903–1984), in addition to Likert and Sherif. Those four names would be on any Mount Rushmore of social psychologists and is testimony to the strength of social psychology at Columbia under the guidance of Murphy and Klineberg.

Woodworth was chiefly responsible for the instruction in experimental psychology at the graduate as well as undergraduate level. His lectures for that course would eventually be "published" in a mimeographed form in 1909 and later expanded with his student Albert T. Poffenberger (1885–1977) as a coauthor. The book was known to Columbia students as "The Bible" (Winston 1990). It was ultimately published commercially in 1938 as *Experimental Psychology*, with Woodworth as sole author.

As Andrew Winston has shown, this book produced a sea change in the language of experimental psychology and, indeed, in what was judged to be experimental and not just empirical research. Woodworth defined an experiment as the manipulation of an independent variable and the measurement of its effects on a dependent variable or variables. As Winston (1990) has noted, "Woodworth's 1938 definition of experiment became nearly universal in psychology textbooks" (p. 391). Woodworth distinguished between experimental studies and correlational studies, noting that discovering causes was possible only in the former. He drew a sharp distinction between empirical studies and experimental studies, noting that the latter involved active manipulation of an independent variable which the former did not. In making this distinction, he argued that mental testing was empirical work but it was not part of experimental psychology, a point

that was hotly debated within psychology, especially among those who were heavily invested in mental testing, for example, Lewis Terman (1877–1956).

Winston (1990) made a further claim for the remarkable influence of Woodworth's *Bible* in arguing that Woodworth's restricted definition of an experiment and his insistence that it was the only method to reveal causation provided a crucial rationale supporting animal research in psychology during the 1930s through the 1950s. He wrote:

- ▶ . . . Woodworth's view would support the following reasoning: *If we can find the "causes of behavior" only by manipulating an independent variable while holding all other variables constant, and to do so with humans will frequently be unethical, impractical, or impossible, then we must seek the causes of behavior with laboratory animals, specially bred and reared under controlled conditions.* (pp. 397–398)

Winston has asserted that E. C. Tolman (1886–1959), B. F. Skinner (1904–1990), and many other psychologists of that time adopted the language of the experiment as defined by Woodworth and pursued their animal research in search of causes. Animal researchers, essentially disciples of Skinner, would soon control the psychology department at Columbia. Even if Winston is correct that Woodworth's definition of experimental psychology abetted them, Woodworth would never have favored the narrow disciplinary focus that psychology at Columbia would acquire. He believed in an eclectic psychology and largely fostered that ideal in the many years that he chaired the department (Poffenberger 1962; Thorne 1976; Winston 2006). His eclecticism is perhaps best illustrated in Edna Hebbreder's (1890–1985) description of what it meant to be a doctoral student at Columbia University during his tenure.

- ▶ Psychology at Columbia is not easy to describe. It stands for no set body of doctrine, taught with the consistency and paternalism found in more closely organized schools. Yet it shows definite and recognizable characteristics. A graduate student in psychology cannot spend many weeks at Columbia without becoming aware of the immense importance in that atmosphere of curves of distribution, of individual differences, of the measurement of intelligence and other

human capacities, of experimental procedures and statistical devices, and of the undercurrent of physiological thought. . . . He encounters many different trends of thought, and he frequently comes upon the same ones from different angles. But the separate strands of teaching are not knit together for him into a firm and patterned fabric. No one cares how he arranges the threads that are placed in his hands; certainly there is no model which he is urged to copy. Columbia students are as definitely marked as those of any other group, but the mark itself is straggling and irregular. The same units – the same "identical elements" – tend to appear in each member of the group, but in arrangement they vary enormously from person to person, and only rarely do they form a true design. (1933, pp. 291–292)

Hebbreder felt so strongly about the existence of a separately identifiable brand of psychology at Columbia University that she listed it as one of seven distinctive psychologies in her book *Seven Psychologies* (1933). So in addition to chapters on structuralism, functionalism, behaviorism, Gestalt psychology, psychoanalysis, and the psychology of William James, Hebbreder described a separate school of psychology at Columbia, focusing on the dynamic psychology of Robert Woodworth.

Woodworth's eclecticism was evident in his dynamic psychology as well that sought to draw on the richness of multiple approaches to understanding the nature of mental life. For Woodworth (1918), dynamic psychology demanded a

- ▶ . . . clearer view of the mental side of vital activity, refusing to be contented with the fragmentary views offered us by the exclusive students of either consciousness or behavior, but endeavoring to utilize the results of both these parties and the results of brain physiology as well, for an understanding of the complete processes of mental activity and development. (p. 36)

Two concepts were key to Woodworth's dynamic psychology – mechanism and drive. The first is about how things are done; the second is about why we do them. Thus, the principal quest of this psychology was to understand motivation, an impetus that led to his system being labeled *motivology*. Woodworth felt constrained by the narrow boundaries of a stimulus-response (S-R) psychology which he believed

eliminated a role for motivation. Consequently, he sought to identify the organismic variables that intervened between stimulus and response, producing his S-O-R psychology.

A Baseball Interlude

In 1919, George Herman Ruth, age 24, better known as Babe Ruth, was playing in his final season with the Boston Red Sox. That year he hit a total of 29 home runs, a new major league record. Because the Red Sox ownership was in financial difficulties, they sold Ruth to the New York Yankees after the 1919 season. In his first season in pinstripes, the Babe broke his own home run record, hitting an amazing 54, a number that exceeded the home run totals for 14 of the 16 teams in major league baseball that year. How could one player's performance be so out of line with the rest of the league? Asking that question in the twenty-first century would generate an easy answer – performance-enhancing drugs. As best we know, however, such substances were not available to Ruth. So to answer the question, after playing a game in 1921, Ruth was taken to a psychology laboratory for testing, specifically, to the labs at Columbia University. There two doctoral students subjected him to a number of tests including a measure of the strength and speed of his swing, changes in breathing during his swing, manual dexterity, speed in tapping his finger, hand steadiness, visual recognition, and reaction time to a visual stimulus. The lab had normative data on all of these tests and in comparing Ruth's scores with those norms they discovered that his performance was significantly better on all measures, sometimes by a very large margin. Clearly Ruth's sensory and motor skills suggested that he might be the superhuman many fans thought him to be (Fuchs 2009). And he added to that image again in 1921, once more setting a new single season record with 59 home runs.

Cattell retired from the university in 1921; Woodworth was in charge of the department. Note that it was graduate students involved in the testing and not faculty. Even given Ruth's fame it is unlikely that faculty would have shown any interest in what some would have judged a publicity stunt. But Hugh Fullerton, the sportswriter who arranged the testing, was quite serious in his quest to learn the secrets of Ruth's extraordinary performances. He published the

results of the testing in Cattell's magazine, *The Popular Science Monthly* in 1921 (Fullerton 1921). The results of the testing were never published in any psychological journal. Instead, they lay essentially forgotten for 75 years until they were rediscovered by psychologist Alfred Fuchs and published in a psychology history journal in 1998. Although some of the tests used with Ruth were ones that Cattell had used in his test battery, most of the tests appeared more relevant as measures of the sensory and motor skills that might be involved in hitting a baseball. On a related note, when Ruth visited the campus in 1921 there was a young man who was in his first year at Columbia. His name was Lou Gehrig, and he and Ruth would play together for 12 seasons with the New York Yankees, arguably the best hitting duo in the history of baseball.

Psychology's Golden Age at Columbia

Albert Poffenberger succeeded Woodworth as executive officer of the department in 1926 and served in that role until 1941. Woodworth remained as the senior faculty member and continued to play a major role in the department supervising doctoral students, conducting research, and writing his textbooks. His introductory psychology textbook, *Psychology: A Study of Mental Life*, first appeared in 1921. By the time the second edition appeared in 1929, the growth of behaviorism mandated that the subtitle disappear. And so it was entitled simply, *Psychology*. This textbook went through five editions, the last one in 1947, and through most of its life, it was the leading selling psychology textbook in the USA.

Poffenberger's principal interest was applied psychology, broadly defined to include vocational guidance, medicine, education, law, and business and industry. He taught courses on applied psychology, most of his 16 doctoral students did dissertations on applied subjects, and his books were mostly in that field. One of his earliest books was a textbook on applied psychology coauthored with Harry Hollingworth (1880–1956), another Columbia faculty member (Hollingworth and Poffenberger 1917). In 1925, he published a book on the psychology of advertising and later wrote several editions of the applied text as sole author (Poffenberger 1927, 1942). He was especially interested in the application of psychology to business but also interested in the growing field of

clinical psychology. In the 1930s, he sought to establish several applied programs, including clinical psychology, in Columbia's psychology department but was unsuccessful, presumably because it was opposed by Woodworth (Thorne 1976).

In 1935, during his term as executive officer, Poffenberger was elected the 43rd president of the American Psychological Association (APA). In holding that office, he followed both of his predecessors who had been president of APA as well: Cattell as No. 4 in 1895 and Woodworth as No. 23 in 1914. Actually, Poffenberger was the sixth Columbia graduate elected to that office: Thorndike was president No. 21 in 1912, Franz No. 29 in 1920, and Hollingworth No. 36 in 1927. Thus, the leadership of all Columbia psychology departments had been elected to the highest APA post, including Thorndike of Teachers College and Hollingworth of Barnard College, Columbia's college for women. Poffenberger was also elected president of the American Association of Applied Psychology (AAAP) in 1943–1944, the last person to be president of AAAP. He was a leader in the merger of AAAP with APA at the end of World War II (Benjamin 1997; Wenzel 1979). The examples of association leadership are cited here to illustrate the national standing of Columbia's faculty.

In 1925, the last year of Woodworth's term as executive officer, the department moved out of Schermerhorn Hall into the Physics Building where they had 25 rooms spread across multiple floors from the basement to the 14th floor. But Woodworth (1942) reported that the elevator service was good. Psychology remained in the Physics Building for 5 years before returning to Schermerhorn Hall in the newly constructed extension. It marked the first time in psychology's history that the department had been able to plan the construction of its intended space. In 1930, the department moved into 54 rooms for offices, laboratories, and a shop. The department also received the sum of \$30,000 for purchase of new equipment (Woodworth 1942).

The period 1920–1940 has been referred to as Columbia's "golden age" in psychology, both because of the number of doctorates awarded but also by the subsequent accomplishments of many of those graduates. From 1894 to 1919, a total of 26 years, 58 doctorates were awarded. In the 21-year period from 1920 to

1940, that number increased dramatically to 207. By 1948, Columbia's psychology department had awarded 344 doctorates, 75 more than any other department in the USA (Harper 1949). And as an illustration of the leadership and, perhaps, scholarly reputations of the Columbia graduates, between 1946 and 1970, more psychology department heads across the USA had received their doctorates from Columbia than any other university (Heckel 1972).

Not only was there strength in numbers but there was star quality as well, such as Henry Garrett, Paul Achilles, Harold Jones, Gardner Murphy, Elizabeth Hurlock, Edna Heidebreder, Frederick Lund, David Wechsler, Mary Cover Jones, Otto Klineberg, Winthrop Kellogg, and Henry Nissen, in the 1920s. Graduates in the 1930s included Anne Anastasi, David Klein, Rensis Likert, Samuel Beck, Solomon Asch, Gregory Razran, Anne Roe, Arthur Benton, Meredith Crawford, Muzaffer Sherif, Robert Watson, Saul Sells, and Isidor Chein. Frederick Thorne (1976), who graduated from the program in 1934, gave all the credit to Woodworth for creating the "golden age" at Columbia.

- ▶ ...the key to its success was the capability of its guiding genius, Robert S. Woodworth, who gathered a remarkable group of scholars about him. Woodworth's objective eclectic orientation provided the broadest possible approach within a rigorous experimental-statistical orientation. Woodworth's scholarly approach pervaded the department so that many of his colleagues also wrote encyclopedic works in their particular fields of specialization. The writings of the Columbia psychologists truly shaped the field. (p. 159)

There is no doubt that Woodworth's presence, his quiet leadership, his eclectic view of psychology, and his personality that endeared him to colleagues and students alike were key parts of the formula for the success of Columbia's extraordinary output in the 1920s and 1930s. Yet Poffenberger served as department head during most of this period, from 1926 to 1941. So was his a titular headship or did he play a significant role in the doctoral production of this golden age? He retired in 1950, thus 15 of the final 24 years of his career were spent in departmental administration. His research productivity was low compared to that of his colleagues. And few of the

superstars of the 1920s and 1930s were his students. Instead, the scholarly production was largely in the hands of his colleagues – Murphy, Klineberg, Henry Garrett, and, yes, Robert Woodworth, who remained an active researcher, textbook writer, and doctoral mentor into his 80s. The fact that he was able to prevent the establishment of applied programs, presumably because he believed that they would weaken the scientific orientation of the department, is further evidence of his influence on the department even though he was no longer serving in the executive officer role.

Later, Columbia psychology graduates might dispute the label of “golden age” for the 1920s and 1930s, preferring instead to assign that label to the reign of the animal researchers, especially Skinnerians, who would come to dominate the department in the 1950s. But there is no denying the large number of graduates of those years who gained eminence in psychology, especially in the fields of social psychology and measurement.

Henry Garrett, Otto Klineberg, and the Psychology of Race

Henry E. Garrett (1894–1973), a native of Virginia, received his doctorate in psychology at Columbia in 1923 where he worked principally with Woodworth and Poffenberger. He soon joined the Columbia faculty where he worked until his retirement in 1955 at the age of 61. Garrett took over the role of department head from Poffenberger, serving in that capacity from 1941 to 1955. Given his activities in the 1950s, it is reasonable to suspect that the administration at Columbia encouraged him to retire early, but we have no direct evidence of that.

Garrett made his scholarly reputation as a statistician, principally based on the success of his textbook *Statistics in Psychology and Education* (1926), which went through six editions, the last one published in 1966. Garrett expressed strong hereditarian and racist views and had written on personality characteristics of Jews and racial differences in intelligence even before he was elected president of the American Psychological Association in 1946. In 1952, Garrett testified in his home state in one of the cases (*Davis v. County School Board of Prince Edward County*) that would become part of the *Brown v. Board of Education* lawsuit that went to the Supreme Court in that same year.

Columbia University graduates Kenneth B. Clark and Isidor Chein were instrumental in writing an amicus brief for the Court on behalf of the Society for the Psychological Study of Social Issues (SPSSI) and the National Association for the Advancement of Colored People (NAACP). That brief provided the social science evidence leading to the 1954 decision overturning the court’s earlier decision establishing the “separate but equal” doctrine that made segregation legal. In his testimony in the lower courts, Garrett argued that the research of Clark and Chein on the psychological effects of segregation was so flawed that their results were wholly unscientific (Benjamin and Crouse 2002; Jackson 2001). Winston (1998) wrote that in the 1950s, “Garrett helped organize an international group of scholars dedicated to preventing race mixing, preserving segregation, and promoting the principles of early 20th century eugenics and ‘race hygiene.’ Garrett became a leader in the fight against integration and collaborated with those who sought to revitalize the ideology of National Socialism” (p. 179).

Countering Garrett’s views at Columbia was Otto Klineberg, a fellow faculty member, who published two books in 1935 that addressed the controversy over IQ score differences between blacks and whites. In *Negro Intelligence and Selective Migration* (1935a), Klineberg presented convincing evidence to dispute the hypothesis that the reason for African Americans in the North scoring higher on intelligence tests than those in the South was due to the selective migration of more intelligent individuals. He wrote, “As far as intelligence goes. . . [the difference in scores] may be explained by the more favorable environment [in the North], rather than by selective migration” (p. 62). In *Race Differences* (1935b), Klineberg wrote that “there is no adequate proof of fundamental race differences in mentality, and that those differences which are found are in all probability due to culture and the social environment” (p. vii). By the 1940s, and especially so after World War II when Americans felt revulsion toward Adolf Hitler’s claims of a master race, many psychologists came to accept Klineberg’s views that racial differences in intelligence tests were due to a cultural environment of prejudice and discrimination (Samelson 1978).

As noted earlier, Columbia University graduates played a crucial role in what is often regarded as the most important Supreme Court decision of the

twentieth century, *Brown v. Board of Education* (1954). When the NAACP, under the leadership of Thurgood Marshall as their chief attorney, sought help from the social science community to demonstrate the devastating effects of segregation, their search led them to Otto Klineberg. Klineberg referred the NAACP attorneys to his former graduate student, Kenneth B. Clark (1914–2005). When the attorneys told Clark what kind of scientific evidence they needed to make their case, Clark suggested that they read a chapter he had written for the 1950 White House Conference on Children and Youth (Clark 1950). The chapter included research on the differential personality development of African American children in segregated and integrated schools, research done by Clark and his wife, Mamie Phipps Clark (1917–1983), who had earned her doctorate in psychology at Columbia with Garrett as her advisor. In fact, it was Mamie Clark who had initiated those studies when she was a student at Howard University. That research, and other work, formed the basis of the amicus brief filed with the Supreme Court in September, 1952 and authored by Kenneth Clark, Isidor Chein, and Stuart Cook (2004). That evidence proved to be a deciding factor in the Court's decision to end legalized racial segregation. The *Brown v. Board* decision, the first Supreme Court decision to cite psychological research, included seven references to that research in a footnote to the decision. In his history of that decision, Richard Kluger (1975) has written that the placement of Kenneth Clark's 1950 work as first in the listing of seven sources was perhaps not arbitrary but was a tribute to Clark for the considerable role he played in preparing the social science evidence for the case.

The 1954 Supreme Court decision was a serious blow to Garrett's America, but he was not ready to give up the fight. Winston (1998) wrote that "the Brown decision galvanized Garrett and a number of other social and biological scientists into action with a new sense that a scientific attack might prove effective in reversing secular trends" (p. 184). One strategy was to use their scientific standing to demonstrate that the social science underlying the decision was bogus. After retiring from Columbia in 1955, Garrett returned to his native Virginia. He sought a position within the psychology department at the University of Virginia but the psychology faculty blocked his efforts. He instead

acquired a position in the education department. Over the next decade, he wrote articles, gave interviews, and published and distributed pamphlets designed to spread his views on the dangers of integration, for example, a 1963 article in *U. S. News & World Report* entitled "Racial Mixing Could Be Catastrophic" (Winston 1978). Despite his earlier positions of leadership at Columbia University and the American Psychological Association, when he died in 1973, his passing was little noted. Not one of the many psychology journals published his obituary, a very rare omission for former presidents of APA. His obituary in the *New York Times* was a meager 24 lines, and it included no mention of his racist activities (Anonymous 1973). At the time of this writing, the web page for the Columbia University's psychology department includes a history page that does not mention Garrett, although he is included in a timeline listing key faculty. Whereas Garrett's role in the segregation debates is remembered by few, the contributions of Klineberg, the Clarks, Chein, and others are regularly acknowledged as the high water mark of the value of social science.

The End of Columbia's Eclecticism

As is evident in this account thus far, Robert Woodworth was the glue that held the Columbia department together. He had the academic credentials, the reputation as the dean of experimental psychology, and a broad acceptance of what could be done in the name of psychology, so long as it was good science. But in 1945, at the age of 75, he officially retired. In truth he remained active for another 15 years publishing a second edition of his classic experimental psychology book at age 85 (Woodworth and Schlosberg 1954) and a thorough revision of his dynamic psychology book when he was 89 (Woodworth 1958), and delivering his last lecture at age 90. But the tenor of the department began to change in the 1940s under Garrett's watch, culminating in open dissension in the 1950s. The eclecticism that Woodworth had modeled and supported for so many decades was about to end. Columbia's golden age that had produced so many important contributors to so many areas of psychology would give way to a psychology that some would label religious zealotry.

When Woodworth retired, he was replaced by Clarence H. Graham (1906–1971) who came to

Columbia from Brown University. Graham remained at Columbia for 26 years where he mentored more than 50 doctoral students in vision and visual perception. Throughout his tenure at Columbia, he was one of the most productive faculty members and one of the department's most prestigious scientists (Geldard 1972). Graham's writing on visual perception was known for the objectivity expressed in the language he used, an influence of B. F. Skinner (Riggs 1975).

Skinner's influence was felt elsewhere in the Columbia department, especially in the research, writings, and teachings of Fred S. Keller (1899–1996) and William Nathan Schoenfeld (1915–1996). Keller joined the Columbia faculty in 1938 and Schoenfeld, who earned his doctorate with Klineberg, remained at Columbia as a faculty member after finishing his degree in 1942. Together they played the principal role in establishing a strong animal research presence in the department, grounded in Skinnerian behaviorism. In 1946, they created a pioneering introductory psychology course in which students engaged in hands-on laboratory experiences instead of the usual lectures. A few years later, they developed a textbook (Keller and Schoenfeld 1950) to accompany the course that drew considerably on Skinner's writings (Hearst 1997). As part of the transformation, more and more of the laboratory space in the Schermerhorn Extension was devoted to animal studies, principally operant conditioning research, but also included the animal research of Carl J. Warden (1891–1961) who had been a member of the faculty since the mid-1930s. The program produced a number of outstanding graduates including Helmut Adler, Philip Bersh, James Dinsmoor, Charles Ferster, Joseph Notterman, and Murray Sidman. One of those graduates has labeled this operantly dominated period as Columbia's "Golden Age of research on the most elemental of behavioral processes" (Dinsmoor 1990, p. 147). Not surprisingly, there would be faculty and graduate students who would vehemently dispute that assertion, particularly those in social psychology.

The growth of the Skinnerian presence in the department led to a schism resulting in a splitting off of social psychology into a separate department in 1961, with Otto Klineberg as department chair. Stanley Schachter (1922–1997) joined the Department of Social Psychology in its inaugural year. In his

autobiography, he described the psychology department prior to its division as it had been portrayed to him:

- ▶ ...the Psychology Department was a shambles...[it] seemed to have fallen victim to religion. Somehow, I never learned how or why, the Skinnerians had obtained a foothold and, like Jesuits, had simply taken over. The department was a pigeon and eyeball department with not only no interest in, but an open antagonism to, personality, clinical, social – in fact any branch of human psychology that wasn't devoted to the demonstration that humans could be shaped as easily as pigeons. (Schachter 1989, p. 461)

The "eyeball" reference is most likely to Graham and his colleagues in vision.

The social psychology department was a small one, but a very talented one. In addition to Schachter and Klineberg, there was Richard Christie (1918–1992), William McGuire (1925–2007), and Bibb Latané (1937–). The doctoral students were a stellar group as well. Schachter's graduates included Richard Nisbett, Larry Gross, Lee Ross, Patty Pliner, and Judith Rodin.

Eventually, the animosities faded as faculty turnover in both departments reduced the tensions. The division lasted only 8 years before the two departments were joined as one under the leadership of Robert R. Bush (1920–1972) as the new department chair. Bush's doctorate was in physics but he had worked in experimental psychology for much of his career, principally as a mathematical learning theorist. He had chaired the psychology department at the University of Pennsylvania for about a decade before his move to Columbia, and he was brought in specifically to move the combined department forward (Galanter and Luce 1974). His term was short-lived due to his early death, but he added some distinguished faculty in his brief time as chair. At the end of the 1960s, the department was focused on research emphasizing biological, social, and cognitive factors, an amalgam of which Woodworth would have approved.

Psychology at Teachers College

Teachers College was founded in 1887 as the New York School for the Training of Teachers; its founding reflected sweeping changes in the intellectual, educational, and social climate of the 1880s in America. The

late nineteenth century brought waves of industrialization and urbanization to the USA, accompanied by increasing public school enrollments and compulsory attendance laws. The educational sphere was further characterized by an expansion of higher education, the growth of the industrial training movement, and an increasing demand for the professional training of teachers. To be sure, normal schools had for some time committed themselves to teacher training. Traditionally, however, they focused almost exclusively on instructing elementary school teachers, and varied tremendously in terms of content and quality. With increasing demand for greater evidence of professional competence, a few of the superior normal schools began to transform themselves into teachers' colleges, and universities and liberal arts colleges established formal departments and/or professorships in education, offering formal study in what became a new, distinct discipline. Abroad, educational theorists had been proposing new theories of pedagogy, and although these specific theories did not take root in America's education system, they stimulated innovative approaches that fostered a commitment to educational reform. Finally, in late nineteenth century America, there was a resurgence of philanthropy, which aided the founding of Teachers College and assured it would flourish (Cremin et al. 1954).

The founders of Teachers College, Grace Hoadley Dodge (1856–1914), Nicholas Murray Butler (1862–1947), and James Earl Russell (1864–1945), by dint of steadfast commitment and resourcefulness, created an institution that, according to its 1889 charter, would “give instruction in the history, philosophy and science of education, psychology, in the science and art of teaching, and also in manual training and the methods of teaching the various subjects included under that head” (Fackenthal 1915, as cited in Cremin et al. 1954, p. 22). Grace Hoadley Dodge was the “guiding hand and financial backer” of what became the Industrial Education Association (IEA), which provided a broad array of industrial training for men and women, and boys and girls, and would become the precursor to Teachers College (p. 14). Although philanthropy had been the dominant motivating force behind the IEA during its first 2 years, education increasingly became its central goal, as evidenced by its growing connection with various boards of

education, the establishment of a Board of Trustees, the dissolution of all IEA committees, the work of which was to be consigned to a newly established Executive Committee, and a set of carefully articulated principles, labeled “Articles of Faith,” which highlighted the primacy of education in its mission (p. 17).

Its new administrative structure notwithstanding, the Association continued to have difficulty meeting the ever-growing demand for schoolteacher training. Thus, in 1887, at Dodge's suggestion, Nicholas Murray Butler (1862–1947), Associate Professor of Philosophy in Columbia College, was named President of the IEA, for “[j]ust as Grace Dodge epitomized the philanthropic urge of the age from which Teachers College emerged, so did Nicholas Murray Butler symbolize the newer ideas of specialized training for teachers and of education as a subject of serious study” (Cremin et al. 1954, p. 19). Under Butler's leadership, 1887–1891, the College expanded the scope of its educational curriculum, contributing to “the general education of teachers beyond the normal school, as well as to the serious study of education within the College” (p. 27). Butler's long-held intention to make the College a part of a university system, however, would be left unrealized.

Butler resigned as president in 1891, and was succeeded by Walter L. Hervey, who served as Acting President for 2 years and then as President from 1893 until 1897. Under Hervey's leadership, the College's first formal alliance with Columbia College was authorized in 1893. In 1894, the College was relocated to a new building on 120th Street; during that time, the College's standards had been elevated, signifying “a distinct advance upon the usual standards of professional work,” and placing the College “in the front rank of professional schools” (Cremin et al. 1954, p. 32).

During the last few years of Hervey's presidency, however, tensions grew with respect to the College's curriculum, its financial circumstances, its competing objectives, philanthropic and educational, and its alliance with Columbia. This was the backdrop against which James Earl Russell (1864–1945) came to Teachers College in 1897, initially to head the central department of the College, the Department of Psychology and General Method. But Russell soon found himself in the role of Dean of the College just at the time the College was about to commence a search for a new President.

Russell immediately suggested that, were Teachers College connected to Columbia as a bona fide professional school, a search for a president would be superfluous. At the urging of others, Russell articulated a bold new agreement to replace the 1893 contract, one that would confer on Teachers College university status. With only minor changes to Russell's original proposal, both the Columbia and Teachers College Trustees ratified this new agreement in 1898 (Cremin et al. 1954).

In this way, Russell had achieved what previous administrators had not. But the remaining work necessary to transform the school into a bona fide college was sizable and challenging, for at that time there was no exemplar in professional education. Undaunted, Russell strategically constructed the Teachers College curriculum. Its basic philosophy consisted of four goals: (1) general culture, by which he meant a "training [that was] liberal enough to inspire respect for knowledge, broad enough to justify independent knowledge, [and] accurate enough to beget a love of truth"; (2) special scholarship, referring to continued specialization in the materials the student was to teach"; (3) professional knowledge, by which Russell was specifically referring to educational psychology, the history of education, and educational leadership; and, (4) technical skill, or the knowledge of various skills and the reasoned judgment of when to employ one course of action over another and why (Cremin et al. 1954, p. 36).

Russell proved an influential and effective leader. The breadth of Russell's overarching philosophical structure for the curriculum, along with his broad conception of education itself and its role in society – that is, to serve the common good – alleviated many of the existing tensions that were due to the institution's seemingly conflicting objectives of philanthropy and education. In Russell's conceptual framework, each of these aims fit comfortably. Russell was also an ardent supporter of education reform, embracing a liberal educational philosophy, and, as such, found himself at odds with the dictates of the Ten Articles of Faith of the IEA, which emphasized traditional education. To be sure, Russell did not conceive of the Teachers College faculty as a monolithic entity of professional-mindedness, but rather of one balanced in its proportion of faculty interested in experimental research and

those interested in "the real world' of education" (Clifford 1968, p. 214). Accordingly, Dean Russell endeavored to attract new faculty members who were studied in cutting-edge pedagogical concepts or at least "men of open minds not confined in the ruts of academic tradition" (as cited in Cremin et al. 1954, p. 39) so that the movement to professionalize pedagogy could come to fruition. Reflecting Russell's professional acumen, "these pioneers in turn built up a tradition and handed on a heritage which was destined in two decades to make the College one of the primary forces in American educational thought and practice" (p. 42). One of these innovators was Edward L. Thorndike (1874–1949), whom Dean Russell hired in 1899.

Edward L. Thorndike and a Scientific Psychology of Education

At the recommendation of Thorndike's mentors, William James of Harvard and James McKeen Cattell of Columbia, Dean Russell visited Thorndike's classroom at Western Reserve University in 1899, where Thorndike was an instructor for a year. "Although the Dean found him 'dealing with the investigations of mice and monkeys,' he came away 'satisfied that he was worth trying out on humans'" (Cremin et al. 1954, p. 43); Russell offered Thorndike the position of Instructor in Genetic Psychology at Teachers College.

Thorndike had earned his master's at Harvard in 1897, and in the following year took his Ph.D. at Columbia. The son of a Methodist minister, the young Thorndike chose science in place of religion, "describ[ing] intellectual agnostics like himself as 'conscientious objectors to immortality'" and embracing a staunch commitment to "an exclusively naturalistic view of man" (as cited in Clifford 1968, p. 63). In the words of his longtime friend and colleague, R. S. Woodworth (1954), "Thorndike was unwilling to recognize any limits to the scope of quantitative science" (p. 217). At his core, Thorndike was a positivist – an empiricist, an experimentalist, and a "tough-minded" scientist, holding little concern for grand theories, but preferring instead to assemble myriad empirical quantifiable facts (Beatty 1998; Thorndike 1991). "Yet Thorndike was saved from the reliquary of an outmoded positivism by his fantastic ingenuity and eclectic tolerances. As his long-time friend and

associate, R.S. Woodworth, described Thorndike: his was a ‘sane positivism’” (Clifford 1968, p. 4).

His early work in comparative psychology established Thorndike as a significant figure in this newly emerging field. His doctoral dissertation, *Animal Intelligence: An Experimental Study of the Associative Processes in Animals* (1898), is considered a milestone in the history of psychology, as it not only initiated the animal laboratory in psychology, but also produced a new law of learning, the law of effect, that would form the basis for Thorndike’s connectionist learning theory and quantitative theory of intelligence (Woodworth 1954). Although it was generally believed that animal learning was simply a consequence of repetition, mental imagery, or imitation, Thorndike demonstrated that *the effect*, or consequence, of a particular behavioral response influenced whether or not that response was likely to be repeated.

Largely owing to the rapid cultural changes in higher education and their concomitant employment opportunities (Beatty 1998; Clifford 1968), Thorndike accepted the position at Teachers College, determined to apply experimentation and measurement – “his two guiding stars throughout his career” – to the scientific study of education (Woodworth 1954, p. 211). Thorndike thus shifted his attention from mice, chicks, and cats to human beings, and within 5 years of his arrival, had advanced from instructor to full professor and head of the Department of Educational Psychology.

Early in his tenure at Teachers College, Thorndike engaged in a broad range of school-related research, the findings of which often ran counter to the conventional wisdom of the day. For example, in collaboration with R. S. Woodworth in 1901, he published data indicating that “improvement in any single mental function rarely brings about equal improvement in any other function, no matter how similar, for the working of every mental function-group is conditioned by the nature of the data in each particular case” (Thorndike and Woodworth 1901, p. 250). The scant evidence of “transfer of learning” contradicted the long-cherished notion of “formal discipline,” according to which training in a specific field would generalize to performance in a more generalized capacity. Similarly, addressing the question of whether boys and girls should be schooled differently, Thorndike employed rigorous statistical analyses of

individual differences in mental characteristics and skills, concluding that sex differences in ability “were not of sufficient amount to be important in arguments concerning differentiation of the curriculum or of methods in teaching with conformity of sex differences” (Thorndike 1903, p. 118), an argument that contradicted G. S. Hall’s position on the issue.

At Teachers College, Thorndike established educational psychology as a distinct academic discipline. The discipline’s *raison d’être* was to address real-life educational problems based on experimental, quantifiable facts, not on mere speculation: “We conquer the facts of nature when we observe and experiment upon them. When we measure them we have made them our servants” (Thorndike 1903, as cited in Clifford 1968, p. 282). In the inaugural issue of *The Journal of Educational Psychology*, founded by Thorndike in 1910, he delineated the ways in which psychology could contribute to education, and vice versa. Psychology could elucidate educational aims by making them more precise and refined; and it could help “to measure the probability that [these aims] are attainable” (Thorndike 1906, p. 5). And, above all, psychology, as a result of measurement, could contribute to an understanding of educational materials and to the evaluation of validity claims regarding various teaching methods. According to Thorndike (1906), “[t]esting the results of teaching and study is for the teacher what verification of theories is to the scientist, – the *sine qua non* of sure progress” (as cited in Beatty 1998, p. 1148). Thorndike also mentioned that the “science of education can and will itself contribute abundantly to psychology,” referring to the classroom itself as a “vast laboratory in which are made thousands of experiments of the utmost interest to ‘pure’ psychology” (Thorndike 1910, p. 12).

Prior to World War I, Thorndike contributed a significant number of books, monographs, and journal articles that pertained to the “improvement of instruction in the classroom and the measurement of both the learner and the products of learning” (Hilgard 1996, p. 424), including *Educational Psychology* (1903), *An Introduction to the Theory of Mental and Social Measurements* (1904), *Principles of Teaching* (1906), *Empirical Studies in the Theory of Measurement* (1907), and the three-volume *Educational Psychology* (1913–1914). During the war, like several of his

psychology colleagues, Thorndike, retaining his civilian status and serving as a member of the Committee on Classification of Personnel from 1917 to 1919, contributed to the war effort. He was charged with developing and evaluating various psychological measures to be used in the evaluation of recruits.

Applications of Thorndike's educational psychology to the military enterprise affirmed the discipline's utility, motivating Thorndike to market his products on a grander scale. Along with his colleagues Cattell and Woodworth, Thorndike established the Psychological Corporation in 1921, which "married the 'advancement of psychology' to the 'promotion of the useful applications of psychology'" (Clifford 1968, p. 385). Although some psychologists criticized the commercial nature of the Corporation, Thorndike clearly supported it, serving on its Executive Committee from 1921 to 1940. For as Clifford explained,

- ▶ To Thorndike science does not become 'less science' when it investigates problems which have already obvious relevance for application or when it does assigned work not purely of its own choosing or when it tests its hypotheses in the marketplace as well as in the laboratory. (Clifford 1968, p. 386)

In addition to several standardized and copyrighted educational and psychological tests and scales, Thorndike authored dozens of influential publications, including textbooks, manuals, and dictionaries, which served instructors and school administrators alike. The royalties of *The Teachers' Word Book* (1921) and *The Thorndike Arithmetics, Books 1–3* (1917, 1922) more than doubled his academic salary in its first year, and quadrupled it within the span of a few more.

At the same time, Teachers College, with the assistance of private funding, established the Institute for Educational Research in 1921, in which Thorndike focused on two lines of research: mental measurement and learning. In 1926, his *The Measurement of Intelligence* detailed his CAVD Examination, the name of which referred to the four types of content – sentence completion (C), arithmetic (A), vocabulary (V), and directions (D) – that he considered most indicative of intelligence (Thorndike 1926). By now, Thorndike was fully immersed in research, having essentially renounced his teaching and advising responsibilities. In 1925, he was awarded the Butler Medal, which was

established in 1914 to be awarded every 5 years "for the most distinguished contribution made during the preceding 5-year period anywhere in the world to philosophy or to educational theory, practice, or administration" (Clifford 1968, p. 487). During the 1930s, Thorndike revisited his investigations on the processes of learning, ultimately revising some of his earlier statements regarding punishment, which he considered a much less potent factor in behavior determination. The last phase of his research was dedicated to applying statistical methods to societal issues – Thorndike considered virtually no topic to be outside the purview of science (Beatty 1998; Clifford 1968).

There were several other notable members of the faculty, including Arthur I. Gates (1890 – 1972), renowned for his contributions to education psychology, including his *Psychology of Reading and Spelling with Special Reference to Disability* (1922/1929) and *Educational Psychology* (1942); Percival Symonds (1883–1960), who was Thorndike's assistant in the Institute for Education Research from 1921 to 1922, and who despite being trained in educational psychology later became well-known for his contributions to school psychology; Rudolph Pintner (1884–1942), known for his contributions to the field of mental measurement and the study of handicapped children, particularly the deaf; and Goodwin Watson (1889–1976). Watson made significant contributions to educational psychology, including his *Educational Problems for Psychological Study* (1930), which he coauthored with his Teachers College colleague Ralph B. Spence; Watson also played a prominent role in the development of the Society for the Psychological Study of Social Issues (SPSSI).

Notable Women Professors of Teachers College

By 1917, turn-of-the-century cultural factors notwithstanding, women constituted 13% of the APA's membership. This represented a significant female presence in the discipline, contrary to what early historical accounts of the field may have suggested (Scarborough and Furumoto 1987). The present account highlights a few notable women psychology professors at Teachers College: Naomi Norsworthy (1877–1916), Leta Stetter Hollingworth (1886–1939), and Helen Bradford Thompson Woolley (1874–1947).

According to Scarborough and Furumoto (1987), Naomi Norsworthy was the only one of “the first generation women psychologists” recruited by a mentor. Born in 1877 in New York City, Norsworthy entered a New Jersey public school at age 8. Intent on becoming a teacher, Norsworthy subsequently entered the New Jersey State Normal School in Trenton, NJ, where she completed her courses in 3 years, and taught the third grade for the following 3 years, during which time she “nurtured an ambition to earn a college degree from Columbia University’s Teachers College” (p. 192). Upon entering Teachers College in 1899, Norsworthy intended to become a chemistry teacher, but Thorndike, “at once singled her out as a young woman of unusual mentality, and it was under his encouragement that all ideas of being a teacher of chemistry vanished” (Higgins 1918, p. 67). She was made student-assistant in 1900, earned her BS degree from Teachers College in 1901 and with her thesis, “The Psychology of Mentally Deficient Children” took her doctorate 3 years later (Higgins 1918). That same year, Norsworthy was officially hired at a tutor’s rank, and was promoted to instructor in 1905. In 1908, Thorndike recommended her for promotion to Associate Professor, an endorsement that encountered Cattell’s firm disapproval. In response, Thorndike proffered an explanation to his mentor:

- ▶ [I]f you were in full acquaintance with our situation at Teachers College and with her work, I think you would include it in a wider point of view. Teachers College is in part a graduate school and in part a professional school. The most gifted people for training teachers... are at present and will for a long time be women... Dr. Norsworthy is beyond question enormously successful in training teachers. The thoughtful men at the College... have asked me in surprise why she had not yet been promoted. ... I should be sacrificing the interests of Teachers College to do anything that helped withhold from her the promotion that a man equally competent would be sure to have had. (as cited in Clifford 1968, p. 222)

Ultimately, the dean decided in favor of promotion, and Norsworthy became Associate Professor in 1909. Three years later, she was promoted to the rank of Professor of Educational Psychology.

There are numerous testimonies to Norsworthy’s competence as a teacher/scholar, including a few that reflect the additional challenges of being a woman professional at that time. For example, as described in Higgins (1918), a student once complained to Dean Russell because he had expected a male professor and was “chagrined when the professor presented herself, ‘a slip of a woman’” (p. 80). The dean listened calmly and respectfully to the student’s complaint, but ultimately told the student,

- ▶ that he was still laboring under some sort of false impression, – ‘You will find her one of the strongest men on our faculty. Go to her classes a few times and see if you do not think her so.’ This story, a true one, is rounded out by the man’s returning to the dean in the course of time to assure him that his opinion concerning Dr. Norsworthy as one of the ‘strongest men’ of the faculty was entirely true. (p. 80)

On Christmas Day in 1916, Naomi Norsworthy died, finally succumbing to her battle with cancer. Her most influential work was *The Psychology of Childhood* (Norsworthy and Whitley 1918), which was intended to be a normal school text, and was completed after her death by a colleague (Scarborough and Furumoto 1987). Norsworthy’s success at Teachers College, albeit short-lived, prepared the way for other women of equal competence and drive.

Born in Nebraska in 1886, Leta Stetter Hollingworth (née Stetter) was raised by her maternal grandparents, following the death of her mother, who died during the birth of Leta’s youngest sister in 1890 (Klein 2002). At the age of 12, Leta Hollingworth and her sisters were reunited with their father, enduring verbal and emotional abuse at the hands of their stepmother, whom their father had married in 1896. Hollingworth “felt as though she was living day by day in a ‘fiery furnace’” (Klein 2002, p. 25). And, despite her father’s own inadequacies, he did encourage Leta to pursue college, which she did (Klein 2002). After being graduated from the University of Nebraska with a Bachelor’s degree and a State Teacher’s Certificate, Hollingworth spent 2 years teaching in Nebraska. In 1909, she then moved to New York to be with her fiancé, who had just accepted a position at Barnard College. But Hollingworth grew frustrated as her applications for various scholarships and fellowships were

unsuccessful, and she found that “married women were not given appointments in the schools of New York.” (Hollingworth 1990, p. 73)

After the Hollingworths had established a more secure financial footing, however, she finally entered Teachers College as a graduate student in 1911, studying under Edward Thorndike, whom she would regard as her most influential mentor (Klein 2002). During the course of her graduate studies, Hollingworth also served as a psychometrician at The Clearing House for Mental Defectives, where she administered mental tests to clients referred there by the courts. As her expertise and clinical experience grew, she became a leading voice in the campaign for professional status in the then-inchoate field of clinical psychology (e.g., Hollingworth 1918). In 1916, she was offered to the position of chief of a psychological laboratory to be established in Bellevue Hospital (Hollingworth 1990), but declined accepting instead a faculty position at Teachers College, replacing Norsworthy after Norsworthy’s untimely death.

Aside from her professional accomplishments, Hollingworth made significant scientific contributions to the study of sex differences and to educational psychology. Throughout her career, she emphasized the primacy of objective empirical evidence, distinguishing between what she called the “literature of opinion” and the “literature of fact”:

- ▶ By the literature of fact is meant those written statements based on experimental data, which have been obtained under carefully controlled conditions, and which may be verified by anyone competent to understand and criticize them. . . . Before experimental data were sought, the hypothesis was accepted that human females are, by original nature, different from and inferior to human males, intellectually. The factor of sex determined everything; the way to discover whether a given individual was capable of any given intellectual task was not to let the individual undertake the task and to judge by the result, but to indicate the sex of the person in question. (Klein 2002, pp. 84–85)

Based on her own experimental data, Leta Hollingworth revealed the falsity of various then-common assumptions regarding sex differences and mental traits. She demonstrated, for example, that the variability hypothesis, which was taken as evidence for

the congenital intellectual inferiority of women, was simply a function of sociology, not biology. Her writings frequently invoked the social role of women, as child-rearer and housekeeper, along with the social, legal, and practical constraints placed on women’s education and employment, to account for the observation that more men as opposed to women have achieved eminence (Shields 1975). Indeed, Hollingworth “repeatedly emphasized that the true potential of woman could only be known when she began to receive social acceptance of her right to choose career, maternity, or both” (Shields 1975, p. 748). In addition to disputing assumptions related to the variability hypothesis, Leta Hollingworth’s empirical findings contradicted the long-held notion that women were rendered “incapacitated when they menstruated,” a putative condition known as “functional periodicity” (Klein 2002, p. 90). In her dissertation, entitled *Functional Periodicity: An Experimental Study of the Mental and Motor Abilities of Women During Menstruation* (1914), Hollingworth found no “feminine cycle impairment” (as cited in Klein 2002, p. 90). Her views on the variability hypothesis stood in stark opposition to those of Cattell and of her mentor, Thorndike, both of whom were champions of the variability hypothesis (Shields 1975). Yet Hollingworth was undeterred from publicly expressing her views; more interestingly, Thorndike himself never interfered with her doing so. Beginning in the early 1910s, Hollingworth was involved in various feminist organizations, including as a charter member of both the Heterodoxy Club and of the Feminist Alliance, and as an active member of the New York Woman Suffrage Party (Klein 2002).

In addition to her influential work on sex differences, Hollingworth made important scientific contributions to educational psychology: her work on children with below average intelligence culminated in *The Psychology of Subnormal Children* (1920b), which became the field’s standard text, and *Special Talents and Defects* (1923). Three years later, she published *The Psychology of the Adolescent* (1928), based on her recognition that some children who appeared “mentally defective” were simply suffering from what would now be termed “adjustment disorders” in adolescence. For the next 2 decades, this book would define the field (Hollingworth 1990). Perhaps her most pioneering and influential work was her study



of the education and psychology of gifted children. Largely based on her research at the Speyer School in New York City, an experimental school for gifted children founded jointly in 1936 by the New York City Board of Education and Teachers College (Klein 2002), Hollingworth's work on the gifted contradicted the prevailing notion that they are self-sufficient and therefore do not require any particular consideration. To the contrary, she recognized that many "rapid learners" suffered "adjustment problems because of inept treatment by adults and lack of intellectual challenge" (Hollingworth 1990, p. xv). In response, Hollingworth developed a specialized curriculum, one that inspired intellectual curiosity, creativity, and initiative and that was "relevant to the pupils' lives" (Klein 2002, p. 145). Her book *Children Above 180 I.Q.* (Hollingworth 1942), outlining her longitudinal research on 12 exceptionally gifted individuals, was completed by her husband following her untimely death from cancer in 1939.

Helen Bradford Thompson Woolley's tenure at Teachers College was relatively short, albeit noteworthy. Born and raised in Chicago, she was a stellar student who was graduated from the University of Chicago in 1897 and earned her Ph.D. in 1900. In 1905, she married Paul G. Woolley, and during the next several years the couple relocated several times, eventually settling in Cincinnati, where her husband was appointed to the University's medical school faculty. As director of the Bureau for the Investigation of Working Children, later the Cincinnati Vocation Bureau, Woolley directed the production of important research reports on the effects of child labor, and became a potent advocate of child welfare reform. In 1921, when the Woolleys moved to Detroit, Helen was appointed to the staff of the Merrill-Palmer School, where she organized one of the first nursery schools in the USA for the study of child development and teacher training, conducting research on child cognition (Scarborough and Furumoto 1987).

Helen Bradford Thompson Woolley came to Teachers College in 1925, at the age of 50, when she accepted the position of director of the Institute of Child Welfare Research and professor of education at Teachers College (Scarborough and Furumoto 1987). Her first year in New York was quite productive, despite myriad "personal traumas" (p. 201). However, by 1926,

she "became emotionally incapacitated" and was required to take a leave of absence (p. 201). Upon returning 2 years later, she remained incapable of working effectively and was forced to resign in 1930, spending the remainder of her life in her daughter's home (Scarborough and Furumoto 1987).

Psychology at Barnard College

The late 1800s were a time in New York when "a woman could obtain the gratification of every want, wish, or whim, save one – she could not get an education" (Miller 1939, p. 6). The 1889 founding of Barnard, a 4-year college for women at Columbia, represented the culmination of longtime efforts of the former president of Columbia College, Dr. Frederick Barnard; Mrs. Alfred Meyer, a vocal advocate of women's education; and a few sympathetic trustees of Columbia College.

At this time, psychology was still a part of the philosophy department, and Miller (1939) reported that the first psychology course at Barnard was offered in 1894 by Dr. James H. Hyslop (1854–1920): "No longer the 'metaphysics and moral philosophy' of an older generation... the students of this time had the advantage of studying their subject in a masterpiece of English prose – William James's *Principles of Psychology*" (p. 45). Harry L. Hollingworth, in contrast, cited 1906 as the year in which the first psychology courses were offered (Hollingworth 1950). It seems unlikely that Hollingworth was unaware of Hyslop, although he had retired from Barnard by the time Hollingworth had arrived at Columbia in 1907 as a graduate student. Hollingworth may have discounted Hyslop's courses because of the latter's steadfast commitment to and engagement in psychical research, which Hollingworth and others would likely have considered illegitimate science. More to the point, it seems that Hollingworth considered the first bona fide psychology courses to be those that incorporated a laboratory component and made use of such equipment as the Hipp chronoscope. By these criteria, and consistent with Hollingworth's report, the first experimental psychology courses were indeed not offered until 1906 (Hollingworth 1950).

Eventually, Harry Hollingworth would be the founding chair of the Barnard College psychology department. Born in DeWitt, Nebraska in 1880, Hollingworth completed 10 years of school by the age

of 16, graduating as valedictorian of his class (Benjamin 1991). While working in his father's carpentry business, something he had done from the age of 11, Hollingworth obtained his teaching certificate in 1898. After teaching for 2 years, he returned to school to complete his college preparatory work. Undeterred by scarce financial resources, and determined to engage in intellectual pursuits, Hollingworth enrolled at the University of Nebraska in Lincoln in 1903. Along with his fiancé, Leta Anne Stetter, Hollingworth graduated from the University in 1906. Harry Hollingworth was keen to pursue graduate study in psychology or philosophy (Benjamin 1991); but lacking a graduate assistantship, he and Leta both assumed teaching positions in Nebraska. His luck would change a few months later when he received a telegram from Cattell of Columbia offering him an assistantship to begin in January of 1907. The Hollingworths were married at the end of 1908, and in the following year, Harry accepted a position at Barnard College as Instructor of Psychology and Logic (Hollingworth 1940). The couple was under substantial financial pressure: New York law forbade married women from teaching and Harry's starting salary of \$1,000 was insufficient to sustain them both.

These financial concerns pushed Harry's career in a more "practical" direction: Hollingworth would come to be regarded as a pioneer in applied psychology, an appellation about which he likely felt, at best, ambivalent. "It has been my sad fate," he wrote in his unpublished autobiography, "to have established early in my career a reputation for interests that with me were only superficial" (Hollingworth 1940, p. 6). Indeed, financial necessity alone provided the impetus for his entry into the field of applied psychology:

- ▶ My real interest is now and has always been in the purely theoretical and descriptive problems of my science, and the books, among the twenty I have written, of which I am proudest, are the more recent ones which no one reads. I became an applied psychologist in order to earn a living for myself and for my wife, and in order for her to be able to undertake advanced graduate training, for which she was just as eager as I had been. (Hollingworth 1940, p. 56)

His ventures into the applied arena began when he lectured at Columbia and conducted research in

business psychology, which culminated in his *Advertising and Selling* (1913). Perhaps his most public undertaking was the set of studies he conducted under the auspices of the Coca-Cola Company, which was being sued by the federal government, under the Pure Food and Drug Act of 1906, for selling a beverage that contained the "harmful" ingredient caffeine. Despite the fact that "accept[ing] private funds for the prosecution of research seemed to be considered by my colleagues a somewhat shady business," Hollingworth's motives for undertaking this project were twofold. As he wrote, "I needed money, [a]nd here was a chance to accept employment at work for which I had been trained" (Hollingworth 1940, p. 65). Hollingworth saw to the meticulous crafting of a contract that, along with allowing him to publish the results, prevented Coca-Cola from either suppressing the findings or exploiting his or the College's participation in the studies. Based on his several systematic and highly controlled studies, Hollingworth testified that his studies yielded no evidence for the deleterious effects of caffeine on mental or motor performance (Benjamin 1991; Benjamin et al. 1991).

The Coca-Cola studies had an enormous effect on the Hollingworths' personal lives: Not only was Leta Hollingworth able to complete her doctoral studies, but they also were able to balance their family budget. Moreover, many more opportunities to work in applied psychology were forthcoming, owing in part to the positive publicity associated with his caffeine studies (the stipulations of the contract notwithstanding) and to the knowledge in the business community that Hollingworth was willing to do such work (Benjamin 1991). And, during WWI, Hollingworth served as a Captain in the US Army as chief psychologist of the Curative Workshop and School for Reconstruction and Study of War Neuroses (NYTIMES, Sept. 18, 1956). Based on his experiences with "shell-shock cases," he developed a theory of functional neuroses, which was published in his book, *The Psychology of Functional Neuroses* (1920). In 1922, this book was awarded the Butler Medal by Columbia University (Hollingworth 1940). His many applied activities notwithstanding, Hollingworth always remained interested and engaged in theoretical issues in the field.



Once Harry Hollingworth became a full-fledged member of the faculty, William P. Montague (1873–1953), the head of the philosophy department,

- ▶ recommended the formation of a separate department of psychology, and I was it. Students increased in number; I dropped my teaching of Logic and devoted full time to the department. We were given then the suite of six rooms in the main building... which remained ever after the Psychological Laboratory. (Hollingworth 1940, p. 182)

Following WWI, Hollingworth began to hire instructors to assist him, some of whom would become well-known in the field, but were evidently not promoted to professorial rank, at least while at Barnard (Sargent 1987). This pattern evidently continued under Hollingworth's successor, Richard P. Youtz (1910–1986), who would chair the Barnard psychology department from 1946 to 1974. Two noteworthy examples of such instructors are Anne Anastasi (1908–2001) and Georgene H. Seward (1902–1992) (Sargent 1987). Anne Anastasi entered Barnard College as an undergraduate in 1924 at the age of 15. She received her BA at the age of 19, and her doctorate from Columbia University 2 years later. In 1930, Anastasi returned to Barnard as an instructor, but left in 1939 to become assistant professor of psychology at Queens College. In 1947, she assumed the position of associate professor of psychology at Fordham University, where she remained until her retirement in 1979, when she became Professor Emerita. Her most enduring scientific contributions are in the areas of psychological testing and differential psychology. Her resultant classic texts, *Differential Psychology* (1937) and *Psychological Testing* (1976), both of which remain internationally known, have appeared in multiples editions, and have been translated into nine languages. She earned numerous awards, including the APA Distinguished Scientific Award for the applications of psychology and the National Medal of Science. She also held numerous leadership positions within the field, including the APA Presidency in 1972; she was the third woman ever to hold the office (Reznikoff and Procidano 2001).

Georgene Seward took her BA at Barnard in 1922 and her PhD from Columbia University in 1928. She then taught at Barnard from 1930 to 1937. Seward's most enduring scientific contributions are her research

on sex differences, published in her *Sex and the Social Order* (1946), and her investigations of psychological stresses related to minority group membership, which culminated in *Psychotherapy and Culture Conflict* (1956) and *Clinical Studies in Culture Conflict* (1958). In 1987, Seward received the Distinguished Psychologist Award of the California State Psychological Association (Sargent and Williamson 1993).

In relation to the pattern of non-promotion within the Barnard psychology department, Sargent (1987) wrote: “the passing over of so many females [for promotion] led to some criticism of Barnard and of Prof. Hollingworth.” That most instructors, including Anastasi and Seward, were never promoted to professorial rank while at Barnard, however, may also reflect on some more general aspects of the institution's culture:

- ▶ First, the Barnard junior faculty were often graduates of the Columbia PhD program and there was a bias against keeping them around permanently. Second, Barnard faculty undergo separate college and university evaluations with respect to tenure recommendations... During that era, Youtz (and most of the Barnard faculty and administration) viewed Barnard's primary mission as the teaching of undergraduates. During Youtz's time as chair, junior faculty were not given the time or resources to have much chance of reaching the level of research productivity required for tenure in the university. And, third, the whole Columbia (and Ivy League) culture did not value ‘promotion from within.’ There were very few junior faculty in any Columbia department, including psychology, who moved up through the ranks. Most tenured faculty were brought in as appointments from outside the institution. (P. Balsam, personal communication, December 6, 2010)

Richard Youtz was the first to defy this pattern, as he would become a full-fledged member of Barnard's faculty in 1940 and would remain there until his retirement in 1974. Born in South Dakota, Youtz graduated from Carleton College in 1933 and began his graduate training in psychology under Clark Hull's tutelage at Yale University. After earning his doctorate in experimental psychology in 1937, Youtz served as an instructor at Barnard from 1937 to 1939, departing for an appointment as an assistant professor at Oberlin College for the 1939–1940 academic year. In February

of 1940, however, Dean Gildersleeve of Barnard College invited Youtz to return as “Professor Hollingworth’s first lieutenant,” since the budget allowed for a new assistant professorship in psychology (Gildersleeve 1940). The dean explained that the appointment was “at first an annual one, but [that] we should look forward to your remaining indefinitely if the plan worked out satisfactorily on both sides” (Gildersleeve 1940). Youtz accepted the dean’s invitation gladly: “I’m sure I shall never regret returning to Barnard. I liked it when I was there and was sorry to leave. Things seemed to have worked out just right” (Youtz 1940). Beginning in 1942, Youtz served the US Army Air Force as a Psychology Research Officer, returning to Barnard as chairperson of the department in 1946.

Richard Youtz valued strongly the scientific method and believed that there were no limits to the phenomena to which it could meaningfully be applied. He once “presented [a] paper in which he speculated that some reports of flying saucers might be due to visual afterimages” (Balsam 1988, p. 595). During the 1960s, in a separate line of research, Youtz studied experimentally the putative phenomenon known as dermo-optical perception, or the ability to perceive colors through the skin. Based on a series of experiments, Youtz demonstrated that such perception was attributable to thermal properties of the stimuli: “Youtz’s was a rational voice in the sometimes wild discussion of dermo-optical sensitivity that was taking place” (Balsam 1988, p. 595).

Although in many ways the Barnard psychology department remained in the embryonic stage of development, under Youtz’s leadership it developed a strong undergraduate curriculum that emphasized “hands-on experiences in experimental psychology” (Balsam 1988, p. 595), and was responsible for a significant number of Barnard psychology majors pursuing graduate training and careers in the field. In addition, plans were developed in the early 1950s, and were underway by 1953, to establish the Hollingworth Laboratories of Experimental Psychology at Barnard College. In July of 1953, Youtz wrote Harry Hollingworth, relating that the construction for the new laboratories was

- ▶ underway and [the labs] are approaching realization – i.e. the walls are going up, and they look as if they will really happen. As nearly as I can figure it means about

a 55% increase in space which will include: individual offices for each staff member, separate space for the three assistants, an olfactory lab with air-conditioning. . . , rat room, shop, observers’ room and subject room separated by one-way vision screen, 4 store-rooms, and two specialized rooms for Experimental Psych. . . ., each with 8 booths for pairs of students, and 17 experimental cubicles (6’ x 9’) for use of staff and students. (Youtz 1953)

Upon completion of the construction, a “gala opening” was held to commemorate the event. Afterward, Hollingworth expressed his gratitude in a letter to Youtz:

- ▶ It was right good of you and all the department staff to give the old man such a send-off. The naming of the laboratory after him was much appreciated tribute and will not be forgotten. All my days at Barnard were pleasant and high among the things I am proudest of is the group of people I was able to leave in charge, to build up a real modern department. You have done a first class job. . . The new laboratories are really splendid and seem well planned for effective work. (Hollingworth 1954)

Youtz’s own tenure and promotion broke the department’s long-standing pattern in which faculty members typically did not receive tenure and subsequently left. And while the structural and curricular changes that took place in the department under Youtz were important, he evidently perpetuated the pattern of non-promotion once in a position of authority. Simply attributing this pattern to cultural and structural factors of the Ivy League seems insufficient, because although such factors may have militated against the tenure and promotion of Barnard faculty, other departments at Barnard did tenure some faculty (Lila G. Braine, personal communication, December 17, 2010). In fact, Lila Ghent Braine, who was hired as professor and chair of the Barnard psychology department in 1974, relates that the College had been displeased with the way Youtz ran the department, particularly with respect to the non-promotion trend. Youtz was not asked to serve on the search committee to find his replacement, indicating the College’s desire for a change in course (Lila G. Braine, personal communication, December 17, 2010). The search

committee approached Braine, who had studied under Donald Hebb (1904–1985) at McGill University in the 1950s, because she had a strong record of scholarship and “was a feminist” (Lila G. Braine, personal communication, December 17, 2010). Under Braine’s leadership, the Barnard psychology department established roots, as qualified professors were tenured and promoted, contravening the pattern that had begun under Hollingworth in the 1910s. In fact, two of Braine’s early two hires – Peter Balsam and Rae Silver – remain active contributors to the Columbia University community (Lila G. Braine, personal communication, December 17, 2010).

Conclusion

This history of psychology at Columbia University is necessarily selective given the abbreviated length of this account. Nevertheless, it is clear that from the earliest days of the New Psychology in America, that the psychology departments of Columbia University, including those of Teacher’s College and Barnard College, played an influential role in establishing the legitimacy of the new science, providing leadership for a burgeoning discipline and profession, and nurturing future generations of psychologists, many of whom went on to have distinguished careers in the field. Columbia produced a research culture in psychology that was at the forefront of the new laboratory psychology. The several psychology departments not only produced many individuals of prominence but proved to be a defining entity for fields such as psychological assessment, educational psychology, social psychology, comparative psychology, visual perception, and operant psychology (Norsworthy 1906). It can be argued that for several decades, Columbia was indeed the gem of American psychology’s ocean.

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Comparative Psychology

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Anticipations of “Comparative Psychology”

In the early days of experimental psychology, Hermann Ebbinghaus (1850–1909) said that psychology had a long past but a short history. Certainly that is true of comparative psychology; its prescientific phase traces back to the very origin of the human species, when we needed to distinguish between animal species that we could eat and those that could eat us. This very practical “comparative” study continued through the domestication and selective breeding of species including horses, dogs, cats, camels, and elephants.

Evolutionary Theory Stimulates Comparative Studies

Comparative psychology underwent a true sea change as a result of Charles Darwin’s (1823–1913) development of evolutionary theory, first published in his *Origin of Species* (Darwin 1859). Darwin was far from the first person to propose an evolutionary theory – his own grandfather, Erasmus Darwin, proposed a speculative evolutionary theory, and ancient Greek philosophers postulated the selective survival of various combinations of body parts, a primitive evolutionary theory.

However, Darwin *was* the first to propose an evolutionary theory based on careful comparative observation of hosts of species, living and dead. The essential feature of evolutionary theory is that organisms change over time, with favorable changes preserved, and unfavorable changes eliminated. These changes will be revealed in the fossil record and in the relationships between living species. Living species with common ancestors will resemble each other and their predecessors in the fossil record.

Comparative psychology can be defined as the search for patterns of similarities and differences in the

adaptation of animal species to changing ecological niches. Comparative psychology is closely related to ethology, but is more experimentally oriented, while ethology focuses more on studies in the natural environment. Traditionally, any study of the behavior of nonhuman animals is treated as belonging to comparative psychology.

Darwin’s theory of evolution greatly stimulated the study of the relationships between all animal species, but also was criticized by those who believed that God created all species in their present form. Indeed, while Darwin was writing his book on the evolution of species, his own wife took umbrage at the idea that species were not entirely direct and unique creations by God.

Even before Darwin published his seminal work on evolution in 1859, Herbert Spencer (1820–1903) argued (Spencer 1855) for an absolute continuity between humans and other animals, and even between animals and plants, and between conscious and unconscious, and living and nonliving matter.

George John Romanes (1848–1894), inspired by evolutionary theory, published *Animal Intelligence* in 1886; he was apparently eager to contribute to the evolutionary perspective by claiming that animals sometimes exhibited a human-like intelligence. C. Lloyd Morgan (1852–1936) was more cautious; he thought (Morgan 1891) that one should never attribute a higher intellectual faculty to an animal if a lower faculty was adequate to account for its behavior. A great example of this is the horse, Clever Hans, who, his owner and many observers believed, could count and answer questions about numbers, much as a human would do. He indicated the answer by tapping his hoof the correct number of times. However, a careful study by Oskar Pfungst (cf. Hillix and Rumbaugh 2004, pp. 50–51) showed that Hans had only learned to stop when he detected subtle movements from the audience when the number of taps was correct – one of Morgan’s “lower faculties.” It is tempting to attribute human attributes to animals (be anthropomorphic), but, as Morgan pointed out, one should do so only after careful study.

Darwin’s Theory of Evolution and the assumption of between-species continuity led to an interest in learning and intelligence in animals, which was to become the main focus of comparative psychology during a large part of the twentieth century. One early

assumption was that the most fundamental laws of learning were similar across species, despite some variation resulting from species-specific adaptations.

As the nineteenth century drew to a close, experimental psychology was born; the official dogma is that Wilhelm Wundt (1832–1920) established the first psychology laboratory in 1879 in Leipzig, Germany. Although Wundt was no comparative psychologist, he did publish briefly on animal psychology (Wundt 1894). However, despite being an experimentalist, he did not experiment on animals.

Theories of Reinforcement Become the Dominant Concern

Soon after Wundt established his laboratory, other experimentalists began extensive work with animals; in most cases the goal was to discover the fundamental laws of learning, with the implicit assumption that the laws would apply across a broad spectrum of animals, including human animals. This approach became strongly identified with E. L. Thorndike (1874–1949), who used a variety of species in his classic research (1898) with mazes and puzzle boxes, and with I.P. Pavlov (1849–1936) and his studies on conditioning.

Thorndike proposed a law of effect, which became a fundamental component of subsequent theoretical explanations of animal learning. To quote Thorndike:

- ▶ Any act which in a given situation produces satisfaction becomes associated with that situation, so that when the situation recurs the act is more likely than before to recur also. Conversely, any act which in a given situation produces discomfort becomes disassociated from the situation, so that when the situation recurs the act is less likely than before to recur. (Thorndike 1905, p. 203)

The law of effect and the associated concept of reinforcement are among the most durable concepts in psychology. Precursors of the law of effect and the concept of reinforcement can be traced back to the writings of Herbert Spencer and Alexander Bain in the nineteenth century, and arguably all the way back to Epicurus, who said in around 300 BC that the goal of life was to seek pleasure and avoid pain.

One of the obvious and best-known problems with the law of effect is its circularity. The “satisfier” is an event that is identified by noting that the animal does

things that lead to it, and the law of effect says that satisfiers strengthen the responses that precede them. Thus if an event did not strengthen a response, it was not a satisfier. As stated, the “law” becomes a mere tautology, and cannot be falsified.

However, Paul Meehl published a classic article in 1950 in defense of the law. He pointed out that an event that strengthened a response in one situation generally reinforced other responses in other situations. Thus, he stated a “weak law of effect,” that all reinforcers are trans-situational. A companion law was the strong law of effect, which held that all instances of learning involved a trans-situational reinforcer.

These two versions of the law of effect were clearly testable and quickly falsified. The best known of the exceptions to the weak law of effect were described in Keller Breland’s classic article, “The misbehavior of organisms” (Breland and Breland 1961). Raccoons given fish reinforcements for putting coins in a “bank” stopped doing this and instead displayed a stereotyped “hand-washing” behavior related to food preparation. Pigs stopped using coins and instead rooted them, as they had rooted the food reward.

These and many other failures of reinforcers to generalize across situations occur when the reinforcer elicits a strong reflex-like response that attaches to the preceding stimuli, thereby producing a version of the unconditioned response to the reinforcer, instead of the intended instrumental response. Animals generally have a repertoire of responses, some of which occur more frequently than others in anticipation of food. Those that occur frequently are easily reinforced by food, and those that decrease in frequency when food is anticipated are difficult to teach (Shettleworth 1975). Thus an important and clear conclusion reached by comparative study is that the success of operant conditioning depends upon the relationship between an animal’s existing behavioral preferences and the reinforcing circumstances.

Other findings also appeared to contradict the law of effect. Tolman (1886–1959) and his students showed that rats learned about a maze when they were allowed access to it in the absence of reinforcement, and demonstrated that they had learned when a reward was introduced. Kenneth Spence incorporated this finding into his theory that strength of stimulus–response association depended only on the number of times stimulus



and response had been contiguous, with the reinforcer acting only to activate already learned associations (Spence 1956).

Spence also performed work on eyelid conditioning that had striking comparative implications. Earlier work had demonstrated that humans usually extinguished conditioned eye blinks within one or two trials, while other animals continued to make the conditioned response for up to hundreds of trials. Spence and his students masked the true nature of the experiment for human subjects by telling them that their task was to learn verbal materials while being “distracted” by the conditioned and unconditioned stimuli of the eye blink experiment. With their cognitive apparatus occupied elsewhere, human behavior paralleled that of animals! (Spence 1956) This result suggests that cognitive factors may account for widespread qualitative differences between the controls of animal and human behaviors.

Another experimental surprise was delivered by John Garcia and his colleagues (1966). They discovered two important facts about conditioning: (1) that rats, and presumably other animals, are more “prepared” to associate some kinds of stimuli (tastes) than others (lights and sounds) to illness; and (2) that the association to the prepared stimuli may occur over much longer lags between the conditioned and unconditioned stimuli (hours rather than seconds or minutes) than had previously been thought. The adaptive function of this mechanism is presumably that it allows animals to avoid eating poisonous food.

New conceptions of what constitutes a reinforcing relationship have been suggested. First was Premack’s (1959) suggestion that reinforcement involves a higher-rate response that follows a lower-rate response; food reinforces bar-pressing because the independent rate of food-eating exceeds that of bar-pressing. Other suggested modifications followed: That reinforcement occurred when the reinforcer produced a higher *momentary probability* (not necessarily rate) of response, or when the organism was deprived of the reinforcing response (see Timberlake 1980, for a discussion of “equilibrium theory”).

What are we to conclude from this motley assortment of results? Clearly, in many situations learned behavior has been decoupled or emancipated from strict control by reinforcers. However, none of these

phenomena are viewed as particularly mysterious – and all have been explained with one or more theories.

An Alternative to Traditional Views of Reinforcement

The real question is why the term reinforcement has been retained. Is there a better alternative? One clue is the fact that all reinforcers seem to have one thing in common: They attract attention, they often elicit orientation responses – they are salient. This was the basis for an alternative theory based on amalgams (Rumbaugh et al. 2007). Amalgam formation is an evolutionarily old, primitive, and relatively simple process. It occurs when a strong, relevant-to-adaptation, evolutionarily important, informative, otherwise dramatic stimulus is brought into reliable temporal or spatial contiguity with a weaker, less interesting stimulus as in sensory preconditioning or Pavlov’s (1929) classical conditioning or in Skinner’s (1938) operant conditioning. The pairing causes the weaker stimulus to acquire some of the response-producing characteristics of the stronger stimulus, and the stronger stimulus to acquire some of the response-producing characteristics of the weaker stimulus. The stronger stimulus is said to have high salience, and the association of the two stimuli can produce an amalgam, as discussed above.

Amalgam formation is similar to the first learning stages of sensory preconditioning and classical conditioning. One advantage of the salience approach is that there is just one fundamental process: amalgam formation. Amalgam formation underlies sensory preconditioning, classical conditioning, and, most importantly, instrumental conditioning.

Therefore, perhaps there is just one process that underlies all learning, not two. This unitary approach is both clearly basic to conditioning and learning and simple to understand (see Rumbaugh et al. 2007, for an elaboration of this perspective).

The Practical Side of the Law of Effect

Although the law of effect has been disproven as a universal law, reinforcement of responses remains a useful technique, one upon which trainers and teachers rely, using aftereffects as disparate as gold stars and candy bars. Skinnerian operant conditioning techniques rest squarely upon the shoulders of reinforcement and its scheduling.

The Search for Fundamental Laws of Animal Behavior

In much of the twentieth century, especially its first half, researchers were preoccupied with discovering universal laws of behavior that applied to all species. The search was for similarities, not differences, between species. Comparative psychology was out of balance. Tolman (1948), Hull (1943), and Skinner (1938), probably the three most prominent theorists of that period, were searching for general laws. Their differences were in the laws they proposed, not in the species to which the laws were presumed to apply.

The Ethological Connection

Although experimental searches for the fundamental laws of behavior in both classical, Pavlovian, and instrumental (Thorndikian and Skinnerian) conditioning dominated psychology throughout the twentieth century, there was a parallel development of naturalistic approaches. We have already seen that Romanes and Lloyd Morgan observed, collected, and interpreted nonhuman animal behaviors. And, early in the twentieth century, Wolfgang Köhler (1887–1967) found that chimpanzees could demonstrate insight learning that manifested without previous reinforcement of the successful response (Köhler 1925; Rumbaugh et al. 1996; Yerkes 1943).

William James in his 1890 *Principles of Psychology* had a chapter on instinct that prefigured, to a remarkable degree, later developments in comparative psychology. For example, he described the phenomena of imprinting in considerable detail, as it had been observed by Romanes and Spalding. Although we usually think of Konrad Lorenz as the discoverer of imprinting, Romanes and Spalding observed both imprinting (the tendency of very young chickens and some other animals to follow and fixate on the first moving object they see) and the critical period (after a few days, if the young animal has not fixated on a moving object, the reaction to moving objects is fear and avoidance, rather than following).

James also presents a perceptive picture of the interaction between instinct and habit, which could well have inspired work like that of the Brelands, if they were aware of it. James says that sometimes instincts are dominant; the raccoons washing the tokens rather than making the rewarded response of depositing them is an

example of the triumph of instinct. Often habits are dominant, as when an animal imprints on the first moving object it sees, and afterward will follow nothing else.

Comparative psychology and ethology were greatly advanced by biologist Nikolas Tinbergen (1907–1988). He was justly famous for his work with supernormal stimuli; one of several examples is that birds often chose to sit on eggs that were larger, or more brightly colored, than their own eggs. Some female human breasts might also be supernormal stimuli.

Tinbergen (1963) argued that four questions should be answered in order to understand the behavior of animals. First, what was its proximate cause – the stimuli or situation that elicited the behavior? Second, how did the behavior develop over time – what was the interaction between instinct and experience? Third, how had the behavior evolved? Fourth, what was its role in adaptation? One of several prominent Tinbergen students at Oxford was Richard Dawkins (1941–), a contemporary evolutionist who stresses the importance of genes in the behavioral economy of both animals and humans.

Konrad Lorenz (1903–1989), a contemporary and sometimes friend of Tinbergen, rediscovered and very carefully studied imprinting (Lorenz 1952), apparently unaware of Spalding or Romanes, or of James's second-hand description of his predecessors. Together with Tinbergen, Lorenz described innate releasing mechanisms that elicited instinctual fixed action patterns.

Other biologists, ethologists, and psychologists observed animals in completely naturalistic situations, interfering as little as possible with animals' normal behaviors. Two of the most famous observers were George Schaller (1933–) and Jane Goodall (1934–), the former an observer of mountain gorillas, and the latter of chimpanzees. They dispelled myths of primate behavior in opposite directions: Schaller (1963) found that gorillas were gentle, social animals, when they had been mistakenly portrayed as vicious brutes. Goodall (1986), among others, found that chimpanzees in the wild were contentious carnivores who hunted and ate monkeys, but also that they used tools and were very social and intelligent. Schaller, Goodall, and many other students of animal behavior have been lifetime conservationist leaders.

Animal Language Studies: A New Era in Comparative Psychology

Studies of Captive Animals

Myths about talking animals are nearly as old as human history. Ancient Egyptians believed that some baboons had the gift of language, and revered those that did (Hillix and Rumbaugh 2004; Rumbaugh and Washburn 2003). Early investigators reared chimpanzees in human households in the hope that they would assimilate language, as human children do; among them were Kelloggs (1933), Nadezhda Ladygina-Kohts (1935), and Catherine Hayes (1951). Although the home-reared animals appeared to comprehend a significant amount of language, they manifested almost no ability to *produce* language. The abyss between animals and humans seemed to be unbridgeable.

Gardner and Gardner (1971) ushered in a new era of animal language study when they shifted the medium of communication from vocal language to sign language with their chimpanzee, Washoe. Washoe was named for the county in Nevada in which she and the Gardners resided, and her name in the language of the Washoe Indians meant “the people.” She was reared from an early age in a trailer next to the Gardners’ home, and taught a simple version of American Sign Language (ASL). Washoe eventually acquired a vocabulary of 170 signs while under the tutelage of Roger Fouts, one of the Gardners’ students, and his wife, Deborah Fouts.

Other investigators, like the Gardners, found new ways to communicate with primates. Ann and David Premack first tried to use a joystick that would let chimpanzees produce phonemes (it was not practical), and then used a pictorial language in the form of plastic symbols; their star pupil, Sarah, acquired a vocabulary of about the same size as Washoe’s (Premack 1970).

Duane Rumbaugh wanted to avoid the subjectivity that was involved in interpreting sign language, so he and his colleagues developed a language of “lexigrams.” The symbols of the language could be presented via computers or lexigram boards to which animals or humans could point to indicate words. His first chimpanzee pupil, Lana, learned both to comprehend and to produce combinations of symbols to obtain food, drink, other favors, and to answer

questions regarding the names and colors of 36 objects (Rumbaugh 1977).

Sue Savage-Rumbaugh extended the lexigram work to other chimpanzees, notably Sherman and Austin (Savage-Rumbaugh 1986), and to several bonobos, most prominently Kanzi, Panbanisha, and Nyota (Savage-Rumbaugh and Lewin 1994). Kanzi was reared in a combination of bonobo and human cultures, and demonstrably learned to comprehend hundreds of human sentences that he had never heard before (although he necessarily had learned the meanings of the words used in the sentences).

Other investigators extended the language work to other animals. Francine (Penny) Patterson obtained impressive results with her gorilla, Koko, using sign language similar to the language used by the Gardners (Patterson and Linden 1981). Similarly, Lyn Miles showed that her orangutan, Chantek, had both significant ability to learn sign language and impressive ability to make tools (Miles 1993). And Louis Herman demonstrated that dolphins have an amazing ability to imitate human actions and to comprehend a visual language presented with global movements of the arms and body (Herman 1986). The dolphins were trained after being socialized by swimming and interacting with them. A concept like “in” was taught by placing an object in a dolphin’s mouth and then encouraging her to place the object in a basket, in the presence of the sign for “in.”

Irene Pepperberg returned to the vocal channel with her African grey parrots, the most famous of whom was Alex (Pepperberg 1999). Alex learned to use over 80 words, an incredible feat for an animal with such a tiny brain, and a feat comparable to the accomplishments of the great apes (excluding human great apes).

Studies of Animals in Their Natural Habitats

Paralleling the studies discussed above are studies of animal communication in species literally ranging from ants to zebras, in their natural settings. Among them are striking studies by Von Frisch (1886–1982) and many others of the ability of bees to communicate roughly the distance and direction of food sources through the direction and intensity of their “dances” in the hive. Although Von Frisch’s work elicited a long-

standing controversy about the legitimacy of bee communication, his work has won widespread acceptance.

Animal Language and Comparative Psychology

What is one to conclude from the results of the work on animal language? If one accepts all or most of the results, one must conclude that, once again, the evolutionary generalization that there are gradations of differences – and similarities – between species is confirmed. That is not to deny that there is a huge difference, one that could be called qualitative, between human language and cognition and that of other animals. Future studies will continue to throw light on the basis of this, and other, difference between humans and other animals, and between different species of nonhuman animals.

The advent of animal language studies produces an entirely new set of possibilities: We are no longer entirely limited to observing animals from the outside. In some cases we can communicate directly with them, and our ability to do so is certain to increase, especially in the case of animals like dolphins, whose magnificent brains suggest rich possibilities not yet realized. The future of comparative psychology looks more exciting than ever before.

Some Tentative Generalizations from Comparative Studies

Humans seem to share with other animals the effects of contiguity and reinforcement on behavior. Instinct and the aftereffects of responses interact to determine patterns of behavior. Nothing in animal or human behavior contradicts the basic tenets of evolutionary theory (King et al. 2005; Schick et al. 1999). Learning is not based wholly on reinforcement and punishment, but aftereffects are an important determiner of animal behavior. Different species exhibit different instinctual behaviors that appear to have arisen in response to the requirements of adaptation to their individual environments. The more we learn about behavior, the more continuity we see between behaviors of related species (Schrier et al. 1965; Suomi 2005). Animals can even be taught some language-like behaviors and skills, although the gap in linguistic ability remains large. Comparative psychology and ethology have amassed a huge corpus of data on animal behavior, but have

probably realized only a small percentage of the possibilities.

True to its rich history, comparative psychology will continue to contribute to our understanding of behavior at all levels.

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Consciousness and Embodiment

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When scholars of consciousness utilize the concept “embodiment,” they are trying to express the idea that consciousness itself, or “what it feels like,” is heavily contextualized and constrained by the fact that brain is nested within a body, which, in turn, is nested within a particular environmental context. As a result, they argue the very nature of consciousness is best explained in terms of “being in the world” at a particular time, in a particular place. In short, consciousness is considered a contextually dependent phenomenon, with the degree of contextual-dependence varying across different theorists.

This “embodied” approach to consciousness has entered the scholarly debate on consciousness as a reaction to the idea that consciousness and mind are *informational* in nature, versus physical. What this means is that the nature of consciousness and mind are actually independent of the particular physical context in which they are instantiated. This informational view emerged during the years surrounding World War II, with the advent of both information-technology and cognitive psychology. During this time, scholars began to conceptualize the mind in terms of its functional properties; that is, in terms of the causal connections entailed in the dynamics of cognition. For example, while solving a math problem in your head, certain “operations” have to be run on specific “contents” in order to find the correct answer. The idea behind this *functionalist* approach to mind was that the series of operations, as well as the contents upon which they operated, were ultimately comprised of “causal relations,” much like the formal relations expressed in a mathematical equation or a computer program.

Given these operations could be substantiated in media other than neural tissue (i.e., silicon computer chips) scholars conceptualized them as informational properties that were independent of the particular physical properties of the medium in which they were instantiated.

Contemporary Approaches to Consciousness and Embodiment

The impetus for the move away from this informational view toward a more embodied view came from many different disciplines, for different reasons. For some, it had to do with explaining the causal properties of mind, while for others it had more to do with explaining the mind's phenomenal properties (i.e., consciousness). As regards the former, scientists of mind working to develop a third-person, objective explanation of what the mind is, began to challenge the informational notion the mind functions like a computer program and instead, focused on generating explanations based more on detailed, biological analysis of cognitive functioning. As regards the latter, some philosophers began to move away from conceptualizing the mind as an internal, symbol-processing system, and to model it, instead, as housed within a body whose real-time dynamics play a major role in the real-time dynamics of cognition. For these philosophers, the task was to explain how and why consciousness accompanies these brain, body, and world dynamics.

While at first glance, these two endeavors may seem independent, they have, in fact, informed each other. Thus, in order to understand embodiment and consciousness, it is important to understand the scientific discoveries that have led to its emergence as a leading scientific framework, as well as the philosophical conceptualizations that have coevolved with these scientific discoveries.

The Science of Consciousness and Embodiment

In cognitive psychology, researchers began to argue that the basis for higher-level cognitive abilities such as language is to be found in lower-level sensory-motor skills, versus formal, propositional structures. Such claims were based on findings that indicated that access to words seemed to be constrained by body dynamics (e.g., whether or not one was smiling or frowning while trying to identify a word – Glenberg 1997) as well as the extent

to which words referred to actions versus static events. These findings led researchers to propose that language is coded in terms of visual representations and/or action–perception contingencies (Barsalou 1999) versus computer-like programs. As a result, instead of language being conceptualized as a computer program instantiated in the brain as an informational system, it began to be conceptualized as a developmentally dependent recursion on the neural dynamics involved in actually getting the body to move around (i.e., sensory-motor skills).

Further arguments in support of a more embodied view on language came from attacks on Noam Chomsky's famous nativist account of language, known as universal grammar, or generative grammar. Chomsky (1959), along with others, claimed that language was an innate human skill. When initially presented in the 1950s, this position placed Chomsky squarely at odds with the then dominant behavioral view of language, which claimed language to be a learned form of behavior. Since the 1950s, Chomsky's view has undergone many revisions, and it is not clear to what extent he now believes language in total is innate, or whether there are certain parameters of language that are fine-tuned via learning. Chomsky's move toward lived experience as an enabler of language is also apparent in current embodiment attacks on the notion of innate language. These challenges stem from the recent discovery of language systems in South America that seem to defy certain properties of innate language asserted by Chomsky's theory of universal grammar. Given this lack of universality in grammar structures, these researchers assert language is not innate, and is, rather, contextually bound to one's culture (Everett 2005). While these researchers appeal to culture more than to embodiment, *per se*, they share the embodiment scholar's commitment to accounting for higher-level cognitive abilities in terms of the systems we use to manage ourselves in daily living. In other words, mental phenomena arise naturally and spontaneously out of lived life. From this perspective, all psychological phenomena are first and foremost, lived phenomena. Theories that ignore this lived quality and, instead, conceptualize cognitive phenomena as being independent of lived experience (i.e., medium-independent information structures, or innate skill) do so at the risk of completely missing the phenomenon they set out to understand.

Embodiment theories have also begun to appear in robotics as researchers move away from Strong AI and the notion of a disembodied, informational mind, to a more situational, embodied view in which the natural properties of the body are conceptualized as part of the computational problem solving necessary to the robot's production of complex behavioral sequences. Examples (Clark 2001) include robots designed to model mate-selection behavior in crickets. Instead of modeling mate-selection as a logical sequence of operations that requires a brain program capable of (1) discriminating between different sounds, (2) determining the directional source of the selected sound, and (3) activating the appropriate motor program needed to locomote toward the source, robots were designed that reflected the manner in which crickets actually solve the problem. Specifically, the cricket's "ears" are located on its forelegs, and the inner tube that connects them is structured such that only particular frequencies are able to influence the cricket's movements. In short, the actual bodily composition of the cricket solves what, from a functionalist perspective, may have been thought of as "cognitive" problems.

Further support for the embodiment view derived from neuroscientific discoveries that indicated brain dynamics do not reflect the neat functional divisions between perception, action, and cognitive typically posed by the informational/computational view. Specifically, it was discovered that neurons in the prefrontal, motor-planning areas of the monkey brain also seem to be involved in perception (Rizzolatti et al. 1996; Rizzolatti et al. 2002). The first discovery was that certain of these prefrontal, motor-planning neurons, what were labeled "canonical" neurons, became active when the monkey was presented an object that afforded grasping behaviors. In short, the simple sight of the object generated motor-planning, as if part of "seeing" the object was the planning of the actions needed to grasp it. The second discovery occurred serendipitously as the researchers reached out to change the objects being presented to the monkey. To their surprise, these neurons responded to the researcher's reach for the object in the same way they reacted if the monkey itself had reached. In short, these neurons, which were labeled "mirror" neurons, responded to both the *planning* and the *perception* of goal-directed activity. These findings did much to

dismantle the notion that cognition works according to clearly separated processing stages, for if perceiving and planning share overlapping neurodynamics, the two are not clearly discernable functions.

Since the discovery of mirror neurons in premotor cortex, additional mirror neurons have been discovered in parietal cortex. Instead of mirroring goal-related activity, however, these neurons mirror the kinematics of movement (Decety 2002). What this means is as one observes another engage in a goal-directed action, prefrontal systems mirror the goal, while parietal systems mirror the movements made to produce the goal. Kinsbourne and Jordan (2009) recently used these findings to claim that human interaction is dominated by multi-scale entrainment. Entrainment, in this sense, refers to what happens to one's prefrontal and parietal mirroring systems while observing another. Specifically, the dynamics of one's planning and movement trajectories are directly influenced, via mirroring, by the goal states and movements the other generates. In turn, one's own goal states and movements do the same to the other. This gives rise to the types of reciprocal mirroring episode that previous researchers have referred to via terms such a mimicry, imitation, and synchrony. Given that both goals and movements become entrained, the entrainment can be said to be multi-scale.

Using this notion of multi-scale entrainment, Kinsbourne and Jordan describe how spontaneous entrainment episodes between caregivers and infants lead to the infant embodying the dynamics of reciprocity in its neuromuscular system. Specifically, the smile given to an infant by a caregiver, entrains the child to smile. This then recursively entrains the caregiver to smile again. Such episodes entail spontaneous turn taking. Participation in many such episodes allows the infant to embody the dynamics of reciprocity into its neuromuscular architecture and, as a result, anticipate reciprocity. Once this medium of entrained trust is in place, caregivers can then direct the infant's attention to events in the environment. In essence, multi-scale entrainment affords individuals the ability to spontaneously entrain with others in ways that afford cognitive development and enculturation.

The Philosophy of Consciousness and Embodiment

Collectively, these findings support the notion the mind derives its properties from the functioning of

the body and from “being in the world.” As a result, such findings have had a profound impact on philosophical approaches to mind and consciousness. Some philosophers have echoed these advances in cognitive science and argued the content of consciousness derives from the “sensory-motor” knowledge embodied in our neuromuscular architecture. From this perspective, the conscious experience of seeing “red” is not simply a neural reaction to a particular frequency of electromagnetic radiation. Rather, it is the experience of a behavioral possibility, what ecological psychologists have referred to as an *affordance*.

Other philosophical reactions to embodiment have gone even further and attempted to equate consciousness with life. From this perspective, consciousness is not explained in terms of sensory-motor knowledge, but rather, in terms of the dynamics that distinguish living systems from nonliving systems. Common to many different versions of this approach is the conceptualization of living systems as open systems that are able to keep themselves far from thermodynamic equilibrium. What this means is that living systems are systems that sustain their integrity by taking in, transforming, and dissipating energy, and doing so in a way that leaves them with energy stores available for work (i.e., energy transformation).

One take on this view proposes that the distinguishing property of living systems is their ability to give rise to all the processes necessary to both sustain and replicate the living system. Such systems are referred to as *autopoietic* (Maturana and Varela 1980). From this perspective, consciousness, the phenomenology of “what it feels like,” is a *relational* property between an autopoietic system and the processes in which it sustains and replicates itself. This view leads to consciousness being a natural property of autopoietic systems. And the reason these scholars need the notion of “relational” properties is because they still conceptualize the autopoietic system’s body in terms of physiology. Thus, in order to avoid the reductionist position that consciousness is identical with the physiological body, autopoietic theorists assert consciousness does not reduce to physiological properties because, as stated above, it is a relational property.

While the theory of autopoietic systems and the notion of relational properties seems to perhaps solve the issue of embodiment and consciousness, there are those who challenge its distinction between physiological

and relational properties. These scholars propose that physiology itself is relational, in that, the dynamics of all living systems are naturally and necessarily “about” the contexts in which they have evolved and sustained themselves (Jordan and Ghin 2006). As a result, there is no need to divide the body into its physiological properties and its relational properties. Instead, the body is conceptualized as a self-sustaining embodiment of the multi-scale contexts (i.e., phylogenetic, cultural, social, and developmental) in which it has sustained itself. From this perspective, the natural world is conceptualized as a self-organizing energy-transformation hierarchy. What this means is that living systems form a hierarchy of systems (i.e., plants, herbivores, and carnivores) that sustain themselves on available energy. In the case of plants, sunlight constitutes the available energy. In the case of herbivores, it is plants, and for carnivores, it is herbivores that constitute the energy. As systems emerge within this hierarchy, their “bodies” must be “embodiments” of the constraints they must address in order to capture available energy. From this perspective, a lion can be conceptualized as a self-sustaining embodiment of the constraints that need to be addressed to sustain a system on the energy entailed in a zebra. Given such self-sustaining embodiments are naturally and necessarily “about” the contexts they embody, “aboutness” (i.e., meaning) is constitutive of what they are. And consciousness, our phenomenology of “what it feels like” is an evolved form of embodied “aboutness.” Conceptualizing consciousness as a form of “aboutness” prevents one from dividing the body into physical and phenomenal properties, and later trying to find a way to put the phenomenal properties back into the fully described physical system.

The History of Consciousness and Embodiment

While the attempt to conceptualize consciousness in terms of embodiment might seem unique, one could argue it is really nothing more than yet another manifestation of the age-old struggle to understand the relationship between mind and body. On the unique side, the notion that consciousness constitutes a necessarily embodied phenomenon seems progressive because it derives much of its support from recent advances in cognitive science and neuroscience. On the same-old side, the fact that recent scientific findings lead to the

notion of consciousness being embodied is, in and of itself, not a unique phenomenon. Many philosophers in the past have taken advantage of scientific discoveries as a way of reconceptualizing the relationship between mind and body. Thus, while the move toward embodiment seems an achievement in relation to the last 4 or 5 decades, it comes across as another recursion on the mind–body problem from a larger perspective.

Perhaps it is from this larger-scale perspective that we can garner a clearer perspective on the long-term contribution of the notion of embodiment to our understanding of consciousness. For what is clearly at stake for embodiment scholars is the need to conceptualize consciousness in a way that renders it *constitutive* of what we, or at least our brains, are. Doing so is critical to consciousness studies because ever since the twentieth-century turn toward naturalism in philosophy, reality has come to be conceptualized in scientific terms. Thus, it has come to be assumed that all ontological statements regarding the constituents of reality must be stated in terms of physics, chemistry, and biology. This is why many scholars now propose accounts of consciousness that basically equate it with the brain. Having accepted a physics-based naturalism, consciousness must somehow “emerge” as it were, via the interactions of physical systems. This poses a major problem for the reality of consciousness because once a phenomenon has been accounted for in terms of the conceptual frameworks of physics, chemistry, and biology, there seems to be no real causal work left for consciousness to do. Having no role to play in the nature of reality, consciousness is either discarded as constituting a real phenomenon (i.e., eliminative reductionism), is treated as a real phenomenon that entails no causal properties (i.e., epiphenomenalism), is conceptualized as a fundamental property of reality that is distinct from the physical and not yet understood (i.e., natural dualism), or is conceptualized as an informational property that is ultimately independent of the medium in which it exists (i.e., functionalism). Regardless of which naturalist-inspired version one selects, consciousness is not considered a necessary aspect of a scientific description of what we are and how we do what we do.

While on the one hand, one could accept the physicalist argument and assume that the persistent philosophical tension between mind and body is simply how it is, and that one of the above-mentioned strategies will eventually prove out scientifically, it might also be the

case that the emergence of embodiment into the current debate on consciousness will lead scholars to simply see the “mind–body” problem as the very problem. That is, what might be needed in the scholarship of consciousness is not a way to fit the phenomenal into the physical, but rather, to develop a description of reality and what we are that transcends the mind–body dialectic. To be sure, such an endeavor has been attempted many times in the past. Baruch de Spinoza, a seventeenth-century philosopher, rejected the mind–body dialectic at the root of Descartes’ mind–body dualism by arguing against Descartes’ notion of substance and the idea that the mind and the body were constituted of different types of substance. Spinoza argued that in order for something to constitute substance, it: (1) could not rely on anything else for its existence, (2) could not be caused by anything else, (3) could not be reduced to anything else. And the only thing he believed met all three conditions was *everything in total*.

While Spinoza’s attack on substance might seem strange to modern ears, what seems to really lie at its core is a staunch commitment to *holism*: the belief that all of reality constitutes a unity. From this perspective, all things are inherently interrelated. And it is within this dense web of interrelations that consciousness resides: not as a by-product of independent physical systems, but as the natural “aboutness” of reality in general. Again, modern talk of holism and dense interrelations may sound strange, but this is only because of philosophy’s twentieth-century commitment to naturalism. This alignment of science and philosophy was ushered in via strong attacks on the notion of internal relations that was central to a holistic, philosophical movement known as idealism, most well-known via the writings of Georg Wilhelm Friedrich Hegel. Early twentieth-century analytic philosophers such as Bertrand Russell wanted philosophy and our notions regarding reality to be based on science and mathematics. A necessary step in this campaign was to establish the nominal status of objects whose properties could be described by mathematics via the scientific method. As philosophers moved from idealism to naturalism, ontology came to be dominated by property-philosophy, and physics, chemistry, and biology came to be the conceptual schemes that drove the conversation.

Over the course of the twentieth century, there were those who worked within the confines of naturalism

and the scientific method while simultaneously harboring strong dissatisfaction with its implicit commitment to reductionism and nominalism (i.e., the idea that reality ultimately reduces to context-independent, individual “things” known as matter). Gregory Bateson, for example (Bateson and Rieber 1989), believed that “mind” and “matter” were unnecessary in cognitive science because the two represent conceptual distinctions that separate what was originally a unity (i.e., reality). That is, the two refer to different aspects of a unified reality (i.e., aspects of reality that *feel* as though they depend on an observer – mind, versus aspects that *feel* as though they do not depend on an observer – matter). When one then takes these two aspects of lived experience and reifies them into ontological categories, as opposed to conceptual categories, one then assumes that ontology must be committed to discovering the bridging principles at work between these two types of stuff. Conceptualizing the “mind–body” problem as conceptual, versus ontological, however, leaves one with a single reality in which it is incoherent to assume the existence of context-independent nominal essences. As a result, all “things” are context dependent and inherently interrelated.

The point here is not to call for a revitalization of idealism. Rather, the point is to place the modern interjection of embodiment into scholarship on consciousness in its proper historical context. Philosophy is currently caught in a large-scale struggle between holism and nominalism. Thus, the current debate over embodiment and consciousness can be seen as a modern recursion on this holism–nominalism theme. If the current embodiment movement leads to the emergence of an ontology that transcends the mind-body problem, it will have secured its status as a truly unique philosophical movement.

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Basic Biographical Information

Raymond J. Corsini was born on June 1, 1914, in Rutland, Vermont, the child of recent immigrants

from Italy. His father, Giuseppe Corsini, worked as a marble cutter, but his participation in a high-profile labor strike left him unemployable on the Atlantic coast. Forced to move, the Corsinis settled in Marble, Colorado.

Giuseppe was an uneducated, angry man. He abused Raymond with such violence that his wife, Evelina, feared for their son's life. Even so, Evelina continued to discipline Raymond with physical force after Giuseppe's death, when Raymond was 5. Evelina soon moved Raymond and his younger brother Harold to New York City, where they settled in a tough Irish neighborhood. Raymond attended St. Columbia, a Catholic elementary school, in which defiance of authority was punished with verbal and physical abuse. Raymond was also targeted by his classmates, as a pattern of animosity between children of Irish and Italian immigrants was well established.

While Corsini was at the bottom of his class at St. Columbia, he earned the highest score on the New York State Regents test, a prerequisite for entering public high school. The tension between his iconoclastic personality and his sharp intelligence and deep love of learning continued to define his education, as his grades were consistently low and his test scores high. At the City University of New York (CUNY), Corsini was counseled by the dean to quit after several months because of his low grades. After working briefly in the Civilian Conservation Corps, he returned to earn a BA 7 years later. The Great Depression prevented him from finding a job, so he stayed at CUNY and earned an MA in psychology. Once again his grades placed him at the bottom of his class, yet his score on the New York State examination for psychology was the highest among his 26 peers. This success earned him a job at Auburn Prison in New York in 1942. His personal suffering gave him a deep compassion for others' pain along with both the desire and the ability to help them heal.

Corsini did his doctoral work at Syracuse University, Cornell University, the University of California, and the University of Wisconsin, receiving his Ph.D. in 1954 from the University of Chicago, where he worked under Carl Rogers. During his training, Corsini met and interacted with J. L. Moreno, Fritz Perls, Victor Frankl, and Albert Ellis, among others, but his main teacher was Rudolf Dreikurs, an Adlerian.

In the course of his professional life, Corsini had three separate careers: as a prison psychologist for 15 years, including chief psychologist at San Quentin State Prison in California; as an industrial psychologist for 10 years; and as a psychotherapist and counselor in private practice for 30 years. He taught courses at more than a dozen universities, including full time at the University of Chicago, Illinois Institute of Technology, and University of California at Berkeley.

In 1966, Corsini created the Family Education Center of Hawaii (FECH) to help people with parenting and family skills and to provide a training facility for Adlerian family counselors. FECH, which was rechartered in 2003 by three of Corsini's former students, now partners with the University of Hawaii at Manoa in running a family education training center and in offering course curricula focused on Adlerian parenting. Corsini was the first recipient of the Hawaii Psychological Association's Significant Professional Achievement Award, and received the association's Lifetime Achievement Award in 2003.

Although Corsini was considered a late starter in psychology, the last 30 years of his life were undoubtedly the most productive. The majority of his books were published after he turned 70, and at the time of his death on November 8, 2008, he was working on a book about comparative religions.

Major Accomplishments/ Contributions

Raymond J. Corsini was a prison psychologist, clinical psychologist, teacher, author, and community organizer, and one of the most important Adlerian psychologists of his time. His early experiences of violence and clashes with authority shaped his character and decidedly influenced his adulthood and professional life. He was difficult and rebellious, remaining a target for criticism and abuse throughout his life. As a strategy to prevent painful, humiliating rejections like those he endured from his parents, Corsini would readily provoke and criticize others, sabotaging the possibility of human connection and reinforcing his isolation. He remained in the grip of this self-defeating cycle throughout his life.

What equally defined Corsini's character, however, was a powerful resilience. Despite a horrific childhood that left him largely unable to form healthy

attachments, he was self-aware, innately compassionate and optimistic, and ferociously determined and persistent. His relentlessness, ambition, and intelligence ultimately drove him to the top of his profession, even as his education was slowed by his defiance of authority and weak relationships.

Throughout his life, Corsini upheld Alfred Adler's concept of *Gemeinschaftsgefühl*, or social interest. His contributions to the larger community were consistent with this Adlerian conviction that the individual's primary responsibility is to contribute actively to the health, integrity, and well-being of the community. Thus Corsini worked as a community organizer and developed an innovative, progressive educational system rooted in the principles of democracy and social responsibility. The Corsini 4R (C4R) approach – based on responsibility, respect, resourcefulness, and responsiveness – is used by schools in various parts of the world.

Corsini's troubled upbringing proved both a blessing and curse. While providing a first-hand window into the suffering of others, enabling him to understand their pain and anger and imbuing in him a strong sense to heal, it also made him wildly critical of others when he perceived unacknowledged flaws. His lack of sensitivity, decorum, and respect earned him many rejections, to which he did not take kindly. Some say that his second wife, Kleo, was responsible for curtailing his excesses and teaching him about civility. In addition, this close relationship undoubtedly spurred him on to a lifetime of public service in which he devoted his energies to the caring of others.

The *Biographical Dictionary of Psychology* lists Corsini as one of the most important psychologists of the past 150 years. He is unarguably one of the key psychologists of his time, perhaps best known to scholars and students in counseling and psychotherapy as the first editor, with Daniel Wedding, of *Current Psychotherapies* (Thomson/Brooks Cole), a text that has sold more copies than any other in this field and is now in its 9th edition. Corsini published more than 100 articles and 60 books, including *The Dictionary of Psychology* (Brunner-Routledge), the most complete in the English language, and *The Corsini Encyclopedia of Psychology* (John Wiley & Sons), widely acclaimed as one of the best in the field. The publication of *The Dictionary of Psychology* alone provides insight into

the man. Despite the book's having been rejected by 60 publishers before it was finally accepted, at a time when Corsini was in his late 80s, his perseverance clearly shows a remarkable faith in his own ideas, values, and abilities.

Raymond J. Corsini will be remembered for many contributions to the field of psychology. First, as an encyclopedia author, lexicographer, and editor, he has given psychology students and budding psychologists a set of treatises to help them develop an overview of the field and provide specific references to different subjects. Second, as an Adlerian advocate, Corsini shows through case studies, critical discussion, and analysis how to apply Adlerian principles to diverse client situations. Third, through his service to education and to specific communities, Corsini has demonstrated how to utilize his Individual Education Model within family settings, so that young people can benefit from an Adlerian approach to parenting, as well as providing the framework through which future counselors can continue his work.

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Cosmopolitanism in Psychology, Theories of

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Introduction

The word “cosmopolitan” derives from the Greek words *cosmos* (the universe) and *polis* (the city) and means literally translated “citizen of the world.” Cosmopolitanism is an umbrella term which has been used to describe a variety of different concepts.

These concepts, which find their origins in moral and sociopolitical philosophy, share a vague political common ground with an emancipatory claim. The core of the idea is that all human beings regardless of their race, sexuality, gender, religion, physical abilities or political affiliation, belong to – or at least could belong to – a single community which ought to be cultivated. And psychological contributions to this field of research are concerned with questions of how this cultivation can be fostered, and the exploration of phenomena which obstruct it.

Theories of cosmopolitanism have a long history in psychology although in the majority of psychological research they are not referred to by this hypernym. Explicit references are a rather recent phenomenon, which are also due to the contemporary political conditions and phenomena, for example, due to the processes which are commonly referred to as globalization, the organizational architecture of the global institutional order, and the fact that in today's world humankind encounters more and more problems which require concerted action on a global scale, such as environmental and health issues.

Definition

Depending on different foci in the concepts of cosmopolitanism psychologists refer to, both research approaches and the criteria for the definition of dispositions and psychological characteristics for a cosmopolitan person may vary. In the following, first a psychological definition of a cosmopolitan will be given which can be found in the *quantitative* paradigm. Here, cosmopolitanism is theorized as a measurable attitude. According to a second definition, which is grounded in a *qualitative* paradigm of discourse analytical principles, cosmopolitanism expresses a certain positioning in the world (Davies and Harré 1990), including a person's worldview, and corresponding emotions and actions.

Adherents to the concept of cosmopolitan democracy (e.g., Archibugi 1998; Held 2003; Kaldor 1996), the most popular form of cosmopolitanism in contemporary political theory, envision for the future a reinvention of democratic practices. Their aim is a political system in which democratic norms and values are applied with regard to global but also local institutions. One of the key questions is how the

concept of global governance, governance of the people, by the people, for the people, can be put into practice. Decisions are supposed to be made by those who will be affected by them, for example, via elected representatives or direct participation, and a single hierarchical form of authority is categorically avoided. A crucial part of this model is the aim of global governance without striving for a global government.

Psychologists operating with the concept of cosmopolitan democracy define cosmopolitanism as a worldview which is characterized by (1) holding the capacity to mediate between different cultures, (2) the recognition of increasing interconnectedness of political communities, and (3) the approval of political responsibility at the supranational and global levels. Researchers follow the quantitative paradigm and conceptualize cosmopolitanism as finding its expression in a measurable attitude manifesting itself in one's opinions, attitudes, and values. It is stressed here that actions and behavior are not part of the concept of cosmopolitanism. These are theorized under the key expression "transnational experience" (Cheah 1998; Roudometof 2005). In this version of cosmopolitanism, three interconnected dimensions can be identified:

1. The recognition of the increasing interconnectedness of political communities in diverse domains, including the social, economic, and environmental
2. The development of an understanding of overlapping collective fortunes that require collective solutions locally, regionally, and globally
3. The celebration of difference, diversity, and hybridity while being able to reason from the point of view of others and mediate traditions (Held 2003, p. 58)

In a nutshell: Characteristic of people with a cosmopolitan attitude is the recognition of people as, and the valuing of their integrity as that of, equal human beings, regardless of their national or cultural background. They are tolerant, open, and willing to engage with other people, and are also intellectually and aesthetically open, searching for differences rather than uniformity. Being aware of the increase in economic, political, and cultural interrelatedness, they embrace rather than oppose these contrasts. Hence, they are not only aware of global problems but also in favor of forms of global governance and supranational political regulation (Mau et al. 2008).

Adherents of the concept of intermediate cosmopolitanism (e.g., Pogge 2002b), the most popular concept in Global Justice Theory, choose a very different approach. Global Justice Theory is an interdisciplinary field of research dominated by political philosophers. Here one finds a whole gamut of variations between mild cosmopolitanism, the nebulous view that all human beings are of equal worth, and robust cosmopolitanism, the view that all human agents ought to treat each other equally and, in particular, have no reason to help any one needy person more than any other (Singer 1972, 2004). This is discounted by many critics as not viable because it is grounded on such abstract principles that it neglects the human condition. Thomas Pogge's (2010), the leading figure in the field of global justice theory, offers the concept of so-called intermediate cosmopolitanism. The strengths of his concept are that it is based on generally acknowledged norms, rules, and rights.

People distinguish in everyday life between duties to assist, help, give aid, and so on, which philosophers call positive duties, and the ethically weightier duty to ensure that innocent people are not unduly harmed for insignificant reasons through one's own conduct, which philosophers refer to as negative duty. Pogge's concept is based exclusively on negative duties. According to him, all citizens in high-income countries (but also the majority of rich people in low-income countries) violate this negative duty by participating in and imposing an unjust global institutional order on people living in low-income countries and by depriving them of their human rights. At the Vienna Human Rights Conference in June 1993, it was stressed by representatives from 171 nations that all the classical liberal rights and the social human rights are universal and interrelated. The articles most relevant for the concept of intermediate cosmopolitanism are Articles 25 and 28 of the Universal Declaration of Human Rights: "Everyone has the right to a standard of living adequate for the health and well-being of oneself and one's family, including food, clothing, housing and medical care." "Everyone is entitled to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realised."

While it is important to remember that the foundation for the global institutional order was laid in

a long process of, for example, slavery and exploitation, any person striving to live according to cosmopolitan criteria is immediately responsible only for the present global institutional order. One is considered to be morally responsible for it if the following four conditions are fulfilled:

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According to this global justice theoretical approach of intermediate cosmopolitanism criteria from a psychological perspective to define a person taking the cosmopolitan position is (1) the acknowledgement of violation of negative duties in a transnational setting under conditions of a global institutional order which is judged to be unjust, (2) the performance of action based on the identified causes of the problem, and (3) the experience of corresponding moral emotions with regard to the harm and deaths resulting from this global institutional order, for example, shame, guilt, anger, outrage (Park 2011b).

This approach follows the *qualitative* research paradigm and is based on a concept of cosmopolitanism which explicitly includes action and behavior. For radical proponents of Postcolonial Theory, in contemporary times barely any catastrophes are classified as "natural" ones; instead, catastrophes on a global scale are considered to be human-made phenomena. Even when it comes to the impact of the weather, for example, El Niños or droughts, which are then followed by hunger and famine, or lack of access to safe drinking water with cholera epidemics, this is interpreted as a phenomenon that is interwoven in the web of the unjust global institutional order (Davis 2001), to which one has to position oneself. And it is in this positioning, including corresponding action (or lack thereof), that a cosmopolitan identity expresses itself (Park 2011a).

Historical Background

The first unambiguous expression of a cosmopolitan stance goes back to the fourth century BC. It was the Cynic Diogenes who, when asked where he came from, replied “I am a citizen of the world” (Kleingeld and Brown 2006). The contemporary debate on cosmopolitanism ties in with ideas of eighteenth century philosophers, who have attributed different thought and aspect to the concept of cosmopolitanism. Immanuel Kant (1724–1804), Johann Fichte (1762–1814), and Karl Schlegel (1772–1829) defined cosmopolitanism in terms of political institutions which are supposed to unite all people globally. This would have as a consequence the abolition of the nation states and the establishment of a single global state valid for all humans. So-called economic cosmopolitans (also referred to as market cosmopolitans), for example, Dietrich Hegewisch (1746–1812), envisioned cosmopolitanism as expressed in the economy, and aimed for an open market in which market tariffs and other controls over foreign trade should be abolished. As a result, a free market would flourish that would take care of peoples’ needs while the government’s control would diminish. They also argued that it would be to everyone’s advantage if the state emphasized the import of supplies that are expensive to produce domestically and did not prevent other states from their export. Once an ideal global market was established, war would be in no one’s interest. Nevertheless, this view of cosmopolitanism was the most questioned since it has been realized that it was precisely this kind of thought which has brought about the intensification of inequality in the national but also international realm, especially following the end of the Cold War. In opposition to this stance, moral cosmopolitans such as Christoph Wieland (1733–1813) but also Immanuel Kant, argued for a single world community whose members would help other people by respecting their value as human beings. Their argument was that people are fundamentally equal, which in turn rules out all forms of exploitation, subordination, slavery, and racial and gender inequalities. Similar views were also shared by cultural cosmopolitans, for example, Georg Forster (1754–1794), who rejected the idea of a strong attachment to a single culture. They visualized a community that would elude the strong bonding with

a national identity and instead value the importance of diversity and multiculturalism.

The unifying element of these different approaches is that all concepts are based on the idea of fostering some kind of global community providing the grounds for relations of mutual respect, recognition of, and respect for social, cultural and political affiliations. These differences with regard to a distinctive emphasis on certain characteristics can also be found in the contemporary debate on aims and criteria, which are summarized under the key words political, moral, and cultural cosmopolitanism. Some political cosmopolitans envision a world with a single world government (Keane 2002), whereas others argue for a system of nations without nationalism (Kristeva 1993). They address issues that require urgent attention and their solutions, for example, racism, multiethnicity, tolerance, integration, and cohabitation. Part of their vision is a community or a transitional society distinguished by social harmony in which differences with regard to religion, ethnicity, and sexuality are acknowledged. They argue for a reconstruction of the international order that takes into account new, more hospitable methods of acceptance toward strangers, fair economic laws, and firm and collective agreement on dealing with global phenomena, for example, environmental issues.

Moral cosmopolitans put the emphasis on an alternative to politics based on reason, in which society is united by solidarity, affiliation, acknowledgment of human finitude, and not by principle, reason, and progress (Nussbaum 1997). This cosmopolitan society should be characterized by the fact that all members would feel a fundamental connection to the entire humankind, and would also make personal and political decisions considering the well-being of all species. Postcolonial cosmopolitan thinkers with a moral outlook describe it in terms of respecting another person’s dignity (Appiah 2006). Individuals with a cosmopolitan stance would show not only respect and concern for family, compatriots, and local traditions, but also for foreigners. Here, firstly, the focus is on the encouragement of the avoidance of moral relativism, and instead on showing respect for differences. Secondly, a balance between universalism and nationalism is suggested. And finally, a “conversation” is aimed for in the sense that an exchange of ideas is considered to be the key to

coexistence, since humanity would never reach consensus on universal values.

Cultural cosmopolitans define cosmopolitanism as the ability to recognize the particularity of different cultures; this is also due to the fact that successful attempts to achieve cultural uniformity are deemed to be leading to cultural impoverishment (Kleingeld 1999). Contemporary cultural cosmopolitanism rests on the ideas of eighteenth century cultural cosmopolitanism, which was neither relativist nor ethnocentrist. Thus, on the one hand, they maintain tolerant and open-minded contact with other cultures, and on the other, they deny relativism. A further point supporting this argument is that although people find fundamental meaning and purpose in the local traditions, they are still able to mediate between the local and the hybrid culture-in-the-making. However, this appreciation and celebration of the hybridity of cultures should not go along with the continual borrowing, mindless absorption and “cultural shopping” that go on via modern media, internet technology and improved mobility. Instead, appreciation of hybridity presupposes that people should recognize and take seriously the particularity and uniqueness of every culture, as well as understand the difficulty of taking on new perspectives and customs (Hansen 2009).

Not only can cosmopolitanism be distinguished in various types, but there are also differences regarding “demands and degrees” of cosmopolitanism, such as “thin,” which is also referred to as moderate or weak demands, or “thick” cosmopolitanism including strong and extreme responsibilities. Furthermore, different combinations are also promoted, such as a combination of a strong moral cosmopolitanism with cultural cosmopolitanism (Nussbaum 2000). Here, it is argued that attachment and affiliation toward the local can only be justified by taking into account the well-being of all humans that are regarded as equals. Thin moral cosmopolitanism, on the other hand, claims that allegiance to and preference for the local have to be balanced out and be constrained by consideration of the interests of other people. Therefore, one can argue that cosmopolitanisms would be a more accurate use of the term. Furthermore, they stress that despite these various forms of political, economic, moral, and cultural cosmopolitanisms it would be wrong to assume that

they are mutually exclusive. The differences between them are a matter of emphasis, where, for example, in a given context it is more functional to emphasize political rather than cultural aspects (Skrbis et al. 2004). In fact, most cosmopolitan theories combine aspects of the various forms.

The crucial point with regard to theorizing on cosmopolitan ideas in the twenty-first century is that it is already a fact that humankind undeniably lives in global community due to three factors. Firstly, people live under a global institutional order which on the one hand comprises institutions such as the World Trade Organization, and the International Monetary Fund, and on the other hand a growing civil society with numerous nongovernmental and grassroots organizations (Park 2007b). Secondly, humankind encounters more and more problems which require a concerted action on a global and transnational scale to be successfully tackled, for example, disease, environmental issues, and poverty. These phenomena impose themselves and put humankind even involuntarily in the situation of representing one group facing a common goal (or adversary). And finally, it is claimed that for the first time the financial and technical means to solve these problems exist, which means that in a very ordinary sense the material prerequisites exist to deliver concerted action as a community (Pogge 2002a).

What becomes salient in this history is that concepts of cosmopolitanism are built on implicit assumptions about processes and phenomena which are in psychology referred to under keywords such as processes of identity building and questions of positioning, Postcolonial Psychology, Critical Whiteness Studies, race and racism, and the notion of justice (Park 2009).

Key Issues

Postcolonial Psychology: Unequal social systems are inherently conservative and have built-in economic and psychological mechanisms to perpetuate themselves; and in the social field of the symbolic order there are inscribed which practices are considered normal or abnormal, and many of them exist on the borderline between the known and the unknown (Leonard 1984). In other words, the clandestine power of dominant representations in a society is to create an *invisible normality*. And the main concern

of postcolonial psychology, a relatively young subdiscipline in the field of theoretical psychology, is to uncover the discursive mechanisms which help to sustain and perpetuate this normality on a global scale.

Postcolonial psychology rests on the conviction, and here one can find strong overlaps with Global Justice Theory, that the foundation for the contemporary global institutional order was laid in a long history of colonialism and exploitation. During the Imperial Era (1875–1914), a quarter of the land surface area of the globe was divided or redivided among half a dozen states, so that after World War I roughly two-fifths of the world's population were living under colonial rule: more than 600 million people. Of these, roughly 440 million lived in Asia, 120 million in Africa, 60 million in Oceania, and 14 million in the Americas. The peak of the development of modern colonization was reached in the 1930s. Only parts of Arabia, Persia, Afghanistan, Mongolia, Tibet, China, Siam, Nepal, and Japan have never been under formal foreign rule (Hobsbawm 1994).

These economic developments were enabled by a hegemonic discourse in which a relationship of “master and servants” was established, accompanied by a discourse on race and racism. Race is considered to be a social construction and racism as a process of ideological production which finds its socioeconomic reification via institutions (Miles 2003). But despite the institutional nature of the global institutional order, it is people who design, support, and maintain this system, and individual constructions of the world and structural inequalities reinforce one another. Hence, a theoretical starting point for postcolonial psychological questions is that just as global phenomena such as global poverty and discourses of dominance intersect historically and geopolitically, so they also intersect within an individual's mind and in a collective. This is why questions of identity construction and positioning are thoroughly analyzed (Park 2008).

Postcolonial psychology provides the analytical tools to show how the construction of an individual's identity but also identities on a wider level are based on an interplay of similarities and differences (Hall 1996; Bhabha 1994); for example, the formerly colonizing nations have a long tradition which can be summarized under the expression “developing countries”: dealing

with colonized countries in a manner which constitutes them as a particular place; not in an imaginary form, but rather as a contrasting image, as an integral part of a material culture and identity (Chakrabarty 2000). This helps “the self” to define itself through differentiation from the poor “other” as a surrogate and a subliminal ego. Defined as the “other,” the developing countries can be ascribed all the negative characteristics such as primitive, backward, poor, traditional, etc., which are considered as having been transcended in the supposedly modern societies (Said 1978; Mohanty 1991). These analyses are based on a deconstructed idea of the idea of a nation state. Nations are not interpreted as homogeneous, natural entities, but as collective identities created in a historical process. It was only when specific cultural conditions, such as novels and newspapers, had allowed a fundamental change in the social perception of space and time that the idea of the unity of an imagined community came up (Anderson 1991). Also, the sense of cultural connectedness among members of a nation did not precede the formation of nation states; rather, the creation of cultural norms first formed part of the basis for the formation of a national identity, but also vice versa: Various and sometimes even conflicting cultural forms were co-opted by different groups in order to declare them to be representative of a homogeneous national culture. The overarching element that unites various political and social groupings that attempt on different levels to homogenize their particular reading of the national culture and to exploit it for their own interests is the construction and simultaneous exclusion of an “external other” (Bhabha 1994).

These analyses are necessary for a cosmopolitan project in order to analyze the mechanisms which sustain global inequalities, for example, how differently people of color and white populations are affected by poverty. The dividing line which separates people in high-income countries and people in low-income countries on a global scale also runs through so-called multiracial societies, such as the USA, South Africa, and Brazil (Shields 1995).

Critical Whiteness Studies: Therefore, Critical Whiteness theorists consider it of major importance to adhere to the concept of race. This is due to the fact that for a long time, white was considered to be a neutral skin color, as colorless, invisible, normal;

being white was considered to be the norm, “anything” else than white was considered to be part of the multicultural discourse. Hitherto, the white standpoint has been represented as neutral in mainstream Western psychological discourses on “race” and “culture,” in other words: without reference to one’s own race and without culture. From this ethnocentric perspective, only “the others” appear as bearers of culture; they are different, and this difference is usually constructed as a deficiency of black people and people of color (Tissberger 2005).

Critical Whiteness studies, which use whiteness not in a naturalistic or essentialistic way but as an analytical category, seek to unveil how white identities are constructed, how these discourses expounded on by postcolonial theorists intersect in an asymmetrical web of racial relations and what kind of consequences and material effects this has: how a white self is created. It raises questions on the historical production of becoming white and how certain groups and/or individuals are in- or excluded; how legal, social, and political issues of a white collective inscribe themselves in a white individual. It targets questions of material as well as immaterial privileges and how these are maintained and their existence disavowed or legitimized and justified. Critical Whiteness studies are not so much concerned about the question of how others are marked as “others” but how white people construct themselves by the construction of a non-white “other”: It investigates what a certain construction of the “other” says about oneself/a “white self” and how even a racist construction of the “other” can peacefully coexist with the self-image to believe that one considers black people and people of color to be of equal value; how it is that people with a white identity (often) do not mark themselves; how certain rights are defined and claimed that these are or ought to be universalized on a broader level in a global sphere but denied to certain groups of people at the same time. In a nutshell: it targets the “myths of denial” and identifies these myths to be not more innocuous than those of racist confessions (Arndt 2008).

Different theorists stress different aspects in their understanding of the concept of whiteness but they share a common ground. Whiteness is used not as a natural but as an analytical category to name a discourse which is not tangible and whose power

lies in creating an invisible normality: whiteness is based on a racialized order of the world and at the same time, whiteness is considered to be the initiating force for this very order. It is a discourse which is in itself normative, but disavows this very fact; it guarantees a subject status to people who are in a position to consider themselves as whites (Kiesel 2006). One reason why the discourse is so powerful and difficult to grasp is due to the flexibility of the category: as it is not a natural category but evolved with a political motivation, which means that it did not develop randomly but due to an intention; and although this intention cannot directly be attributed to a single person, it is a discourse which follows a clear direction. Hence, whiteness carries the notion of becoming; it has to be reconstructed, and can be gained but also be lost – and sometimes be bought (Wollrad 2005).

A further aspect of the definition of whiteness is that it is considered to be a flexible and relational dimension of racism, which changes and is transformed according to time and space. While Frankenberg (1993) claims that there is no essential and transhistorical feature of whiteness but a magnitude of “local whitenesses” which have to be analyzed in their specific contexts and when they come into being in relation to others, Dyer (1997) explicitly problematizes that whiteness is usually focused on in relation to non-whites. According to him, whiteness reproduces itself at any time in all texts. Wollrad (2005) takes an even more radical approach than Frankenberg; for her, whiteness is not only a flexible dimension of racism but must be considered as being more than one of a multitude of different racially constructed variables. According to her, it is rather the core of racial hegemony. It is the drive of processes of racialization and the principle to order social relations and distribute economic and cultural resources; an idea which can be better understood by taking a glance at a historiography of the evolution of whiteness.

The myth of racial superiority helps to adhere to the discourse of power evasion, which has two dimensions. Firstly, an evasion that whites are privileged and secondly, a denial of the existence of racism and the rejection of the belief that social politics are needed in order to eradicate the negative consequences of institutional forms of racism (Neville et al. 2000; Federico and Sidanius 2002). On average, whites judged relief

efforts for current human refugee and health crises in nonindustrialized countries less favorably than non-whites. A color-blind racial discourse goes hand in hand with greater levels of racial prejudice and a belief that one's society is just and fair (Reed and Aquino 2003; Pratto et al. 2006). For whites this denial not only fosters inaction, which in turn helps to preserve the privileges many whites gain from the current system, it also leads to the consequence that the belief in in-group values, for example, equality, is supported: for whites, whiteness and the belief in the superiority of the white race especially works as a kit in societies with big social inequalities against the ones who are constructed to be racially inferior (Rabinowitz et al. 2009). Whiteness is identified to function as a sociopolitical positioning, which puts whites as much as people of color in their specific positions in society (Frankenberg 1997; Tissberger 2006).

Whiteness is a discourse which comes with decisive power effects. It provides a wide range of material as well as immaterial advantages and gives privileges also to whites who are less affluent and not highly educated. To explain the aspect how whiteness has to be considered as relational, one can compare the effects of whiteness to some degree to the multiplicity of masculinities: although not all men fit into the category of hegemonic masculinity, they still enjoy material and immaterial privileges of the patriarchal system; comparably there is a hierarchical social stratification within the category white, with hegemonic, subordinated, marginal, and complicit whitenesses.

The Notion of Justice: Justice concerns are argued to be an important aspect of our human nature, without being universal; which means that not all individuals judge fairness as their most important moral virtue (Ketelaar and Koenig 2007). Characteristic for a cosmopolitan is that principles of justice are ranked as (one of) the highest virtues, and it is this ascribed notion which motivates the person to act. From a cosmopolitan perspective, the global institutional order is deemed to be asymmetrical, so that it foreseeably and avoidably produces socioeconomic injustices which dominate the lives of certain groups of people; for example, people living in absolute or relative poverty, so that they have only limited means of representing themselves in their local community or do not have any means of representing their interests

on the world stage, for example, with regard to the World Trade Organization, or they have fewer means of protecting themselves against natural catastrophes or of even meeting their basic needs. The concept of justice plays a preeminent role, regardless of whether it is about one's own situation which is deemed to be unjust, but equally importantly if it is about the lives of other people who become the victim of injustice. This is especially important if the unjust situation takes place in a setting which can be evaluated in a way, such that one may become (involuntarily) a perpetrator and a beneficiary of this injustice, for example, as one can find with regard to global economic differences between citizens of high- and low-GDP countries.

Principles of justice have prominent social and psychological functions. Justice has been called "the first virtue of social institutions" (Rawls 1971), "the first requisite of civilization" (Freud 1933), and "the uniting function in the individual man and in the social group" (Tillich 1954), and requires, according to Aristotle, the acknowledgment of equality. Conceptions of justice provide a sense of meaning and control by stipulating the guidelines by which the individual orders her or his world, conducts life and predicts as well as evaluates outcomes.

Not only as individuals but also as members of a social group the sense of what is just or not is used to assess what oneself and others deserve materially and psychologically. Just behavior is interpreted as a means of gaining approval and respect from oneself and others. Violations of conceptions of justice present a threat and bring into question the evaluative framework that provides a foundation for individual and social action (Deutsch and Steil 1988) (see also: ► [Deutsch, Morton](#)).

According to the theory of the belief in a just world (Rubin and Peplau 1975), one assumes that one lives in a world where everybody gets what he or she deserves and deserves what he or she gets. Experiences perceived as unjust can even strengthen this belief, since the results are reinterpreted such that the consequences appear just, by blaming victims for their misfortune, so that at the end it seems reasonable to argue that they do not deserve any better. Or more compactly, the evaluation of conduct is projected into the result without causal coherence. The belief in a just world helps to reject the idea that something similar could happen to

oneself and also gives a feeling of security and immunity. And a lot is done to avoid any disruption of this belief. It is the belief that the world is not a just place which drives toward action, in other words: the more extreme the belief in a just world, the stronger the tendency to accept extreme injustices not only for oneself but also for others (Lerner 1998; Lerner and Miller 1978).

If someone becomes the victim of injustice not only the person himself or herself is affected, but also the group or community whose norms of justice are being violated. The crucial characteristic of a cosmopolitan position is that their concern about people living in other countries becoming victimized does not differ from their concern toward their fellows. Members of a group who accept common norms also share common obligations to protect those norms and to respond to their violation, meaning that the occurrence of an injustice which is not acknowledged and responded to is apt to generate feelings of alienation (Hafer 2000). What becomes salient at this point is the notion of emotions in the discourse of justice. Because emotions are considered to be epistemic, moral, social, and last but not least physical positions. They stand in a systematic relation to social conditions and are not only indicators but must also be interpreted as direct means of domination. Domination is not only in the outside but it transgresses the border to the bodies and inscribes itself, for example, in the form of constant emotional dispositions. Because these emotions represent a holistic unity of psychological representations and social action, they entail emotions of cognitive assessments and evaluative judgments (see also: History of Emotions).

Unjust events are associated with emotions such as anger, outrage, and resentment (Hafer and Olson 1998). The belief that a group is unfairly advantaged is threatening. Significantly, this is not so much about the issue of inequality in general or that the other group has less than it should, but that one's own group has more than it should and must therefore be considered to be unfairly advantaged (Chow et al. 2008). People have a general tendency to construct themselves as victims rather than as perpetrators of injustices (Mikula et al. 1998). Characteristic for cosmopolitans is that they can acknowledge their role as perpetrators in the global sphere and do not even try to construct themselves as ethical beings in a transnational setting

but experience existential guilt (Park 2007a). Existential guilt is a likely emotion if (1) people believe that their privileged position in the world results from controllable distributions that are unjustifiable, (2) they assume a causal relationship between their own privileges and the unfavorable situation of others, (3) they consider the discrepancies between their own and others' situation the result of an injustice, and (4) they feel solidarity with, and responsibility for, the disadvantaged (Montada et al. 1986), whom they would have to consider to be equal to themselves. Here, the main function of action is the reaffirmation of this principle, because even if one cannot expect that one's activity could stop an ongoing injustice or prevent killing, but what one does have power over is to ensure that the principle is upheld as long as there are people who are willing to keep it alive (Oliner and Oliner 1988).

Future Directions

Although the tradition of cosmopolitan theories is in its fledgling stage, its flourishing is unavoidable. Due to the global nature of the most pressing problems humankind encounters in the twenty-first century, it is unavoidable that psychology too considers questions to help tackle these problems. Global asymmetries and the unjust global institutional order are for many laypersons a paradox. The majority of people feel guilty for actively and knowingly doing harm and the world is considered to be a neutral background before/against which one acts. The crucial point is that with regard to global injustices this phenomenon presents itself contrariwise. The global economic order is already tailored in a way that merely existing for people living in high-income countries already means that other people suffer harm and may not even be able to fulfill their basic needs. And this harm is done without "the perpetrators" intentionally wanting to do so or even necessarily knowingly doing so.

For decisive reforms of the global institutional order to the extent required to tackle, for example, severe poverty, the support of citizens in rich countries is essential. Therefore, it is necessary to develop an understanding of people who are involved as much as an understanding of people who are not concerned about severe poverty, in order to convince opponents and to make alliances. Cosmopolitan theories in psychology

contribute to the development of a theoretical framework which is sensitive to the ways in which ethical, racial, and ideological factors frame the individual psyche but also intergroup processes and how these contribute to sustaining the contemporary global economic order. It is argued that until more attention is given to the social-psychological processes which make the rich-poor divide so acceptable, one's understanding of this situation will remain in its present semi-developed state, and attempts to alter the situation will fail.

See Also

► [Deutsch, Morton](#)

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Cox, C. M.

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Basic Biographical Information

Born: May 20, 1890; Died: October 11, 1984

Born Catherine Cox in San Jose, CA, Miles obtained her B.A. from Stanford in 1911 and M.A. 2 years later in German language and literature. Thereafter, she was at the College of the Pacific and moved upward through the academic ranks there through 1920. During the First World War, Miles, a devout Quaker, contributed to the humanitarian efforts of the American Friends Service and was involved in distributing food in Germany after the war.



Major Accomplishments/Contributions

She returned to Stanford in 1920 to pursue a doctorate with Lewis S. Terman, who at that time was beginning his longitudinal studies of genius. These did not offer sufficient material at the time for her dissertation, so Cox chose a problem based on Terman's procedure for estimating intelligence from historical data. She conducted a meticulous historiographic study of the personal characteristics related to intelligence of over 300 eminent historical figures, including political and social leaders such as Washington and Luther, and scientific and artistic creators such as Goethe and Beethoven, and correlated these with their estimated intelligence. This study (Cox 1925) was published as the second volume of Terman's *Genetic Studies of Genius* in 1926. For a short time afterward, Cox worked as a clinical psychologist in the Mental Hygiene Clinic of the Cincinnati General Hospital, and then returned to Stanford, where she resumed her work with Terman which resulted in the development of a pioneering femininity–masculinity test, the Terman–Miles Attitude–Interest Analysis test, commonly known as the M–F Test. The culmination of her work with Terman was the book *Sex and Personality* (Terman and Miles 1936), which established the conceptual basis for much later work on sex differences in attitudes, object choices, and stereotypes. In 1927, she married the recently widowed Walter S. Miles (1885–1978) and, in conjunction with his growing interest in the nascent psychology of aging, collaborated with him over the next two decades on several studies of intellectual changes during the human lifespan. During the 1930s she also made forays into ► [social psychology](#), providing a succinct defense of the necessity of taking individual differences into account in social psychological theory and analysis (Miles 1937). After the Miles's move to Yale in 1932, she became, through 1953, professor of clinical psychology in the Department of Psychiatry and Mental Hygiene of the Yale School of Medicine and wrote on subjects in developmental psychopathology including sexual identity. She also contributed several overview articles in textbooks and handbooks, including chapters on individual differences in personality (Miles 1939) and gifted children (Miles 1946). While she is most often remembered for her early study on eminence and geniuses, her

work in her other areas of interest was an impetus to the development of both the psychology of sex roles and the psychology of aging, and her continuing influence is apparent today in recent historical and statistical studies on the psychological roots of eminence.

See Also

- [Miles, Walter R.](#)
- [Social Psychology](#)
- [Terman, Lewis M.](#)

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Craik, Fergus

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Basic Biographical Information

Fergus Craik was born on April 17, 1935, in Edinburgh Scotland. Craik went to school at the Locerbie Academy and his parents sent him to an excellent high school at the age of 12. By age 18, Craik was enrolled in a medical school at the University of Edinburgh but did not enjoy his classes (except for neurology) and so decided to study psychology instead. He received his Bachelor's degree in psychology from the University of Edinburgh and was accepted into graduate school at the University of Liverpool in 1960. He received his Ph.D. from the University of Liverpool in 1965, went on to a position at Birkbeck College in London, and, during this time, spent 1 year as a visiting professor at

the University of Toronto. The University of Toronto offered him a permanent position in 1971, which he accepted and held until he retired from the university. He is currently a University Professor Emeritus in the Department of Psychology at The University of Toronto and a senior research scientist with the Rotman Research Institute at Baycrest Centre for Geriatric Care in Toronto.

Major Accomplishments/Contributions

Before coming to Toronto, Craik was fascinated with basic memory processes as well as memory across the adult life span. He has examined those two primary research topics throughout his career. He spent his early years at Toronto laying the groundwork for what would turn out to be an extremely influential paper written with Robert Lockhart. In this paper Craik and Lockhart (1972) outlined a new approach to studying memory called levels of processing (LOP). The LOP approach suggested an alternative way of examining memory than the memory stages approaches popular at the time. Rather than examining different memory stages (i.e., sensory, short-term, and long-term memory), Craik and Lockhart felt that it was more advantageous to focus on the quality of an individual's processing of information. They argued that "shallow" processing of information (e.g., analysis of the physical features of a stimulus) would be more likely to lead to fleeting memories while "deeper" and, hence, more semantic approaches (thinking of the meaning of an item) would likely lead to longer lasting memories. This emphasis on quality rather than quantity of processing had a major impact on the study of memory that continues today. Craik went on to investigate the LOP model with Lockhart and other investigators (e.g., Craik and Tulving 1975) in a series of experiments. He returned to studying memory during the aging process as well. His contributions in the area of memory and aging have been enormously influential by providing a framework for investigating the conditions under which memory deficits will or will not occur in older adults as a function of the role of the demands of the processing task and environmental support.

Craik's contributions to the study of memory and memory and aging are impressive and consist of many major articles, books, and edited books. The number of

awards he has received is beyond the scope of this entry but a few noteworthy ones are the Distinguished Scientific Contribution Award from the Canadian Psychological Association (1987), the William James Fellow Award from the American Psychological Society (1993), the Hebb Award from the Canadian Society for Brain, Behavior and Cognitive Science (1998), and the Killam Prize for Science (2000). In May 2008, Craik was elected a Fellow of the Royal Society, the national science academy of the United Kingdom and Commonwealth.

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Critical Psychology

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Introduction

Critical psychology (better: critical psychologies) has emerged using multifaceted approaches in theory and practice outside of the mainstream of psychology in many countries around the globe. Although critical-psychological ideas can be found prior to the 1960s, the most important developments were made since that period on the background of the rise of social epistemologies and social movements. A core goal of critical psychologists was to transform psychology into an emancipatory, radical, social-justice seeking, or status-quo-resisting approach that understands psychological issues as taking place in specific political-economic or cultural-historical contexts. The term *critical psychology* was originally claimed for a German school of thought, but was soon self-applied by psychologists from the English-speaking world and from

other linguistic regions who gave the term their own meanings. Critical psychology has an even longer history if one considers critiques of mainstream psychology as belonging to critical psychology (Teo 2005).

Definition

Critical psychology can be divided into historical and current critiques of psychology (general meaning) and into theoretical and practical frameworks that are identified as such (specific meaning). In the latter sense, critical psychology is whatever self-identifying critical psychologists do or whatever is published in journals and books that use the title critical psychology. Beyond an empty “operational definition,” theories and practices that are based on social epistemologies and that have an emancipatory practical intent, in the widest meaning, should be subsumed under critical psychology. The term social epistemology refers to approaches that examine knowledge production and knowledge biases and limitations from the perspective of social categories (e.g., class, gender, ethnicity, sexual orientation, ability–disability) or in terms of power.

The first philosopher to systematically take social knowledge biases into account, from the perspective of class, was Karl Marx (1818–1883). Following his program, the critical theorist Horkheimer (1895–1973) proposed that critical theory should challenge the separation of individual and society, values and research, and knowledge and action. These three issues also form the historical core of critical psychological assumptions: The individual is embedded with in society, progressive sociopolitical values should guide psychological research, and what has been gained in critical theory should be put into practice. In all three areas, significant tensions exist, especially between approaches that focus on theory-development and others that focus on practice (e.g., armchair critical psychologists versus social activists), and in articulating these principles, which themselves have undergone significant changes in the last few decades.

Historical Background

The critique of psychological ideas has a long history. Aristotle (384–322 BCE) challenged Plato’s (427–347 BCE) conceptualization of the psyche. During the Middle Ages, there were extensive discussions on psychological topics such as the primacy of will or reason.

In modern times, René Descartes’ (1596–1650) thoughts on innate ideas were criticized by John Locke (1632–1704), who in turn was criticized by Gottfried Wilhelm Leibniz (1646–1716). Despite the importance of these critiques and controversies, they did not systematically challenge an entire field of research. Immanuel Kant (1724–1804) provided the first systematic critique of the dominant psychologies of his time. *Rational* and *empirical* psychology, a system division introduced by Christian Wolff (1679–1754), became the twofold target of Kant’s critique. Kant (1781/1998, 1786/1970) suggested that rational psychology was trapped in paralogisms, and that empirical psychology could not become a genuine natural science.

Other critics of psychology included the Neo-Kantian philosopher Friedrich A. Lange (1828–1875), who, in a book section originally intended as the *Critique of Psychology*, challenged the foundations of philosophical psychology from the perspective of the rising natural sciences. Lange (1866/1950) criticized philosophical psychology’s subject matter and methodology while outlining a program for an “objective” psychology nearly half a century before John B. Watson did (1878–1958). Auguste Comte (1798–1857) also developed a critique of the philosophical psychology of his time and suggested that psychology should be excluded from the positive sciences. Comte (1896) identified philosophical psychology as the last phase of theology and suggested that mental phenomena could be studied sufficiently within anatomy, physiology, and his own program of a positive philosophy.

The critique of psychology has also been advanced in the many *crisis* discussions regarding the discipline and its subfields. The first systematic book on the crisis of psychology was published by Willy (1899), who challenged the dominant research programs of his time. He identified speculative theory building and an inadequate methodology as sources of psychology’s crisis. The crisis literature was on the rise in the 1920–1930s and again since the 1960s and 1970s, some of it written by critical psychologists (e.g., Parker 1989). A critique of psychology’s lack of political relevance can already be found in the nineteenth century, when Beneke (1845) suggested that psychology should aid in solving political, social, and religious tumults while he critiqued psychology’s lack of understanding of social reality.

Wilhelm Dilthey (1833–1911) inaugurated a long tradition of the critique of natural-scientific psychology from the perspective of human-scientific approaches. Dilthey (1894/1957) argued that due to the specific subject matter of psychology, it would be wrong to emulate the natural sciences and that causal explanations as provided in those sciences could not be used satisfactorily in the domain of mental life. In his program for a *human-scientific hermeneutic* psychology, Dilthey understood the subject matter of psychology as experience in its totality, which could not be dealt with adequately by experimentation and measurement, and not by focusing on the elements or isolated parts of mental life. Eduard Spranger (1882–1963) developed a hermeneutically based psychology of personality and adolescence that contained a critique of natural-scientific approaches to the same issues. Edmund Husserl (1859–1938) critiqued the *naturalization* of the psyche, by which he meant the unwarranted emulation of the natural sciences in psychology.

In the English-speaking context, psychologists such as Gordon W. Allport (1897–1967), Abraham H. Maslow (1908–1970), and Carl Rogers (1902–1987) articulated the shortcomings of a natural-scientific oriented psychology. Beginning in the 1960s, Giorgi (1970) expressed the idea that psychology should not be part of the natural sciences, while at the same time he suggested that a human-scientific psychology could be scientific in character. He identified a lack of unity in psychology, the inability to investigate psychological phenomena in a meaningful way (doing justice to the human person), and a lack of lifeworld-relevance as sources for the inadequacy of the natural-scientific viewpoint in psychology. More recently, Slife et al. (2005) have applied, embedded in hermeneutic perspectives, critical thinking to psychology.

Although the natural-scientific critique of philosophical psychology and the human-scientific critique of natural-scientific psychology provided important arguments that have been taken up by some critical psychologists, these critiques cannot be seen as critical psychology in a specific meaning. Kant's (1781/1998) *Critique of Pure Reason* is not the historical starting point for critical psychology; rather it is Marx's (1845/1958) *Critique of the Latest German Philosophy* (subtitle of the book *The German Ideology*) and

Critique of Political Economy (Marx and Engel 1845/1958; Marx 1859/1961) (also the subtitle of *Das Kapital*) that drew up the program for a critique of the status quo as well as a framework for critical social inquiries and practices. Marx advanced the idea that humans may have false understandings of social reality because they belong or align themselves with a social category that benefits from misrepresentations.

For Marx, central was the notion that the dominant, most influential ideas in society are also the ideas of the ruling class. Critical approaches in the tradition of this stream of thought (e.g., feminist standpoint studies) analyze the role of social interest in knowledge production and dissemination and reflect on the knowledge producer's social existence and the potential ideological and practical biases that it might produce. Admittedly, the historical genesis of critical psychology is not undisputed and other researchers have claimed different sources. Billig (2008) analyzed the third Earl of Shaftesbury (1671–1713) as a hidden root of critical psychology because he suggested that humans establish understanding through conversation, that truth is a social and dialogical matter, and that the self is divided, and because of the demand for continuous self-reflection. These topics are central to critical psychologies following the linguistic turn in intellectual history.

Marx's ideas also inspired *critical theory*, a research program developed by German philosophers and social scientists in the 1920s at the Institute for Social Research in Frankfurt am Main (*Frankfurt School*). Some of the important first-generation figures include Max Horkheimer (1895–1973), Erich Fromm (1900–1980), Theodor Wiesengrund Adorno (1903–1969), and Herbert Marcuse (1898–1979), whereas Jürgen Habermas (born 1929) belongs to the second generation of critical theorists. In his groundbreaking article, *Traditional and critical theory* Horkheimer (1937/1992) argued that traditional theory (positivist theory that applied logic, mathematics, and deduction for the assessment of its ideas) hides the social function of science, the social formation of facts, and the historical character of research objects. In contrast, Horkheimer recommended the reasonable organization of society that would meet the needs of the whole society. Such a critical practice would include the struggle for the abolition of social injustice.

Critical theorists were also drawing extensively on Sigmund Freud's (1856–1939) work and combined psychoanalysis with Marxist theory. Freud's ideas contain implicit and explicit criticisms of mainstream psychology, while they also provided the most influential alternative approach regarding human subjectivity. However, critical psychoanalysts often self-identify as analysts rather than as critical psychologists. The materialization of the critical potential of psychoanalysis, which historically has also been used for oppressive purposes, depends, in part, on national contingencies. In Latin America, for example, psychoanalysis was well received in a counterculture that understood it as a liberating force against the oppressive structures in military-dominated states. More recently, in Britain, Lacanian-influenced critical approaches have achieved more recognition (see the special issue on *Lacan and Critical psychology* in the 2009 *Annual Review of Critical Psychology*).

Many psychologists, especially in the German-speaking context, still associate the term *Critical Psychology* with the approach taken by Klaus Holzkamp (1927–1995). This is misleading for Germany because there was a second group of *critical psychologists* (lowercase) that opposed *Critical Psychology* (uppercase; the group around Holzkamp). The former emerged mainly from the student movement, challenging the psychological mainstream or even wishing to abolish psychology. They agreed that mainstream psychology did not address the burning issues of the time (Rexilius 1988), whereas others focused on a critical history of psychology (Jaeger and Staeuble 1978).

The group surrounding Holzkamp evolved in the context of radical political and social movements. The concept of a group must be emphasized because the usual focus on Holzkamp as the mastermind of Critical Psychology and as its most important writer is misleading. Holzkamp was the editor of the journal *Forum Kritische Psychologie* [*Forum Critical Psychology*] and was the established professor at the Psychological Institute of the Free University of Berlin, as well as its most visible political and academic target, but the focus on Holzkamp neglects the major role of an interdisciplinary working group that built *Critical Psychology* collaboratively.

In the critical-theoretical phase (1968–1972), Holzkamp (1972) attempted to formulate solutions to

problems of psychology by finding compromises between critical-theoretical reflection and traditional psychology, a middle ground that was intended to lead to an emancipatory psychology. During this period, to be critical meant for Holzkamp to question the relevance of psychology for practice, to identify problems of traditional psychological methodology, and to disclose psychology's hidden, ideological assumptions. In the critical-conceptual period (1973–1983), Holzkamp held that psychology's problems could not be solved within the framework of traditional psychology, or in compromise between critical and mainstream thinking, but rather that psychology required a radically different outlook. Thus, he and his colleagues attempted to develop a better conceptualization of psychological objects.

Holzkamp (1973) laid out the basic methodology for conceptual studies in German *Critical Psychology*, according to which a real understanding of, for instance, perception would only be possible through the inclusion of the natural history, the prehistory, and the history of humanity. To accomplish these goals, critical psychology needed to include interdisciplinary material. The work during this phase was integrated within what Holzkamp (1983) considered a foundation for psychology, which he deemed a new paradigm, able to compete on a level playing field with mainstream psychology. Based on this framework, Holzkamp worked in his later years on establishing psychology as a science of the subject (Tolman 1994).

In the English-speaking world, or specifically in North America, Marx and associated categories such as class did not have the same impact in psychology (this might be a case of denial or repression as Harris 1997, shows). Categories such as gender, race, power, or community played a more important role in the development of critical approaches in psychology. Feminist psychologists were critical of either the content of a mainstream psychology that was perceived as biased or its methods (Gilligan 1977). Yet, most feminist psychologists, who understand gender as a significant social category in order to understand the knowledge and practices of the mainstream, identify first with feminism rather than with critical psychology. However, there exist leading critical psychologists that combine class and gender in their analyses (Walkerline et al. 2001).

The obvious biases of race research in psychology and the social sciences lent themselves to an easy critique (see Kamin 1974). In the context of postcolonial writings, this critique was extended to psychology in general, in asking questions about the global character of mainstream, especially American, psychology (Owusu-Bempah and Howitt 2000). Based on the assumption that social sciences are inherently cultural, the theories, concepts, and even the methods of psychology were assumed to reflect a *Western* bias. Consequently, so the argument goes, psychology cannot be globalized and exported from Europe or North America to the rest of the world in a meaningful way but is rather dependent on recognition, dialogue, or mutual exchange (see Brock 2006). Many writings in this area are critical of dominant theories without belonging to critical psychology in a specific sense (e.g., Winston 2004).

Postmodern or social-constructionist approaches pose a special problem in a historical and theoretical reconstruction. Many of these programs are critical of the mainstream (Gergen 1985), but have not grown out of social categories such as class, gender, or race but are based on the notion that modernity itself produces biases in theory and practice. Such an assessment would include a critique of grand modern programs such as Marxism or German *Critical Psychology*. Social constructionist approaches have been very influential in many strands of critical psychology in the last few decades (Kvale 1992). In particular, Foucault-inspired studies have had significant impact in critical psychology, and critical discourse analyses have been very productive (Parker 2002). Thus, following Foucault, Hook (2004) grounds his vision of critical psychology in an orientation that interrogates power in general. Indeed, critical plurality is endorsed, and instead of advocating for one social category, recent interdisciplinary developments in critical psychology focus on power and on new social categories (e.g., immigrants) (see Papadopoulos et al. 2008).

Certain subdisciplines in psychology – due to their particular subject matter – offer themselves for practical interventions. In North America, influential critical-psychological projects have been grounded in community psychology (Prilleltensky and Nelson 2002). For Prilleltensky (1994), the integration of theory and practice should be based on the ethical

point of view of social justice. Fox (2008) expressed concerns regarding the status-quo-stabilizing effect of existing research, while calling for action in critical psychology (Fox 2003), which could draw on radical programs such as anarchism. Fox et al. (2009) as well as Sloan (2000) provide good overviews of the diversity of ideas and practices of critical psychology. Sloan (1996) also shows how critical theory (Habermas) can be applied to psychological problems, and how critical activity can be materialized, outside of professional associations, in organizations such as *Psychologists for Social Responsibility*.

Finally, a few other critical programs should be mentioned. Critical historians of psychology may be critical of the mainstream without being critical psychologists in a narrow sense. These historians perform critical research, in pointing to some of the blind spots of traditional historiography as well as of mainstream psychology, while at the same time they do not need to compete with traditional psychology for “better” theories, methods, and practices. Thus, their primary identity is that of historians of psychology (Danziger 1990; Richards 1996; Scarborough and Furumoto 1987). Critical movements such as anti-psychiatry have had an influential history in the human sciences with well-known psychiatrists, such as Franco Basaglia (1924–1980), Thomas Szasz (born 1920), or Ronald D. Laing (1927–1989), spearheading ideas and practices, but they are less visible in the discipline of psychology. The same applies to critical disability studies, critical race theory, and queer studies.

Key Issues

Subject matter of psychology: One line of critique suggests that the most important models and metaphors representing human subjectivity or the human mind, with implications for an understanding of human nature, the relationship between mind and body, methodology and practice, are *technological* ones, and that the history of mainstream psychology parallels the development of technology (see Tolman and Maiers 1991). Machine models are embedded within a network of ontological assumptions, such as that a person reacts toward an external stimulus like a mechanism. The machine model excludes notions of agency, or the ability to reflect, choose, and act. Psychology’s mainstream operates with a *mechanistic*

and hence an *atomistic* and *reductionistic* model of human mental life (see also Teo 2009).

The *mechanistic* model is even maintained in biological traditions. Despite a commitment to an evolutionary perspective, the machine model is dominant in behaviorism because it is assumed that the individual responds to stimuli. Dividing psychological life into stimulus and response (behaviorism) or into independent and dependent variables (mainstream psychology in general) is problematic because it neglects subjectivity and action embedded in concrete cultural-historical contexts. More recent models in psychology that are based on evolutionary metaphors often neglect an understanding of how human mental life differs from various forms of animal mental life, particularly in terms of an understanding of the societal nature of human subjectivity.

The selection of variables and the focus on isolated aspects of human mental life (*atomism*) does not do justice to the integrated character of human mental life in concrete individuals. Instead of looking at the complexity of human life, which is the source of human subjectivity, the mainstream in psychology assumes that it is sufficient to study parts. It is *reductionistic* to assume that the parts sufficiently explain the complexity of human subjectivity, another consequence of the machine model. In reality, human subjectivity is experienced in its totality. Critics have argued, following Dilthey, that a psychology that does justice to human mental life should begin with the nexus of human experiences in order to understand the parts and not vice versa (see also Martin et al. 2003).

The machine model of human mental life has another consequence: Because it conceptualizes the person as individualistic and society as an external variable, the individual and society are seen as separate, yet reflecting bourgeois ideology and practices (see also Parker and Spears 1996). Accordingly, it is insufficient to conceptualize the sociohistorical reality as a stimulus environment to which one reacts; the individual is not independent of the environment and vice versa. In contrast, critical psychologists would agree that the individual is embedded in society, an insight that has several consequences: it allows for a critique of mainstream psychology; it implies that psychology must draw on other disciplines for an understanding of the subject matter of psychology; and yet, the concrete

conceptualization of what this idea means exactly is part of ongoing research in critical psychology.

Marx promoted an understanding of the nature of human beings and of human mental life as active and societal. *Cultural-historical approaches* in the tradition of dialectical materialism have argued that the environment, culture, and history are not just other variables. Contexts are interwoven with the very fabric of subjectivity. Vygotsky (1978) and his followers have challenged psychology's intrapsychological nature when it comes to understanding the individual mind, individual language, and individual activities, and have derived new theories and practices. Holzkamp (1983) conceptualized the person as part of a larger sociohistorical and economic web, which did not imply that the subject should not be taken into account in critical psychology. Indeed, Holzkamp envisioned a psychology from, literally, the *standpoint of the subject* (a first-person psychology) (see Tolman 2009). More recently, the problem of subjectivity has been advanced in English-speaking critical psychology (Walkerline 2002), and the critical-psychological journal *Subjectivity* focuses on this very topic.

Within a phenomenological tradition, it was argued that a focus on the mental life implies a neglect of the *body* (Stam 1998). This idea had a large impact on the feminist literature that had already recognized the nexus of person and society, and emphasized the concept of subjectivity in context. In addition, feminist psychologists have emphasized embodied theories of subjectivity, theories that do not exclude the body from the subject matter of psychology (Bayer and Malone 1998). Some of these theories draw also on arguments developed by social constructionists who understand the individual as nested in society and community (Gergen 1985). Gergen (2009) rejects the individualism of psychology and locates mental life as embedded in relations. Such ideas have led to an interest in the dialogical nature of personhood by hermeneutically oriented psychologists (Richardson et al. 1998) but also by critical psychologists who pay attention to key figures such as Mikhail Bakhtin (1895–1975) (see Billig 2008).

The postcolonial critique argues that the mainstream's psychological subject matter is part of a wider historical and cultural context and that the theories that try to capture this subject matter are

part of Western theorizing. Thus, the subject matter of psychology must be understood as part of Western ideology (Teo and Febraro 2003). Thus, psychologists and social scientists outside of the presumed center of psychology face the task of finding psychological theories, concepts, and practices that work in their lifeworlds rather than importing or exporting American ideas. For instance, Freire (1997), who emphasized that learners should be treated as subjects and not as objects, and Martín-Baró (1994), who applied Freirean ideas to psychology, have developed categories to deal specifically with psychological issues in Latin America.

In order to capture the subject matter of psychology, psychologists use concepts, and it is through those concepts or categories that they perceive sociopsychological reality. The nature of concepts has been studied, most notably by the critical historian Danziger (1997), who emphasized the social construction of psychological ideas and practices. Mainstream psychologists often pretend that concepts are natural kinds because they have empirical support. Yet, historical studies have shown that psychological concepts (human kinds) have a different status from natural-scientific concepts (natural kinds) and are constructed in specific cultural contexts for specific purposes. Moreover, constructed concepts can become a social reality and part of human identity (for instance, "race" or IQ). At the same time, culturally embedded concepts used in psychological theories can be understood as sources of power and oppression when they express a certain worldview and are *ideological* (see Foucault 1966/1970; Rose 1996).

Methodological issues: Mainstream psychology is committed to a natural-scientific, experimental-statistical, or empirical-statistical methodology. The mainstream operationalizes, in empirical research, concepts as variables (independent, dependent, moderating, mediating), so that traditional psychology can be characterized as a *psychology of variables* (Holzkamp 1991). This methodology provides an understanding of the functional or correlational relationship between variables but not the *why* of psychological phenomena, which is more relevant if one intends to derive social activism. For instance, of interest in traditional psychology is not the *why* of unemployment (which would include cultural-historical and political-economic analyses), but rather the relationship between the variable of unemployment and other

variables such as well-being, depression, self-esteem, personality, and so on.

Critical psychologists argue that problems of subject matter and methodology as well as practice are intertwined. In contrast, the mainstream promotes the idea that a natural-scientific methodology can and must be applied unquestionably to all research areas. The focus on methodology rather than on the subject matter has led to an epistemological attitude that can be called *methodologism* (Teo 2005). Others have used the terms *methodolatry* (Bakan 1967), the *cult of empiricism* (Toulmin and Leary 1985), and the *methodological imperative* (Danziger 1985). Holzkamp (1991) even argued that adequacy of the methodology with regard to the subject matter should be a central scientific criterion: As long as the adequacy of a methodology is not known, the scientific value and all other objectification criteria are worthless.

Based on the assumption that the psychological subject matter (i.e., active human mental life embedded in cultural-historical contexts) demands appropriate methodologies, critical psychologists, although not *a priori* opposed to quantitative methods (see Martín-Baró 1994, who demonstrated that quantitative methods can be critical of the status quo), favor a variety of *qualitative* methods that tend to focus on the content of human subjectivity as well as on the possibility of social action. Critical psychologists favor studies that have practical relevance, or *emancipatory* relevance, which means that research should contribute to overturning oppressive social situations. Critical researchers emphasize the transformative potential of research that not only addresses the status quo but also provides knowledge on how to change it.

Feminist researchers have identified the ideology of mainstream scientific methodology as *male biased*. In her classic studies, Keller (1985), using psychoanalytic concepts, explored the association between objectivity and masculinity and defended the thesis that scientific research is based on masculine discourses, ideals, metaphors, and practices. Instead, she advocated for research that emphasizes a connection with the participant and that does not exclude the participant's authentic experiences. In cultural-historical approaches, it has been argued that all involved parties should co-construct all parts of a study, which allows for a grounding of theories in praxis (see Roth and Lee 2007). According to German

critical psychology, research should be able to capture the *standpoint of the subject*. This means, for instance, that in psychotherapy research, it is less relevant how psychotherapy shapes a person than how a person contributes to his or her own change (Dreier 2007).

Social-constructionist or postmodern thinkers (a problematic label) such as Michel Foucault have inaugurated various methods of *discourse analysis*. Critical discourse analysis, a method that focuses on the analysis of written or spoken language, understands language as a social practice that is infused with biases because language is embedded in ideological, oppressive, or exploitative practices. Discourse analysis allows, for example, historical reconstructions of how multiple personality was made into an object of academic discussion (Hacking 1995) as well as an analysis of discourses's dependence on context (Dijk 2008). Foucault (1977) also provided suggestions for an analysis of nondiscursive practices: An analysis of architecture allows for insight into the workings of power in the context of human subjectivity and interpersonal relations.

In Martín-Baró's (1994) approach, methodology is intertwined with critical praxis. He suggested that psychology must base its knowledge production on the liberation needs of the oppressed people of Latin America. This means that knowledge must be generated by learning from the oppressed: Research should look at psychosocial processes from the perspective of the dominated; educational psychology should learn from the perspective of the illiterate; industrial psychology should begin with the perspective of the unemployed; clinical psychology should start with the perspective of the marginalized; mental health psychology should take as its point of departure the perspective of someone who lives in a town dump. Martín-Baró suggested an epistemological change from the powerful to the oppressed and recommends *participatory action research* (see below). It could be argued that feminist, sociohistorical, postmodern, and postcolonial ideas can be integrated into a meaningful *methodology of the oppressed* (Sandoval 2000).

Some critical researchers focus on meta-psychological issues that generate critical awareness without having a direct societal-practical impact. Historical studies and self-reflexive studies look at the discipline of psychology and at its participants. Not

only is human subjectivity embedded in society; psychology as a discipline and psychologists are also located in the same contexts. Science is then understood as a social enterprise embedded in power, money, and prestige. As Ward (2002) has shown, the reason for adopting a natural-scientific identity has more to do with the advantages of being accepted, and of being able to profit within academia and the larger public, than with internal progress. Historical and social studies of psychology allow critical questions about the purpose of research, about the personal, social, and political-economic interests involved in developing psychological studies, and about the groups and individuals that benefit from research results. In contrast, critical researchers have asked for more self-reflexivity in psychology (Morawski 2005).

It should be pointed out that so-called objective methods can and have been used for oppressive purposes. The hermeneutic deficit in psychology, despite a sophisticated methodological apparatus, appears in the context of the interpretation of group differences (e.g., gender or "race" differences). *Epistemological violence* is committed when the interpretation of data (not data themselves) lead to statements that construct marginalized groups as inferior, restrict the opportunities of marginalized groups, and lead to aversive recommendations for marginalized groups. For instance, if a researcher suggests that group differences are due to the lower ability of the *Other*, then this researcher has committed epistemological violence – because the data do not determine this interpretation, because alternative interpretations are available, and because this interpretation has negative consequences for the *Other* (see Teo 2008).

Ethical-practical issues: The mainstream's emphasis on control and adaptation neglects psychology's *emancipatory* potential. Psychology has been an extremely successful discipline in Europe and North America in terms of academic and professional expansion. However, such success does not necessarily imply the ethical-political quality of its practice. Psychological practice has often involved abuses perpetrated by the powerful, from intelligence testing as a means to control immigration into the United States (Gould 1996), to the application of psychological techniques to extract information from prisoners.

Many mainstream psychologists in the past and present have emphasized that *fact* (what is) and *value* (what

ought to be) are two different domains that should be kept apart. The problem is that, in any social science, these two domains are inherently intertwined. Critical psychologists (see Fox et al. 2009) challenge the idea that one cannot derive *ought* from *is*, and that science should remain neutral on political issues and concerns. Instead, most ethical-political critical psychologists emphasize the issues of social injustice and inequality (when it comes to class, ethnicity, gender, sexual orientation, disability, globalization, etc.) and make them a practical research concern. Obviously, values come into play when doing psychology and a lack of reflection on the values that guide one's research maintains the status quo (see Prilleltensky 1994).

The issue of praxis relates to Marx's famous notion of the primacy of praxis over theory: Intellectual reflection should not be about interpreting the world so much as changing it. For Marx, the final goal of all praxis was to change society's fundamental economic foundations, which he perceived as the source of inequality. Critical social research should be guided by progressive ethical-political ideas and should generate knowledge that has relevance. Critical psychologists have analyzed psychology's role in maintaining capitalism, patriarchy, colonialism, and Western ideology (Hook 2004). In not challenging the mainstream, psychology reinforces the status quo, which also means performing psychology in the interest of the powerful. The embeddedness of psychology in the market economy has made it difficult to promote psychology as a critical science. Even social psychology, which has a history of contributing to emancipation, has largely been transformed into a field that produces large amounts of socially irrelevant data.

It should be mentioned that cultural-historical, Neo-Marxist, and other critical approaches in the West have acknowledged the primacy of praxis but have often remained in the comparably safe environment of academia. Thus, instead of becoming politically active outside the political mainstream, many critical theorists have suggested that research, if not emancipatory itself, should at least have an emancipatory intention (Habermas 1972). In fact, in critical thought, one can find ethical-political orientations that range from left-liberal, progressive to radical. Many ivory tower critical psychologists also justify theoretical research as a legitimate option, because the production of

knowledge is considered a form of praxis (as is teaching) that is not inferior to concrete community-based interventions in the abolition of social injustice.

The most obvious consequences of praxis can be seen in economically less developed contexts where theorizing for the sake of theorizing and research for the sake of research must be considered indulgent practices. Martín-Baró (1942–1989) gave his own life in the political struggle for progress. He pointed out that an ethical-political stance, practice, and objectivity do not conflict with each other. For example, when it comes to torture, it would be possible to be ethical-practical (thus, rejecting and working against torture) while at the same time maintaining objectivity (understanding the objective consequences of torture on human mental life). Martín-Baró (1994) argued that it would be insufficient to put oneself in the shoes of oppressed people. Instead, he pleaded for a new praxis, which he defined as an activity that transforms social reality and lets humans know not only about *what is* but also about *what is not*, and by which means they may try to orient themselves toward *what ought to be*.

In consequence, for Martín-Baró, the psychologist is less a traditional clinician and more a resource for the community regarding intervention and support in the fields of disability, mental health, and drug use but also in terms of economic development and antipoverty programs. Martín-Baró worked with victims of state oppression, assumed active social roles, and worked with marginalized groups. It allowed him to understand suffering as a shared issue rather than an individualized problem. His *preferential option for the poor* was influential in shaping his political-ethical ideas. His concrete praxis-method is labeled *participatory action research*, originally introduced to psychology by Lewin (1946), who believed in the transformative power of research in social psychology. Concrete critical psychological praxis has also been addressed in the context of AIDS in Africa (Hook 2004).

International Perspectives

The *Annual Review of Critical Psychology* of 2006 provides an overview of critical psychology in several countries in Europe, North and South America, Asia, Oceania, and Africa. Critical psychologies have developed many branches, and thus, only a selective and limited account can be provided here. In Germany,

the (West) Berlin group that formed around Klaus Holzkamp founded its own school while other critical psychologists organized around the journal *Psychologie und Gesellschaftskritik* (*Psychology and Critique of Society*). Both groups have struggled in recent years to keep their theories and practices alive at universities and especially in psychology departments. In Austria, a *Society for Critical Psychology* has achieved official professional status recognized by mainstream associations and offers continuing education credits.

English-speaking accounts of critical psychology are internationally the most visible ones, as they are in many areas of the social and natural sciences. Yet, English-speaking approaches to critical psychology show large variations, depending on intellectual and practical traditions as well as on the national context. The United Kingdom has emerged as a center of critical psychology in providing training, education, and research programs of critical psychology (Manchester Metropolitan University, Cardiff University, the University of the West of England in Bristol, the University of East London, Loughborough University, and other institutions). In Britain, a critical social psychology has also been maintained (e.g., Gough and McFadden 2001). Some of the programs, journals, book series, research centers, and so on have sometimes short turnovers, and may lack continuity. For instance, the *International Journal of Critical Psychology* was relaunched as the journal *Subjectivity*. In addition, research stemming from the English-speaking context also demonstrates that successful critical studies on subjectivity need to be achieved in an interdisciplinary context, and might even require abandoning the traditional discipline of psychology.

In English-speaking North America, there exist no formal programs that offer an education or graduate training in critical psychology in its specific meaning, but there are departments where critical topics can be studied from theoretical, historical, social-constructionist, hermeneutic, or community-psychology perspectives. In Canada, the social and theoretical psychology program at the University of Calgary, the history and theory of psychology program at York University, and the community psychology program at Wilfrid Laurier University should be mentioned. In the United States, critical ideas can be studied at smaller institutions such as the University of West Georgia or Duquesne University. Interdisciplinary programs have been realized at the

Graduate Center of the City University of New York (e.g., Fine 2006) and at the University of Miami.

Oceania has significant enclaves of critically oriented psychologists at several universities, particularly in Australia and New Zealand, with degree opportunities and research centers (e.g., University of Adelaide, University of Auckland). South Africa has become more visible on the international scene of critical psychology since the publication of an extensive textbook (Hook 2004) that provides ideas on transforming psychology, combining Western and indigenous psychologies, introducing conceptual developments within an African perspective, and outlining an African-based critical psychology. Perspectives outside of the so-called center also emphasize the need to combine critical psychology with practical health matters – an international trend that has led to various critical health psychology approaches around the world.

Spanish-speaking initiatives promoting critical psychology in Latin America draw on the potential of Martín-Baró's liberation psychology. But they also include a critique of critical psychology, which has been perceived as a project from the North (Montero and Christlieb 2003). Spain also provides several approaches to critical social psychology. France, usually less known for critical psychology and more for critical approaches in philosophy or for psychoanalytic innovations, has an important history of the critique of psychology, beginning with Politzer (1928/1994) and also advanced by Sève (1978). In East Asia as well as in India, critical psychology programs are not located in psychology departments, but critical approaches focusing on subjectivity are found in cultural studies programs with opportunities for publishing journals and books and for presenting at conferences.

Future Directions

Habermas (1968/1972) articulated the relationship between knowledge and interest and identified critical social sciences as one basic category of science, besides the natural and the human sciences. After decades of critical inquiry, the question remains as to whether a critical interest is indeed necessary for human development. Posing the question also raises issues of legitimacy, because critical psychologies developed out of particular cultural-historical climates themselves. The partial institutionalization of critical psychology (e.g., academics

working at universities) raises issues regarding the value of theoretical and practical renewal that does justice to changing social realities on national and international levels. Problems of legitimacy are also raised on an ethical-practical level when, in the saturated countries of the globe, resistance is often envisioned on a subjective level as reactionary rather than as progressive or radical.

Ironically, the development of critical psychology is also contingent on the development of psychology as a discipline. Yet, the discipline of psychology is fragmented, and what is perceived as the academic core has moved to brain physiology and neuroscience. Although a critique appears necessary for such developments, many critical psychologists do not consider these developments relevant to their own research vision. Thus, they leave psychology for other social or cultural sciences; nevertheless, new approaches outside of critical psychology need to be advanced, such as *critical neuroscience*, for a better understanding of the opportunities and limitations of the latest developments. However, these critical developments, where they exist, have emerged often without a connection to the field of critical psychology (Choudhury et al. 2009).

Critical psychologists' move away from psychology may make them even more marginal within the mainstream. Still, this development allows for interdisciplinary and international exchange on matters such as subjectivity and for new theoretical and practical alliances and connections to occur. Certainly, such a trend will lead to more heterogeneity of sources and more theoretical and practical confusion about the core features and traditions of critical psychology. Instead of one critical psychology there will be many, indeed as there already are, because human subjectivity, and the intellectual and practical possibilities and limitations of the subject, are inherently dynamic, global, contextual, and historical, and any critical psychology needs to attempt to do justice to that reality.

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was 4 years old. According to his sister, Lee was overheard then calculating the unit price of potatoes. He came to the conclusion that the market his mother shopped charged more than the market he was in with a babysitter. This feat was then reported to Blanche Cummings, a school psychologist and disciple of Lewis Terman. After Terman gave Lee an IQ test and found his score was 200, he enrolled Lee into his gifted program. With the push from his mother, he graduated from Fresno High School at the age of 14 and Fresno State College at 18 (Shavelson and Gleser 2002).

In 1938, he earned a master's degree at the University of California-Berkeley while teaching mathematics and chemistry at Fresno High School. Then he went on to obtain a doctor's degree in educational psychology from the University of Chicago. He became an associate professor of psychology at State College of Washington, and then moved to teach at the University of Chicago and University of Illinois. In 1964, he went to Stanford's School of Education and continued his career until he retired in 1980. After his retirement, he continued to focus on the debates on educational and psychological testing. He completed a book on a new theory of aptitude (Corno et al. 2001) and went on to work on a paper discussing the uses, misuses, and misunderstanding of the Cronbach alpha.

Major Contributions

His research can be divided into three major areas: measurement theory, program evaluation, and instruction, among which his contribution to measurement issues were undoubtedly of greatest help to all educational psychologists. The most impressive and popular of Cronbach's research is the Coefficient Alpha, currently known as Cronbach's alpha. His experience of teaching his first courses in evaluation and measurement and writing the first edition of *Essentials of Psychological Testing* (1949) contributed to the birth of this coefficient alpha. Most researchers in the field, whether they are educators, psychologists, and other social scientists, have had the experience of using it to provide a measurement of reliability from a single test. Although the Coefficient Alpha first appeared in 1951 (Cronbach 1951), however, it is still widely used today because it is easily calculated and could be applied to dichotomously-scored multiple-choice items or polytomous attitude scales.

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Early Life, Education, and Professional Development

Lee Joseph Cronbach was born in 1916 in Fresno, California. His talent in testing was revealed when he

His next greatest contribution is the Generalizability Theory. As Cronbach continued on his study during 1950s and 1960s, he was dissatisfied with reliability theory, realizing that different methods of calculating a reliability coefficient define the “true score” and measurement error differently. That dissatisfaction led to his work on a handbook on measurement, which recapitulated the reliability in the form of Generalizability Theory. The Generalizability is concerned with the relationship between the “true score” and measurement errors such as the unwanted main effect, interaction, or random error variances. He applied Fisher ANOVA to raw scores to estimate variance components and so compute reliability coefficients. The introduction of the Generalizability Theory first appeared in *The British Journal of Statistical Psychology* (Cronbach et al. 1963). The Generalizability theory combined the psychology with the mathematics to produce a comprehensive framework which identified sources of measurement error. It examines the influence of different aspects of a test on the test performance, which makes it possible for educators to address more realistic educational problems.

Cronbach’s contribution on validity theory is almost as significant as his work on reliability. He put construct validation in the center of psychological, educational, and social testing. Validation was a process that never ends. What was validity was not the test, but rather a proposed interpretation because a test may be used for many different purposes. The paper “Construct Validity in Psychological Tests” by Cronbach and Meehl (1955) laid the foundation for 50 years of work on validity.

Cronbach’s research also included his work on evaluation and instruction. In the 1970s, he directed the Stanford Evaluation Consortium, a research, service, and training organization. He recognized the merits and limitations of randomized field trials, the importance of local contexts on performance, the social and political aspect of program evaluation. The evaluation research resulted in two influential books *Toward Reform of Program Evaluation* and *Designing Educational Evaluations*. The latter was chosen as one of the top one hundred education-related Books of the Century by the Museum of Education, University of South Carolina in 2000.

Cronbach’s instructional research began with the work on personnel placement. He found that the

different characteristics of the individuals may make them suitable to one type of job instead of another type of job. The optimal decision to match a person to a suitable job was to find the job for an individual who could perform well. His instructional research focused on matching learning environments with students’ ability. He concluded that individual differences may be highly predictive of performance in one type of instruction and less in another. Thus the potential benefits for the students may be maximized by matching the type of instruction to students’ abilities, motivations, and interests.

Cronbach had a great impact on his field in educational psychology. His legacy includes, to name just a few, Cronbach’s alpha, the Generalizability theory, his validity study, his formative approach in program evaluation, and so on, each of which made him the indispensable person in Education psychology. Besides, his authoritative textbooks on educational psychology and psychological testing, his empirical experiments had profound influence on the development of the field. As Kupermintz (2003) summarized in Zimmerman’s *Educational Psychology: A Century of Contribution*, educational psychology is better off because of Lee Joseph Cronbach. He was president of the American Educational Research Association, the American Psychological Association and the Psychometric Society. He was also a member of the National Academy of Sciences, the National Academy of Education, the American Philosophical Society, and the American Academy of Arts and Sciences. He was honored by the Educational Testing Service, the American Psychological Society, the American Educational Research Association, and the Evaluation Research Society.

See Also

- ▶ [Archives of the History of American Psychology](#)
- ▶ [Meehl, Paul E.](#)
- ▶ [Terman, Lewis M.](#)

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Cultural Psychology (General)

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Definition

Cultural psychology emerged on the contemporary academic scene in the 1980s as a transdisciplinary field that studies the relation between culture and psychology. It arose as a corrective to mainstream psychology – which minimizes the cultural organization of human psychology – and also to cross-cultural psychology – which employs positivistic methodology to reduce culture and psychology to abstract, fragmented variables.

Cultural psychology itself contains several strands that derive from different intellectual traditions (Ratner 1999; Ratner 2011a, b, c). In the space here, it is impossible to survey all of them. Instead, I shall articulate certain select principles that have proven useful for understanding culture, psychology, and their relation.

These may be summarized as follows: Culture and psychology are internally integrated and continuous. They are on the same plane; two sides of the same coin; they are interdependent. Psychology is part of culture, it is a cultural element. It is necessary and functional for constructing/maintaining culture; and it takes on the characteristics of the culture that it constructs. Psychology is the subjective side of culture, while cultural factors are the operating mechanisms of psychology. Psychology is not simply in culture in the sense that it is surrounded by a cultural context. Rather psychology is the subjectivity of culture; it is cultural psychology, or cultural subjectivity

that incarnates and promulgates the features of cultural factors as its content and operating mechanism.

Since psychology embodies features of culture, where culture is stratified into unequal classes, and dominated by a wealthy, powerful upper class, psychology takes on these characteristics. The politics that drive culture are similarly embedded in psychological phenomena. Vygotsky stated this clearly in the case of psychology in class society:

- ▶ Since we know that each person's individual experience is conditioned by the role he plays in his environment, and that it is the class membership which also defines this role, it is clear that class membership defines man's psychology and man's behavior.

Social stimuli that have been established in the course of historical development... are permeated through and through with the class structure of society that generated them and serve as the class organization of production. *They are responsible for all of human behavior, and in this sense we are justified in speaking of man's class behavior* (Vygotsky 1997a, pp. 211–212).

This is what the discipline of cultural psychology studies. It requires a serious, systematic understanding of social conditions, social factors, social structure, and politics. It looks for these in the genesis and content of psychological phenomena (Ratner 2011a, b, c).

Cultural psychology adopts a structural-functional standpoint. It regards culture that forms psychology as a concrete system of interdependent, interpenetrating factors – specifically social institutions, cultural artifacts, and cultural concepts. Each factor affects the others and expresses them through itself. The concrete character of these systemic cultural factors is imparted to psychological phenomena. Cultural psychology utilizes a methodology of cultural hermeneutics to elucidate the full cultural system that is implicated in a particular cultural element.

Historical Background

Cultural psychology springs from four main sources.

1. Eighteenth and nineteenth century human sciences (e.g., Herder's work; the study of language and society). These scholars emphasized the distinctiveness of human culture. They said that social life, language, and its symbolic and cognitive properties make

humans qualitatively different from (superior to) animals. Herder wrote: “The difference lies not in quantity nor in the enhancement of powers but in a completely different orientation and evolution of all powers.” This historical tradition has been carried on by historians who focus on psychological issues such as self, gender, emotions, senses. It has also been carried on by sociologists who study emotions, childhood, and other psychological topics. The history of “mentalities” by the French Annales historical school in the 1920s was a major force in pioneering this line of historical-psychological research (Burguiere 2009). This tradition has also been carried on by sociologists who study emotions, childhood, and other psychological topics. The first cultural psychologist was probably Al-Biruni (973–1048), who has also been called the first anthropologist. He was a Persian scholar (natural scientist and social scientist) who wrote a thorough ethnography of Indian mentality (published in English as Albiruni’s India, 1993) using phenomenological methodology. (I am indebted to Mohamed Elhammoumi for this reference, and many others.)

2. Sociocultural psychology of Vygotsky, Luria, Leontiev, which became popular in the 1980s after publication of Vygotsky’s *Mind in Society* in 1978. Bronfenbrenner’s (1979) ecological psychology drew on and contributed to this source.
3. Psychological anthropology of Shweder, Geertz, D’Andrade, Levine, Super and Harkness, Catherine Lutz, M. Rosaldo, and Kleinman that emerged during the 1980s (Kleinman and Good 1985; Shweder and LeVine 1984).
4. The sociology of Durkheim, Marx, and Bourdieu. Durkheim and Levy-Bruhl argued that socially formed “collective representations” of things act as filters which structure our thinking, perceptions, and sensations. Collective representations define the nature of things; they comprise the categories into which we place things; they form our expectations of how things will act; they guide our behavior. They are generated in social practice, vary with it, and are man-made. Yet they are emergent collective products which transcend individual beliefs and acts.

Marx and Engels developed a social philosophy of the individual. They argued that humans are essentially

social. They are not primarily (primordially) individuals first and then aggregate into groups, as Adam Smith maintained (Sayers 2007).

Cultural psychology flourished briefly for a decade, with an impressive outpouring of theoretical and empirical research. However, it was undercut in the 1990s by an alternative perspective. Ratner (1993, 1999, 2008, 2011a, b, c) designates this alternative perspective as microcultural psychology. Microcultural psychology reframed the definition of culture, the manner in which culture influences psychology, the nature of agency, and the use of qualitative methodologies to study cultural psychology.

It did so under the name of cultural psychology. However, microcultural psychology diverted and diminished the realization of the fruitful cultural psychology that showed promise in the 1980s.

After explaining cultural psychology, I shall introduce its differences with microcultural psychology and cross-cultural psychology.

Key Issues in Cultural Psychology

Psychological Theory

Cultural psychology is a psychological theory. It is also a cultural theory. It explains what culture is, what its predominant factors are, how it is structured, who controls culture, why it came into existence (i.e., its function for humans), why humans need to maintain culture in their behavior and psychological activity, how psychology is generated and organized by culture, and how psychology is vital for culture.

Cultural psychological theory goes beyond mere empiricism of correlating social factors and psychological phenomena. Such empiricism – as practiced by cross-cultural psychologists – has no theory of culture or of psychology. This is true even of interesting and important empiricist research that establishes the association of culture and IQ. As valuable as this finding is for refuting nativistic explanations of IQ, it does not explicate the cultural basis, character, and function of human IQ.

An indication of cultural psychological theory is Shweder’s (1990, p. 1) statement, “Cultural psychology is the study of the way cultural traditions and social practices regulate, express, transform, and permute the human psyche.”

A Darwinian Argument for Cultural Psychology: Cultural Psychology is Darwinian Psychology

To explain why culture is central to our psychology, cultural psychological theory employs Darwinian principles. Simply put, culture is our environment, our adaptive organ, our survival mechanism. Culture is collective, coordinated behavior and thinking. According to Darwin, an organism's features are selected by its environment. Features that help the organism survive in the particular environment are supported, while those that are incompatible with environmental requirements are unsustainable. Applying Darwinism to psychology, it follows that psychology must have features that are congruent with the cultural environment. This means that psychology must be collectively formed and coordinated. It cannot be rooted in individual, natural mechanisms that are independent of culture.

Attributing psychology to non-cultural processes and having non-cultural features violates Darwinian environmental selection/determination. Ironically, Darwinian psychology is cultural psychology – because culture is the human environment – it is not evolutionary psychology. Evolutionary psychology contradicts the fundamental premise of Darwin's argument, that organisms develop attributes which are congruent with their environment (Penn et al. 2008). If our behavioral mechanisms were not cultural and did not generate distinctly cultural behavior, culture would collapse and we would forego its benefits.

It is consistent with Darwinian adaptationism-functionalism that human beings have different kinds of mental and behavioral processes from animals, and that the mechanism which generates these features is also different from those in animals – because our environment is different from theirs. It is anti-Darwinian for evolutionary psychologists to insist that animal mechanisms of genetic mutation by which animals adapt to the natural environment are the only mechanism by which all organisms survive in all environments. Such a view ignores the specific character and influence of the organisms' environment, which is the essence of Darwinism. Evolutionary psychologists are pretenders to the throne of Darwinism; they are illegitimate heirs of Darwinism; they are imposters (*poseurs*) of Darwinism (Ratner 2006, pp. 201–209).

Culture is not simply one variable that psychologists can add to their arsenal of other variables. Culture is the human way of life. Consequently, our behavior and its mechanisms must be fundamentally and thoroughly cultural. They cannot be marginally, partially, and superficially cultural, for that would render them insufficient to meet the vast, profound needs of cultural life. They would be insufficiently adaptable to the cultural environment, which, in Darwinian terms, would be fatal.

The discipline of cultural psychology investigates the ways in which psychology, subjectivity, mentality, and consciousness are cultural, depend on culture, are required by culture, are generated by culture, construct and maintain culture, and embody the characteristics of culture. Cultural psychology is a reconceptualization of human psychology in light of our distinctive cultural existence. We construe human psychology as an emergent phenomenon, a new creation, that is designed to construct and utilize distinctively cultural things (artifacts, rules, symbols, structures). Gordon explained this with regard to emotions earlier.

Human psychology is not analogous to animal behavior. It is not an extension of animal behavior applied to new situations. Human psychology is a distinctively new kind of behavioral mechanism that is required by cultural life.

Even human biology is cultural in accordance with Darwinian environmentalism. Our biology must adapt to our unique cultural environment. In fact, the social brain hypothesis argues that the unique structure and functioning of the human cortex evolved to master social tasks demanded by the cultural environment. (Humana biology is non-determining with respect to behavior/psychology, and also with respect to disease. Contrary to popular and medical opinion, genes do not determine or predispose to physical disease. For the vast majority of diseases, one's genome has very little affect on whether one will contract a disease: <http://www.biosciencesource.org/commentaries/article.php?id=46>).

Cultural Factors and Psychology

A major principle of cultural psychology is that the cultural form of environment requires, stimulates, supports, and organizes uniquely human capacities and mechanisms that generate cultural behavior and cultural

products. These unique behavioral capacities and mechanisms are psychological phenomena. Psychology is the new operating mechanism for a new kind of organism in a new kind of environment. The new environment is culture and the new kind of organism is a social organism; psychology must be a social behavioral mechanism that generates social behavior in a social environment. Since psychology is selected – generated – by culture, it is important to understand the specific nature of culture in order to understand psychology.

The cultural environment is essentially one that consists of shared, coordinated, supportive behavior which combines the strengths of individuals into a supra-individual structure (institution) which is far more powerful than a sequence of separate individuals primarily acting on their own. A group of people working to lift a heavy load is capable of lifting far more than separate individuals working on their own, on their own behalf. A group of hunters that shares information about the behavior and location of some prey can catch far more prey than single individuals can.

Coordinating behavior in accordance with a common objective requires shared knowledge, common concepts, symbols, language, and behavioral norms.

Coordinating behavior and speaking a common language require shared intentions and also the ability to comprehend intentions. I must grasp that you are trying to catch that animal in order to work with you on catching it. I must know that you are trying to lift that load in order to work with you.

Culture is not reified social entities, it is active, coordinated, intentional, symbolic behavior.

Cultural behavior is structured in enduring forms such as institutions, artifacts, and cultural concepts. This makes it objective, regular, predictable, and enduring. These attributes are necessary for coordinated, cooperative behavior. It cannot be free-floating, amorphous, transient, personal/idiosyncratic, or spontaneous. These attributes would subvert the cohesion necessary for coordination, and cooperation.

Cultural behavior is structured without being reified. It is structured through common subjectivity, or *socius*, or *habitus* which are objectified in institutions, artifacts, and concepts but are not reified. Subjectivity/psychology designs and maintains cultural factors and always has the potential to revise cultural them.

This integral system of capacities, activities, and objectified cultural factors makes us social beings. To be social is to be linked to other individuals in an integral fashion that constitutes a new type of being. Sociality is not simply individuals interacting; it is a new kind of individual in new forms of relationships with others. To be social is to be linked with other individuals in and through a social system/institution/process; it is not an interaction of one independent individual with another. Sociality is a complex, “higher,” emergent social process that supersedes the individual and configures him within a social process that is greater than himself. Sociality is not reducible to individual processes. Tribal councils, unions, governments, corporate structures are ways that people are linked together through superordinate administrative bodies and social policies which set the parameters of social interaction. (Sociality is mediated through objective social structures: e.g., the quality of your neighborhood school depends upon educational budgets which depend upon income taxes which depend upon employment trends which depend upon investment decisions by corporate executives. Consequently, the decision by a CEO to cut jobs in Southern California affects the quality of your school in Northern California through this complex social structure.) Interpersonal, one-on-one interaction is not the model of sociality – the CEO, for example, does not directly interact with the administrator of the local school to affect its quality. Interpersonal interaction does not rise to the level of complexity that sociality has. (In fact, as I have argued in Ratner (2011a, b, c), interpersonal interactions derive from complex macro processes.) Nor would interpersonal interaction provide the benefits, requirements, and stimulation that complex, institutionalized sociality provides. The more complex the social relations that link individuals, the stronger and more supportive they are for participants, and the greater are the demands for complex subjective/psychological functions to perceive, understand, remember, and feel the social relations that comprise the cultural environment.

This new social creature in new modes of interaction is called a *socius* by James Baldwin, an American psychologist/philosopher, in 1895. The *socius* connotes a social self, a self of personal values, sanctions, and duties, in which all individuals by their very nature

participate. Being social is a new order of life that goes beyond the individual to create a new kind of body, a social body. Our social body adds a new quality to our existence. It transforms us from a physical being to a conscious, thinking, symbolizing, creative, willful being (Ratner 1991, Chaps. 1, 4). As Vygotsky said: “A human being as a specific biotype is transformed into a human being as a sociotype; an animal organism becomes a human personality.” “The biological, by means of social factors, melds into the social; the biological and organic into the personal; the ‘natural,’ ‘absolute,’ and unconditioned into the conditioned. This is the true material of psychology” (Vygotsky 1993, pp. 160, 155).

All the richness and advance of human civilization depends upon people having a social body that reconstitutes them as social organisms. Indeed, the *socius* is the foundation of individuality. Individual capacities derive from our social existence. This social psychology was developed by Baldwin later by scholars such as Vygotsky and Janet (Valsiner and Van der Veer 2000). Janet said that higher mental processes such as memory are first carried out externally and only subsequently become available as internal, private mental functions: “all social psychological laws have two aspects: an exterior part concerning other people, an interior part concerning ourselves. Almost always... the second form is posterior to the first one.” Vygotsky similarly said “The social moment in consciousness is primary in time as well as in fact. The individual aspect is constructed as a derived and secondary aspect on the basis of the social aspect and exactly according to its model” (Vygotsky 1997b, p. 77). “Essential is not that the social role can be deduced from the character, but that the social role creates a number of characterological connections” (Vygotsky 1997b, p. 106).

Culturally derived psychology/subjectivity is cultural not only in being stimulated by culture, but in being a cultural phenomenon. In other words, culture does not simply stimulate some innate psychological tendency that pre-exists culture as an individual phenomenon. Culture constitutes psychology as a cultural phenomenon in form and content. Baldwin (1913, p. 140) emphasized this in stating that “the character, ends, and objects of thought and life are collective.”

Consistent with Darwin’s thinking, human cultural environment requires a compatible cultural organism

equipped with a compatible behavioral mechanism. The mechanism of human (cultural) behavior must be a cultural phenomenon. It cannot be a natural mechanism that simply responds to a cultural environment. Human behavioral mechanisms match their environment just as animal mechanisms match their natural environment. If would not work, and would be anti-Darwinian, if humans in their cultural environment utilized natural behavioral mechanisms which animals use to function in their natural environments.

With coordinated, cooperative cultural activity being the basis of human psychology, it is imperative to maintain cohesive, organized, integral, structured cultural factors in order to enhance the development of our subjectivity and psychology. It is not just the common content of culture that draws people together in mutual support, it is also the act of forming and participating in common, coordinated, cooperative, structured, enduring, complex activity that makes people work together as *sociuses* with joint subjectivities. This kind of social activity is what stimulates and elicits advanced psychological functions such as thinking, remembering, perceiving, emoting.

Gordon (1981, pp. 563, 562) explains that “Social life produces emergent dimensions of emotion that resist reduction to properties inherent in the human organism. Socially emergent dimensions of emotion transcend psychological and physiological levels of analysis in terms of (1) origin, (2) temporal framework, (3) structure, and (4) change.” “Although each person’s experience of emotion has idiosyncratic features, culture shapes the occasion, meaning, and expression of affective experience. Love, pity, indignation, and other sentiments are socially shared patterns of feeling, gesture, and meaning.”

Culture must be maintained in order to enhance society and psychology. (I am speaking here of culture in general, not any particular historical culture. Many particular cultures degrade society and psychology.) Fragmentation, divisiveness, egoism, ethnocentrism, and similar anti-group practices degrade culture and deprive individuals of its social and psychological benefits.

A good example of a specific common culture is French public education from 1881 which defined the school as the place where national unity would be forged, where the children of peasants (who spoke

a variety of regional dialects and usually followed religious dictates) would become citizens/patriots. The school was to be the agent of acculturating children into a shared culture in which they could all participate. The goal of its pedagogy was to instill a common republican political identity in children from a diversity of backgrounds. The school was to effect a transition from private to public, from the world of the locality and the family to that of the nation. Teachers were the “missionaries” charged with converting their pupils to the wonders of science and reason and the reasonableness of republican principles. A shared language, culture, ideological formation, and nation was to be the outcome of the educational process. Uniforms were often used as a way of facilitating common culture and overcoming class differences in clothing.

This kind of cultural solidarity is crucial for obtaining the benefits of cultural sharing, stimulation, and support. Outsiders who lacked the common language, identity, purpose could not coordinate with those that did, and would not receive the stimulation and support that culture brings. Of course, common culture can be refined to incorporate new elements; however, the refinements would constitute a new solidarity that was shared by the members. New elements would not be compartmentalized into their own, separate spheres because this would isolate those members and fragment the culture, thus weakening it.

The foregoing description indicates that culture includes subjectivity, intentionality, individual activity, and psychology. This integration is emphasized by sociologists who study social institutions: “An institution links together different orders and realms of social life, notably the agentic with the structural, the symbolic with the material, and the micro with the meso and the macro structures of social organization” (Mohr and White 2008, p. 486).

The *socius* is our subjectivity, it is not simply our external environment. Our psychology does not simply exist within culture; psychology is informed by culture, it is cultural psychology; culture exists within psychology. Similarly, we are not simply animals who live in a cultural environment; we are cultural animals in the sense that our animal being has been acculturated and transformed.

Pred (1984) provides a more specific model of culture and psychology from the standpoint of

geography. He begins with a thorough description of culture as emergent sociality that configures individual psychology:

- ▶ Social structure is comprised of those generative rules and power relations - including the control over material, symbolic or authoritative resources - that are already built into a specific historical and human geographical situation, or into an historically and geographically specific social system. The rules and power relations of social structure do not only constrain and enable human agency and practice. They also emerge out of human agency and practice. A social structure's component rules may be formal or informal. Whatever their nature, these learned and humanly produced rules form the underlying grammar of activity and behavior in particular contexts. The power relations of a social structure may exist among different individuals, among different groups or classes, among different institutions, and among individuals or groups on the one hand, and institutions on the other. Insofar as power relations may differ in their geographical extent, structuration processes may simultaneously occur at multiple spatial levels, interpenetrating with one another through the practices associated with mediating institutions or individuals. (Pred 1984, p. 281)

Pred's description of culture is more thorough and specific than the typical notion of culture as shared customs that are historically transmitted. Pred identifies power relations in organized social structures. Moreover, the power relations that define a society permeate individuals and groups at all different levels of society, e.g., macro institutional, micro interpersonal levels, in various social spaces. Pred emphasizes that features of cultural factors form the grammar of individuals' activity in particular situations. “Power relations cannot be separated from the realm of action and everyday practice [manifested in]...the indirect control of who does what, when, and where;” and “what people know (and are able to say), and how they perceive and think” (pp. 290, 289). Even “independent” activities bear the imprint and limitations of cultural factors: “There are always culturally arbitrary dispositions or elements of practical knowledge associated with the creation and definition of ‘independent’ projects that can be acquired only via socialization, or

path intersections with institutional projects (Pred 1984, p. 286).” Pred perceptively observes that power relations always contain an “underside” of subjectivity that accords with positions of power.

Pred (p. 285) makes the important point that structured, political-cultural factors structure action, not only by encouraging it, but also negatively by limiting alternatives to given forms. This takes the form of limiting knowledge and competencies that can envision alternatives. (I have called this the psychology of oppression; Ratner 2011b). Pred identifies five types of culturally shaped “unknowing” that serve this political function.

1. The unknown, and not possible to know, in terms of being totally unknown to all or some local inhabitants.
2. The not understood in terms of not being within the frame of meaning of all or certain local inhabitants.
3. The hidden in terms of being hidden from certain local inhabitants.
4. The undiscussed, in terms of being taken for granted as true or natural by all or some local groups.
5. The distorted, in terms of being known only in a distorted fashion by all or certain members of the local population.

Of course, the status quo is not monolithic or immune to critique and challenge. “These daily-path experiences, interactions, and encounters occasionally result in the discovery of other long-term institutional role possibilities that, depending on the basis of a person’s biographical history and competition from other individuals, one may or may not have a realistic chance of entering into. Moreover, these daily-path encounters help one to define and redefine oneself, to renew and initiate strengths and weaknesses, and to form intentions” (p. 287). However, discovering viable alternatives to the status quo is difficult given the positive and negative mechanisms the status quo has at its disposal to enforce conformity. (The absence of viable proposals to solve current economic, ecological, and psychological crises – and the ease with which people fall victim to false, superficial solutions – testifies to this point.)

Pred makes the important point that social structure determines human’s interaction with nature. Consequently, living in a balanced relationship with nature requires transforming the social structure, it cannot be accomplished through technical means alone – such as green energy and organic food production: “Because the transformation of nature is inseparable from the local expression of structuration, from the historically contingent becoming of place, it cannot be understood unless the prevailing power relations at the core of local social structure are identified” (p. 289) (Note 1).

Case Studies of Cultural Psychology

The general principles of cultural psychology we have been discussing are meant to elucidate the specific cultural origins, characteristics, and function of particular psychological phenomena. These observations explain, describe, and predict particular psychological phenomena. These cultural observations also lead to effective strategies for enhancing psychological phenomena and solving psychological problems. We shall demonstrate these uses of cultural psychology in three “in vivo” case studies.

Racial Psychology

An excellent case study comes from historian Jennifer Ritterhouse’s account of how White psychology was generated by the slave system (its laws, values, institutionalized power and wealth and control over property) in the USA. After blacks had been legally freed and made citizens, Southern whites sought to maintain their rule over blacks through informal cultural rules known as racial etiquette (Ritterhouse 2006). Racial etiquette included demeanor on sidewalks (blacks were to defer to whites), sexual behavior, play, names (“Sir” vs. “boy”), and eating behavior. Violations of racial etiquette were met by beatings and lynchings. Indeed, “as many as a quarter of the 4,715 lynchings known to have taken place in the South between 1882 and 1946 resulted from breaches of racial etiquette that were seldom crimes” (Ritterhouse 2006, p. 36). A particular psychology was generated by racial etiquette, and it exemplifies how cultural factors are the origins, operating system, characteristics, and function of psychological phenomena.

One example of the cultural psychology of Southern whites was their acceptance of lynching blacks as just punishment for violating the cultural codes. Whites eagerly attended lynchings and derived pleasure from watching black men hanged from a tree. In Fort Lauderdale, Fla. in 1935 a white woman, Marian Jones, claimed that Reuben Stacey had attacked her. A mob of 30 armed men took Stacey to be lynched. Word of this spread and brought thousands of curious spectators, including women and children, to watch him be shot and hanged. Excitement was rife among the crowd and photographs showed smug, satisfied looks on the faces of some observers. Ritterhouse (2006, p. 74–75) describes the perceptions, emotions, and cognition displayed at these events.

- ▶ Some white southerners not only failed to regard lynchings negatively as horrors from which innocent children ought to be sheltered, but instead regarded them positively as exciting events that neither they nor their children should miss. The mob execution of a black man, woman, or family was not only a public spectacle but also public theater, often a festive affair, a participatory ritual of torture and death that many whites preferred to witness rather than read about. Special excursion trains transported spectators to the scene, employers sometimes released their workers to attend, parents sent notes to school asking teachers to excuse their children for the event, and entire families attended, the children hoisted on their parents shoulders to miss none of the action and accompanying festivities. Children's responses to what they saw included an eleven-year old North Carolina boy who injured a white playmate during a make-believe lynching, and that of a nine-year-old who returned from a lynching unsatisfied, telling his mother, "I have seen a man hanged, now I wish I could see one burned.

This is a culturally based, culturally formed, culturally specific, culturally functional, culturally shared psychology that was generated by the cultural practices and values of racial etiquette. People without these practices and values would not have the same perceptions, emotions, motivations, desires, and reasoning processes.

A white Southern woman recounted a childhood incident that further expresses the cultural basis,

character, and function of perceptions, reasoning, and emotions. When she was 8 years old, around the turn of the century, she and a playmate were walking on a sidewalk and an 8-year old Negro girl did not get out of their way. "We did not give ground – we were whites!" When the black girl's arm brushed against her, she turned on her furiously saying, "Move over there, you dirty black Nigger" (p. 129).

The white girl's perceptions and emotions were informed by the racial etiquette that included investing the sidewalk (a cultural artifact) with cultural (i.e., racial and social) significance – sidewalks were symbolic of white people's authority and superiority, and blacks were supposed to yield even if it meant they had to walk in the gutter. These cultural facts generated (a) the white girl's perception that the black girl's behavior was wrong, immoral, and disrespectful, (b) her reasoning that she had a right to correct this problem, and (c) her emotion of outrage and aggression. Without the symbolic significance attached to the sidewalk and the sense of white privilege, the psychological reasoning, perception, and emotion would not have been elicited.

Another white boy of 10 reacted on the same basis of white privilege. A larger, older black girl did not give way to him on a sidewalk and he hit her hard in the stomach. He declared in his memoir "I wasn't ashamed." (p. 131). He wasn't ashamed because his racial status entitled him to hit blacks and encouraged him to do so in order to preserve the racial status. His lack of shame was culturally based and formed.

These examples testify to central tenets of cultural psychology: the fact that cultural practices and values determine the situations in which emotions are elicited, the kinds of emotions that are elicited, and the concrete quality of these emotions.

An interesting cultural quality of the racist anger was that it was directed at violations of the racial code (i.e., social status of whites and blacks); it was not a personal animosity directed at the black individual. Whites actually felt close to blacks in their everyday lives, allowing them to hold, feed, clothe, and play with their children, as well as cook the food for the adults. However, whites felt angry if a black momentarily brushed their arm on a sidewalk, or sat next to them on the bus for a few minutes! Clearly, this anger was not a personal animosity that felt blacks were dangerous,

diseased, or reprehensible individuals who should be always shunned. The discomfort and anger at blacks violating social rules was a kind of *social outrage*, a *structural racism* that treated the offender in terms of his impact on the social order, not his immediate impact on the white person which imperiled her personal safety. Nor was this anger a feeling of animosity directed at black personhood or individuality that would impede future close personal encounters between the black individual and the white person's family in other situations. It was a situational anger confined to the particular social situation that was challenged by the black's behavior.

Another example of the culturally specific quality of White psychology was the fact that most, if not all, of their perceptions, emotions, and cognitions about Negroes were informed by a superior, paternalistic, patronizing, snobbish attitude that they were inferior to whites in intelligence, morals, civilization, and emotional control. The anger of the 8-year white girl who became furious at the black girl on the sidewalk was a specific kind of anger that was tinged with white superiority and the expectation of privilege. Superiority was in the anger. Her anger was neither abstract, nor was it similar to other concrete forms of anger such as anger at a spouse for arriving home late, forgetting a birthday, or having an affair. These forms of anger are tinged with disappointment, sadness, betrayal, or a sense of being unloved, not with superiority that was manifested in the girl's anger. Conversely, the girl's anger had no elements of sadness, disappointment, betrayal, or sense of being unloved.

This psychology is nuanced by cultural values, rules, and practices. It demonstrates how psychology is organized by and permeated by cultural issues. It is fair to say that these cultural values, rules, and practices were the operating mechanisms of White psychology. They generated the perceptions and emotions in particular situations with particular culturally nuanced qualities.

The attitude of white superiority sometimes led whites to not become angry at certain black "misbehavior" and to tolerate it as normal, typical expected, unavoidable, even charming, and amusing – as long as it did not challenge the racial etiquette of white superiority. Having children out of wedlock, and even stealing things elicited no outrage or

disappointment from whites because (a) they didn't harm whites to any significant extent and did not challenge racial etiquette, (b) they were regarded as natural for such inferior creatures. Indeed, whites enjoyed seeing blacks "misbehave" because it provided vivid testament to white superiority, and it justified whites' domination of blacks.

This patronizing tolerance of black "misbehavior" was an ingredient in whites' self-concept. It generated a sense of self-pride, benevolence, tolerance, and altruism because they did not punish blacks in these cases. This benevolent, tolerant self-concept was based on a sense, and a power relation, of superiority, not on a sense of genuine caring and helpfulness. White sense of benevolence depended on the malevolence of enslaving blacks and patronizing them; however, this escaped the attention of whites. White self-concept thus had a distinctive quality, or content. It was not an abstract, pride, benevolence, tolerance, and altruism, nor was it a genuine benevolence, tolerance, and altruism that whites practiced toward other whites of their status.

The affection that whites felt for blacks was also permeated with racial superiority. It was a paternalistic, patronizing, arrogant affection that was generated by the behavior of blacks as dutifully deferential, minding their place. "We loved 'our Negroes' downward but expected them to love us upward." "My sense of fellowship with Negroes had an odd tie-in with my snobbery." Within these hierarchical limits, these whites felt their relationships with blacks were beautiful and that a special love and understanding existed between them and blacks. As soon as blacks became too familiar or uppity, this special love and understanding unraveled and the ruling class men and women quickly used force to restore their class dominance. This affection that embodied racial etiquette was a specific, concrete emotion quite unlike the affection that whites felt for other whites. This other kind of affection was more egalitarian and personal and did not incorporate the quality of hierarchical distancing that characterized affection for blacks.

The psychology of white-black affection was governed by the operating system of racial ideology. Their ideology structured their caring in a particular – superior – form; this same ideology blinded them from accurately perceiving the form their own caring took;

their ideology blinded them from accurately perceiving the social and psychological effects their racist caring had on black recipients; and this same ideology blinded them from perceiving its own existence as the operating system that was behind all of this – i.e., behind the structuring, and behind the blinding of them to the structure and to the structuring. Instead, the ideology made them believe that their caring was a natural, empathic response to the blacks.

A striking example of how cultural values and practices comprise the operating mechanism of psychological phenomena is an incident that occurred in the early 1950s in North Carolina. A white boy and his friends were playing basketball with some blacks, all around 12 years old. One of the white boys tried to inflate the basketball using a needle he took from a black boy named Bobo. The white boy put the needle in his mouth to wet it before inserting into the ball. As he put it in his mouth, he realized that Bobo had wet the needle a moment before. The racial element of this situation generated a powerful emotional and sensory reaction: “The realization that the needle I still held in mouth had come directly from Bobo’s mouth, that it carried on it Bobo’s saliva, transformed my prejudices into a physically painful experience. The basketball needle had become the ultimate unclean object, carrier of the human degeneracy that black skin represented. It transmitted to me Bobo’s black essence, an essence that degraded me and made me, like him, less than human” (Ritterhouse 2006, p. 128).

The boy delicately explains how his racial prejudice generated a physically painful sensation and emotion in him. His cultural thought about blacks became a sickening sensation in his body. The cultural concept became a psychological phenomenon. The psychology was continuous with the concept, it was a transformation of the concept into a psychological form. The two were two sides of the same coin. His prejudice was the operating mechanism of his sensation and emotion in that it generated their qualities in response to this particular situation.

His emotion and sensation were stimulated by the symbolic significance he attached to the basketball needle. The needle incarnated racist prejudice about black bodies and people, and the needle transferred this prejudice about black malevolence into phenomenological sensations and emotions.

A white woman, Sarah Boyle, recounts similar powerful, body-wrenching emotions that were generated by the racial code: “When a Negro didn’t ‘keep his place’ I felt outraged. My indignation was triggered by a sense of guilt. I had learned that equality with Negroes was WRONG, and that it was my fault if a Negro attempted them. Therefore, I was immediately on the defensive at the first hint of familiarity.” When a cleaning lady who had conversed with Sarah on numerous occasions called her Patty instead of Miss Patton, “I felt my entire interior congeal! A Negro had failed to call me Miss! *And I was a[s] guilty as she.* How unseemly my attitude must have been to invite to such a thing! I experienced a terrible wave of depression, mixed with a kind of horror of *myself.*”

The cultural-emotional dynamic consisted of first learning a cultural concept (code) that equality was wrong and was her fault for allowing it. This cultural instruction that it was her fault became a feeling of guilt. Guilt is the feeling that an action is one’s own fault, and this feeling is simply the other side of the coin of the cultural instruction that equality was Sarah’s fault.

Boyle’s narrative, like the previous one, is exceptional in indicating the essential equivalence of cultural prescription and emotion (akin to the essential equivalence of mass and energy). The cultural prescription was the operating system of guilt; it made guilt happen in response to particular situations. Culture is in the mind, subjectivity, mentality, consciousness, agency, psychology.

Furthermore, guilt is continuous with defensiveness, for if one feels guilty, one seeks to defend oneself from blame. Negroes’ “misbehavior” made her look bad and feel bad, so she became angry at the immediate situation that generated this discomfort. (She overlooked the real cause of her discomfort which is the cultural prohibition against equal behavior. It was more convenient and socially acceptable to blame the black behavior than the cultural prohibition. Prejudice may be said to result from ignoring macro cultural influences on behavior. Macro cultural psychology is thus an important way to overcome prejudice.)

Each of these slides into the other like the levels of a spiral seamlessly slide into one another and become new levels of the original. The cultural prescription slides into guilt which slides into defensiveness which slides into anger.

Anger is not an independent thing that simply becomes conditioned to (associated with) blacks acting uppity. According to conditioning theory, culture functions like a kind of switch that simply links anger (as a given thing with natural, intrinsic, universal qualities) to black behavior. However, this psychological theory is wrong. Culture is not a switch that connects natural psychological processes to particular situations. On the contrary, cultural conditioning molds psychological phenomena to cultural factors. Culture makes psychology (anger) cultural, and imbues it with a specific cultural quality. Anger is converted into culture, it is not simply associated with culture.

Whites' anger at black people was the result of a net of assumptions and understandings about black peoples' psychology, nature, and cultural level which were internalized from the cultural code. These cultural assumptions became located within Sarah's "psychological infrastructure," forming it. Furthermore, white anger was not an immediate, quasi-physiological reaction to black misbehavior; it was the result of a string of spiraling transformations of a cultural prescription from guilt to defensiveness to anger. The prescription was therefore the operating system of anger that made it happen in response to a particular kind of situation. The situation itself, i.e., black behavior, did not mechanically generate anger by being moved into a proximate connection with anger. It only generated anger via the cultural prescription against equal behavior.

Behavioral theories, such as conditioning, which are drawn from simple animal behavior do not suffice to apprehend cultural psychological phenomena and must be replaced by a new cultural psychological theory. Whites' fury at black infractions was not an extension of a natural anger that all animals have. It was not a natural anger associated with a particular situation. The anger was a social anger, formed by social processes and incorporating social characteristics.

The cultural code of etiquette was also the operating system of Sarah's perception. The code oriented her to look inward at her behavior for the cause of blacks violating racial etiquette; it oriented her away from perceiving the oppressive Jim Crow system as the cause of blacks' resentment and resistance. The code also led her to regard "misbehaviors" of blacks as natural deficiencies on their part.

These examples reveal that the cultural code determines (a) the kind of situation in which an emotion (or perception or self-concept) is elicited, (b) the strength of the emotion, (c) kind of emotion – anger, guilt, or depression, (d) the concrete quality of the emotion – tinged with superiority or egalitarian, (e) the dynamic of the emotion – how it is generated through concepts and related psychological phenomena (e.g., surprise, looking inward, feeling guilty, hating oneself, feeling defensive, feeling angry).

The cultural code is thus not an external, secondary "influence" on some inner "basic" processes of emotion. The cultural code is the mechanism of emotions and perception. It is central to them, inside them, and constitutes their basic processes.

Another cultural feature of the psychology implicated in racial etiquette was the manner in which it was socialized. Interpersonal socialization practices reflected macro cultural factors. Mothers were the primary agents of racist socialization because they were the primary caretakers. Since the social system was racist, the female socializers of children inevitably socialized racism in their children.

A searing example of maternal socialization of racism occurred when Sarah Boyle's mother responded to Sarah's unhappiness over a servant's telling a lie. Her mother said, "We never do [lie]. Rosemary is a Negro. They aren't like us. Promises don't mean anything to them." Her mother's statement socialized Sarah into the Jim Crow belief system: "I don't think I ever again – that is, never until I became integrated at the age of about 45 – expected the truth of a Negro, or held one fully accountable as I would a white person, for telling me a lie. Another stone in my inner segregation wall had been cemented firmly in place."

Micro level interpersonal interactions should not be idealized as a purely personal realm beyond macro cultural forces. Quite the contrary, macro forces are implemented in interpersonal relations. White domination was implemented in small, mundane ways such as a calculated bump with a shoulder, or calling blacks "boy," or demanding blacks tip their hats, or requiring them to use the back door to enter a white house.

Micro level interpersonal interactions must recapitulate macro practices in order to inscribe subtle habits which will be conducive to accepting and participating in macro cultural practices. If micro level interactions

contradicted the macro level, people would question, resent, and deviate from macro norms. Psychogenesis can never be free of, or contradictory to, macro cultural factors.

The socialization of racist psychology and behavior was a two-step process. White parents allowed their children to play with certain black children and to treat their black nannies as surrogate mothers. However, as adolescence approached, parents indicated to their children that they must distance themselves socially and emotionally. This was a specific cultural pattern of socialization that led to a specific emotional outcome vis a vis certain groups of people but not others.

Importantly, the adult structure of life overrode the innocent, playful interactions of childhood. These positive experiences of childhood did not immunize white youth from falling into the adult molds of segregation and discrimination. “For the vast majority, the ‘forgotten alternatives’ of childhood interactions remained forgotten” (Ritterhouse 2006, p. 163). As Boyle said, “These incidents were little centers of genuine truth and experience which remained sealed off by my indoctrination and training, unable to permeate and purify my overall conception of the Negro people and their situation in the South” (Ritterhouse 2006, p. 43).

This is a powerful statement about the power of culture to shape one’s cognition, perception, and agency, and to override direct positive experience with individuals.

Accounts of socialization during the Reconstruction period reveal an additional interesting cultural pattern. Psychological socialization was generally implicit in the sense that parents simply acted out racial etiquette and children imitated them without any particular instructions or explanation. Social life was structured to enforce racism, and explicit, verbal instructions were generally unnecessary. This made it difficult to identify racism because it was rarely explicit. “We were given no formal instruction in these difficult matters but we learned our lessons well. We learned the intricate system of taboos, of manners, voice modulations, words, feelings, along with our prayers, our toilet habits, and our games” (Ritterhouse 2006, p. 131).

Instructions were only given to children when they breached the etiquette, e.g., by being too friendly with blacks and not manifesting sufficient distance and superiority. One case was Lewis Killian’s experience in

Georgia in the 1920s. When a black woman came begging at his front door, he rushed to tell his mother “There’s a lady at the door.” His mother spoke with the woman and afterward she rebuked Lewis: “You should have told me that was a colored woman. Ladies are white!” (Ritterhouse 2006, p. 80).

The fact that interracial play was tolerated among children testifies to variability in the racist system. It was not monolithic and absolute. Alternatives were present. However, these alternatives were circumscribed physically and temporally. They were closed off in adolescence as whites and blacks settled into their adult positions in the racist social structure.

Moreover, after the informal interactions were closed off in adolescence, it was necessary that they be overlooked and repressed or forgotten so as not to contradict adult norms and raise questions about them. Perception became desensitized to discrimination as it became normalized. “I went along,” one white woman recalled, “I wasn’t very interested in race at all. I didn’t see any segregation or discrimination or anything else” (Ritterhouse 2006, p. 161).

This demonstrates that memory/forgetting is also a cultural phenomenon. It has a cultural origin, character, operating system, and function. Its cultural character (content) was forgetting non-racist alternatives from childhood. Forgetting selectively forgot according to cultural rules. Cultural rules made selective forgetting happen.

Forgetting’s cultural origin lies in racist etiquette that demands alternatives be foreclosed. Parents insisted on terminating interracial play and relegating it to an insignificant episode of childhood unreality. In addition, the entire structure of white society drew whites apart from blacks and made earlier play psychologically insignificant.

- After a certain amount of confusion, frustration, and even defiance, most children accept ‘the way we do things’ without question, especially when ‘the way we do things’ works to their advantage, as white supremacy worked to the advantage of whites. Interracial play and other forms of childhood racial contact did offer alternatives to a social pattern scripted by racial etiquette, but because they were stacked against the incentives of parental love and white peer-group acceptance, not to mention personal pride and other



possible gains in status, the emotional attachments of childhood were fairly easy to “forget.” (Ritterhouse 2006, p. 164)

Forgetting’s cultural function was to promote racism as the only conceivable life style (Ritterhouse 2006, p. 9).

- ▶ It was easiest to repress and ‘forget’ one’s fear or guilt or even one’s unacceptable affection for a black nurse or playmate. That was what most white adults counseled, usually implicitly rather than explicitly and often by invoking racial etiquette. In a society in which adult white southerners energetically repressed any political alternatives to white supremacy, despite their own stated beliefs in Christian and democratic values, forgetting was also what made the rest of a white child’s world comprehensible, his or her most important relationships with family and friends sustainable. (Ritterhouse 2006, p. 178)

In other words, forgetting early positive interactions with blacks, and also forgetting guilt over abandoning them in adolescence under the pressure of racial etiquette, enabled white children to accept the exclusiveness of their white adult social world. Memory thus had, and has, a cultural function of sustaining (acceptance of) social norms.

Agency was also constrained by racial etiquette and functioned to uphold it. As one white man recollected, “At the age of ten I understood full well that the Negro had to be kept in his place, and I was resigned to my part in that general responsibility” (Ritterhouse 2006, p. 167). Lillian Smith recounts how she used her agency to serve Jim Crow by actively adjusting her psyche to participate in the racial code that framed her life: “I learned to believe in freedom, to glow when the word democracy was used, and to practice slavery from morning to night. I learned it the way all of my southern people learn it: by closing door after door until one’s mind and heart and conscience are blocked off from each other and from reality.”

All psychological phenomena have this social function. Racial etiquette could not have been maintained if blacks and whites had not developed appropriate perceptions, cognitions, motivations, emotions, and self-concepts to participate in it. If whites had developed an egalitarian, personal affection for blacks, they would

not have treated them in a patronizing, dominating manner. Their emotional affection had to contain the paternalism of racist social relations in order for those social relations to be maintained. Whites’ sexuality had to embody racist overtones in order distance them from blacks. Whites’ perceptions and cognitions of blacks had to incarnate a sense of their inferiority in order to justify discriminating against them. Whites’ memory had to selectively forget alternatives to racial etiquette.

This vivid historical example demonstrates that psychology is generated by cultural factors, its character/quality/content is cultural, it is formulated within cultural factors to construct cultural factors, its locus is in cultural factors, it is permeated by the class structure and politics of cultural factors, and it functions to maintain cultural factors (social institutions, cultural artifacts, and cultural concepts). Psychology is not a separate, internal, natural, or individual phenomenon.

Psychology has distinctive, subjective qualities that differ from objective qualities of macro cultural factors. Psychology is different from a classroom, it is different from a gun, it is different from the CIA and World Bank, it is different from the concept of family honor. This is why psychology deserves to be studied as a distinctive phenomenon. However, this study must emphasize the concrete cultural origins, character, and function of psychology which all permeate its subjective quality. This is what Ritterhouse does so masterfully, and what psychologists should imitate.

Neoliberalism

The elements of cultural psychology that are evidenced in racial psychology may be extended to a contemporary cultural phenomenon, neoliberalism. Neoliberalism is a central cultural force of our times. Its impact on psychology must be powerful, since psychology is an element of cultural factors. To understand the psychology of contemporary people, the manner in which it is organized by the pervasive neoliberal culture must become an important focus of study. This section will explore the objectives and content of neoliberalism and how it is institutionalized in our society. This in-depth analysis of its character and scope is necessary for generating constructs that can apprehend (explain, describe, predict, and improve upon) psychology in a neoliberal environment.

Neoliberalism is the brainchild of the Mont Pelerin Society, which was founded in 1947. The Society was formed with business funding to counteract liberal economic and political ideas of Keynes, Laski, and others. It sought to create a transnational network of academics and professionals to promote their image of the market as the central agent in human society, and thus shift government focus from public welfare to market creation and protection. Its first President (1948–1960) was the Austrian economist Friedrich von Hayek. Other early members were Karl Popper and Milton Friedman who was president of the Mont Pelerin Society from 1970 to 1972.

- ▶ Neoliberalism brings together the classical liberal economic faith in the ability of properly functioning markets to improve social welfare with a new political commitment to expand market relations into traditionally public arenas such as healthcare, education, and environmental management. As it developed after World War II, neoliberalism diverged from classical political liberalism by renouncing the passive notion of a *laissez-faire* economy in favor of an activist approach to the spread and promotion of ‘free markets’. Contrary to classical liberalism, neoliberals have consistently argued that their political program will only triumph if it becomes reconciled to the fact that the conditions for its success must be *constructed*, and will not come about ‘naturally’ in the absence of concerted effort. This had direct implications for the neoliberal attitude towards the state, as well as towards political parties and other corporate entities that were the result of deliberate organization, and not simply unexplained ‘organic’ growths. ‘The Market’ could not be depended upon to naturally conjure up the conditions for its own continued flourishing. It needed a strong state (divested of its unnecessary social welfare encumbrances) and the backing of international institutions such as the World Bank and the IMF to take its proper place in the neoliberal order. (Lave et al. 2010, pp. 660–661)

Neoliberalism was and is a concerted, coordinated, sweeping effort (culture) to expand capitalist economic principles to every sector of society (Mirowski and Plehwe 2009; Schulman and Zelizer 2008). This expansionist sweep extended to governmental institutions (including the judiciary), education, medicine, news

media, sports, scientific research, religion, national security, and exploring outer space. All of these sectors have been privatized, or turned over to capitalist enterprises which run them for their own profit, and to further their of privatization class hegemony over society. This occurred by depleting the country. A representative of the conservative American Enterprise Institute acknowledged that this corporate looting exploits working people and hamstring the economy: “Corporations are taking huge advantage of the slack in the labor market – they are in a very strong position and workers are in a very weak position,” he said. “They are using that bargaining power to cut benefits and wages, and to shorten hours.” That strategy serves corporate and shareholder imperatives, but “very much jeopardizes our chances of experiencing a real recovery” (New York Times, Jan. 9, 2011, p. WK4).

There has been a staggering rise in income inequality that is skewed toward the rich. In 1977, an elite chief executive working at one of America’s top 100 companies earned about 50 times the wage of its average worker. Three decades later, the nation’s best-paid C.E.O.’s made about 1,100 times the pay of a worker on the production line. (Similarly, the share of national income accruing to the top 1 percent of the Chinese population more than doubled from 1986 to 2003.) Inequality has even increased among the very rich. A study of pay in the 1970s found that executives in the top 10 percent made about twice as much as those in the middle of the pack. By the early 2000s, the top earners made more than four times the pay of the executives in the middle. This hegemonic domination of the ruling class makes it difficult for the lower classes to challenge the ruling class economically and politically. Neoliberal dominance is associated with low economic mobility. There is a 42 percent chance that the son of an American man in the bottom fifth of the income distribution will be stuck in the same economic slot. The equivalent odds for a British man are 30 percent, and only 25 percent for a Swede.

The hardening and widening of class division that neoliberalism institutionalized in the 1970s was abetted by mass incarceration that targeted the lower class. Thus, incarceration rates of white and black college-educated males did not increase, however, the rate for black and white men (combined) who did not finish high school increased three times from the 1970s to the

year 2000. The importance of social class is revealed in the statistic that whites with a high school education are imprisoned 20 times as often as those with a college degree. Mass incarceration causes poverty, because it deprives families of potential wage earners, it decimates family life which increases the odds of children's social failure, and it prevents ex-convicts from obtaining well-paying jobs. Mass incarceration also obscures poverty because inmates are excluded from unemployment figures. Mass incarceration also facilitates conservative, neoliberal political victories because it disenfranchises poor and minorities who usually vote for Democratic politicians (New York Review of Books, April 12, 2007, pp. 33–36).

The increasing hegemony of the ruling class also stifles economic growth. Every decade since the 1960s has witnessed a decline in the rate of GDP growth (4.4% in 1960s, 3.3%, 3.1%, 1.9% from 2000–2009), a decline in the share of national wealth that goes toward people's wages, and an increase in the unemployment rate. Since 1980, the country's gross domestic product per person has increased about 69 percent, as the share of income accruing to the richest 1 percent of the population jumped to 36 percent from 22 percent. But the economy grew much faster – 83 percent per capita – from 1951 to 1980, when inequality declined. Stagnation of the capitalist system is further revealed in the slowness of recovery from recessions: After the 1990–91 recession, it took 23 months to add back the jobs lost. After the 2001 recession, it took 38 months. (And this recovery was fueled by one of the great housing and credit bubbles in American history which is unavailable any longer).

At the current rate, the economy will need 72 to 90 months to recapture the jobs lost during the Great Recession (New York Times, Jan. 9, 2011, p. WK4).

Neoliberal policies such as NAFTA eliminated around 1 million American jobs according to the report “NAFTA at Seven,” from the Economic Policy Institute. Economic stagnation of capitalism is what led to massive borrowing to finance projects (mostly financial speculation rather than fixed investments), and living standards. From the 1970s to 2005, total outstanding debt in the United States leapt from 1.5 times the GDP to 3.5 times the U.S. GDP, close to the \$44 trillion world GDP. These facts reveal the lie of neoliberalism that it enhances economic growth and

the freedom of the individual (New York Times, Dec. 27, 2010, p. BU1).

One telling example is research laboratories at major universities being funded and controlled by big oil and pharmaceutical companies. An examination of ten contracts between leading oil companies and major universities, worth \$883 million over 10 years, revealed the following details of corporate dominance over scientific research.

- In nine of the ten energy-research agreements, the university partners failed to retain majority academic control over the central governing body charged with directing the university-industry alliance. Four of the ten alliances actually give the industry sponsors full governance control.
- Eight of the ten agreements permit the corporate sponsor or sponsors to fully control both the evaluation and selection of faculty research proposals in each new grant cycle.
- None of the ten agreements requires faculty research proposals to be evaluated and awarded funding based on independent expert peer review, the traditional method for awarding academic and scientific research grants fairly and impartially based on scientific merit.
- Eight of the ten alliance agreements fail to specify transparently, in advance, how faculty may apply for alliance funding, and what the specific evaluation and selection criteria will be.
- Nine of the ten agreements call for no specific management of financial conflicts of interest related to the alliance and its research functions. None of these agreements, for example, specifies that committee members charged with evaluating and selecting faculty research proposals must be impartial, and may not award corporate funding to themselves. (see Jennifer Washburn, “Big Oil Goes To College,” Center for American Progress, http://www.americanprogress.org/issues/2010/10/big_oil.html; see also G. Bowley “The Academic-Industrial Complex, *New York Times*, Aug. 1, 2010: <http://www.nytimes.com/2010/08/01/business/01prez.html?scp=1&sq=university%20industrial%20complex&st=cse>).

Neoliberalism has been as aggressive, expansionist, and hegemonic a social force as the Roman Empire and

Catholicism were. It is a top-down movement that is directed by wealthy capitalists through a maze of private and governmental organizations which influence policy and propagandize the populace (Lazzarato 2009; Stack 2009; Mayer 2010). It is not an accretion of individual behaviors, as classical free market economists, and individualistic psychologists, propose (Note 2).

The culture of neoliberalism entails a psychology – which Foucault called pragmatics of subjectivity, or technology of self that is formed by subjects under cultural pressure (Dean 2009; Miller and Rose 2008). One element of “neoliberal psychology” is violence. More than 30,000 people die from gunfire every year. Another 66,000 or so are wounded, which means that nearly 100,000 men, women and children are shot in the United States annually. Another one element of “neoliberal psychology” is insecurity. “Contemporary policies regarding employment, for example, ‘workfare,’ which forces those in receipt of assistance to work, are *policies that introduce degrees of insecurity, instability, uncertainty, economic, and existential precarity into the lives of individuals*. They make insecure both individual lives and their relation to the institutions that used to protect them. It is not the same insecurity for everyone, whatever the level and conditions of employment, yet a differential of fear runs along the whole continuum.” “Neoliberal politics operate a reversal of institutions of protection into apparatuses that produce insecurity” (Lazzarato 2009, pp. 119–120, 128, my emphasis). Work in capitalism is increasingly insecure in the sense that it is less protected by extended contracts, is less permanent, and more contingent. Employees (except for key personnel) become interchangeable, disposable, recallable, and transferable. Workers in high-paid, high-skilled jobs such as factory work have been terminated in droves and forced to accept unskilled, low-paid employment. The new neoliberal social organization consists of a “micro politics of insecurity” which is simultaneously a cultural psychology of insecurity.

The winner-take-all paradigm of neoliberalism, which enriches and empowers dominant members of the ruling class, generates a psychology of resignation, resentment, and cheating among the losers who have little hope of success (New York Times, Dec. 26, 2010, p. BU 1). This psychology would be inexplicable

without knowledge of neoliberalism’s structure described above.

Neoliberal culture also requires and fosters a new kind of commodified self. Foucault took up this topic with his usual perceptiveness. Lazzarato (2009, p. 121) explains it as follows:

- ▶ Foucault’s analysis allows us to understand the role of capitalization as one of the techniques in the transformation of the worker into ‘human capital’ in charge of his/her own efforts to manage him/herself according to the logic of the market. The individual is an “enterprising self.” The individual becomes a ‘capital-competence’, a ‘machine-competence’; he or she cannot become the new *homo oeconomicus* without being ‘a lifestyle’, a ‘way of being’, a moral choice, a ‘mode of relating to oneself, to time, to one’s environment, to the future, the group, the family.’

Foucault observed that the individual becomes an entrepreneur not simply of businesses, but of herself. As ‘entrepreneur of herself, the individual maximizes herself as ‘human capital’ in competition with all other individuals (Lazzarato 2009, p. 111). This is a pregnant statement because it states that people have internalized the commodification of people (labor) and treat themselves in the same way employers treat them, namely as human capital that is instrumentally used in economic relations to generate profit. People develop themselves into human capital so as to become profitable in that system. People do not passively suffer being commodified; they practice/institute commodification on themselves; they are agents of commodification. Commodification is the *habitus*, or *dispositif*, of individuals. Agency has thus become commodified. Agency does not stand outside society and resists it so as to express an autonomous individual. On the contrary, agency acquires cultural forms. In this case, it takes the form of entrepreneurship toward oneself.

The neoliberal, individualistic self-concept structures one’s emotions, actions, worldview, and politics. In the year 2,000, 137 people who had been affected by neoliberal cutbacks were interviewed. Most of the subjects accepted individualistic neoliberal ideology and held themselves responsible for their plights. Accordingly, few expressed outrage, i.e., at the political economy. Nor did they engage in political action to improve the political economy. Even individuals who had gone

to school to train for a job, and had worked hard getting and holding a job, reacted to displacement with doubt about their own decisions and motivation rather than anger at the power elite. Few of the displaced individuals emphasized structural factors and politics as responsible for their plights. Conversely, successful individuals prided themselves on their foresight and motivation. The never acknowledged social factors that contributed to their success. This is an important example of how psychology (of self) depoliticizes behavior by ignoring macro cultural factors, and by generating emotions that blame the individual (e.g., self-doubt) rather than blaming cultural factors (e.g., anger).

These individuals did not resist, negotiate, modify, or transcend prevailing neoliberal ideology and psychology (Braedley and Luxton 2010, chap. 8).

This neoliberal individualistic self-concept, with its notion of personal choice and responsibility, has permeated the notion of agency. Social scientists embrace individualistic agency because they construe it as peoples' liberatory capacity to resist, negotiate, and modify cultural factors. Ironically, individualistic agency/self impedes understanding, critiquing, and modifying cultural factors, because they are perceived as outside the individual realm where they neither affect the individual nor are affected by him. Consequently, Interviewees who espouse the individualistic self concept manifest significant helplessness, fatalism, and resignation. Individualism breeds a sense of reification and fatalism. Individualism, i.e., agency, cannot resist and transcend capitalism because it is a product of capitalism. One can only imagine that the individualistic self/agency transcends capitalism if one ignores the (capitalist) social basis of the self and agency and misconstrues it as being a personal or natural construct.

Neoliberal cultural psychology is organized and socialized by the various elements of the social system. Education is a major socializer of neoliberalism through its central role of teaching children how to think and learn and conceptualize things. Neoliberalist political economy has transformed higher education in line with capitalist principles: "the commercialization of education is a 'global' phenomenon, driven by international policy concerns through international institutions such as the World Trade Organization." "Within the UK, this trend toward higher educational reform

has been developed through a number of government policy initiatives and commissioned reports." Within the USA, Obama has reinforced Bush's neoliberal agenda to privatize schools (along with the military, space exploration, health care, the media, etc.). Specifically, "the neoliberal. commercial model is an 'instrumental' education, in the sense that it is about the development of human resources and economic prosperity much more than notions of personal achievement, growth and fulfillment and the promotion of education for the social good." (Lambert et al. 2007, pp. 526–527).

This economistic, sense of education is reflected in the reduction of education to preparing for quantitative, rote memory tests. Neoliberals use the procedure of testing for knowledge as an insidious means to re-engineer the entire pedagogical process in accordance with the capitalist political economy. Pedagogy becomes narrowed to simple, formulaic concepts that can be regurgitated on standardized tests. Testing-oriented pedagogy reduces critical, conceptual reasoning and explanation that cannot be readily measured. It reduces education and knowledge to a quantitatively measurable commodity. In this way, knowledge and thinking become compatible with neoliberal capitalism. A key link in this synchrony is the industrialization of grading standardized school tests. Standardized testing across school districts, cities, or states is scored and graded by a few multinational corporations. One of them, Pearson, owns the Financial Times, The Economist, Penguin Books, and Prentice hall publishers. These corporations employ thousands of part time employees to work in centers. Employees receive the tests electronically and score them individually in cubicles. There is no social interaction or communication at work. Employees are former security guards, office workers, anyone with a bachelor's degree. When work slows down, they are given two hours' notice that the work will end and they are terminated. Even the offices and computers are leased temporarily. Scorers earn 30–70 cents per paper; at 30 cents they must score 40 papers an hour to earn \$12 per hour. This piece rate incentive system encourages scorers to score rapidly with little involvement in order to maximize pay. Scoring standards are passed onto scorers by company leaders, and if scores deviate from a pre-determined scoring curve, the scorers are instructed to increase

or decrease the grades. With test scoring made into a for-profit industry, the tests must be congruent with this process. In other words, the test scoring industry is synchronous with the test format. The “MacDonalidization” of test scoring reaches back to affect test construction. Only a superficial, quantitative test can be scored profitably in the scoring combine. Test construction and test scoring are commodified industries which complement each other. And this entire corporatized, standardized testing industry acts back to structure teaching pedagogy. It thereby structures the educational psychology of students. A common response to the question “What is one of your life goals?” is “to talk less in class” and “listen to the teacher” (DiMaggio 2010). Culturally formed thinking, learning, and motivation then find comfort with commodified products and relations; they function smoothly within capitalist products and relations, and they desire them as well. They find non-commodified phenomena too demanding, complicated, and dull.

Neoliberal policies are restructuring education in line with the needs of contemporary capitalism (Ravitch 2010; Packer 2001). As work becomes increasingly deskilled under the domination of technology and management, sophisticated education is less necessary. Today in Britain, well over 80% of work is in service sector jobs that are dominated by low-grade and poorly paid occupations in the healthcare, hospitality, cleaning, fast food, catering and retail sectors. Sophisticated education is dysfunctional for this economy. It would lead to “unrealistic” aspirations among the populace and cause them to feel resentful and rebellious about their low social position. Neoliberal policies are curtailing education to conform to the political economy. The conservative government in Britain, in 2010, has drastically cut funding for higher education. Neoliberalism exacerbates inequality, exploitation, and consumerism (Braedley and Luxton 2010). All the sentimental waxing by the capitalist class about the need to strengthen education to remain competitive in the world economy is sheer rhetoric. Nowadays, educated individuals cannot find jobs at their level and are forced to take unskilled jobs for which they are overqualified. At the very moment that capitalists are curtailing the need for high-skilled, high-paid employment, and are promoting policies that reduce

government spending on education, they pretend that they are creating jobs that require a well-educated work force. This shifts the problem from their neoliberal policies to deficiencies in the populace who do not educate themselves, or to deficiencies in teachers who are not educating students to take advantages of the high skilled that the capitalists are supposedly creating. But if these jobs exist, why are educated people taking unskilled, low-paid jobs? In fact, the limited need for educated employees can be met with a few elite universities in the home country, and supplemented by importing educated employees from abroad. Even educational expenses are outsourced in this manner, as foreign countries (India, Iran) expend their resources to educate employees that eventually work for capitalists in the first world countries (Note 3).

The neoliberal form of education entails a corresponding psychology of self, cognition, and conceptualizing things. Other people, the self, and natural objects and animals tend to be conceptualized as commodified resources to be used instrumentally for exchange and profit. The “use-value” of people, animals, and things is subordinated to their exchange value. Neoliberal education also has profound implications for the motivation, attention, dedication, and understanding of material by students in school. Students tend to treat education as an instrumental means for their own social status and material income. They will focus more on superficial ways that knowledge and educational resources can be exploited rather than on deeply understanding them. They will try to maximize their educational outcome (measured in grades) and minimize their psychological input, in keeping with the neoliberal business model. Students will favor simple, quantitative evaluation of their work because the criteria are easy to understand and meet. In contrast, more conceptual demands for comprehending material are difficult to achieve and less clear-cut to evaluate. All that complexity is anathema to neoliberal efficiency and productivity which students come to embrace.

“Neoliberal cultural psychology” is organized by neoliberal political economy, and it reciprocally enacts neoliberal culture. Students’ educational psychology reinforces neoliberal education and neoliberal culture in general. Armed with neoliberal psychology makes students into agents of neoliberalism, just as consumer psychology makes consumers into agents of

consumerism. This is the reason that psychology is culturally organized. Culture needs psychology to enact cultural behavior that sustains a particular social system.

The cultural psychology of the instrumental, commodified self, instrumental-commodified cognition, and insecurity is built into the social organization of our dominant macro cultural factors. At the same time, this cultural psychology is often obfuscated by official pronouncements that claim to be ensuring our security, personal growth, fulfillment, and social interactions. The culture thus mystifies people about itself. Mystification is built into cultural praxis (Note 4).

The case study of neoliberal psychology illuminates and verifies the principles of cultural psychology. Like the example of racial psychology, it shows that psychology is part of cultural factors. It is the subjective side of cultural factors that animates them. Psychology is contained in cultural factors such as neoliberal policies and practices. This psychology is objectified and objective, as well as objectifying of experience. It is formed by cultural factors and takes on their features. For instance, insecurity is a social condition of neoliberal political economy in the sense that people objectively have little security in their jobs, pensions, investment; they are thrown into perpetual competition where they can always lose, and they are pawns in the movement of capital to more lucrative returns (Note 5). This social insecurity takes a psychological form. People subjectively feel insecure. They are anxious and uncertain about their future. One symptom of this is that young adults are postponing marriage and commitment because they are uncertain about their geographical, social, and financial future. For the first time, more Americans aged 25–34 are unmarried than married. This subjective sense of insecurity is the subjective side of social insecurity. (Of course, mainstream psychologists and psychotherapists ignore this and concentrate on identifying personal or biological causes of insecurity and anxiety.)

Psychological insecurity is both generated by the social state of insecurity and it is a way of coping with this state. Psychological insecurity and uncertainty has become normalized as “that’s how life is,” and a lifestyle has been created around it: “I don’t know what I’ll do after I graduate; I’m just looking forward to what life will bring me.” “I’m not sure if I can hang out with you

tomorrow since something might come up, but I’ll text you if I can.” Adapting to, and enacting, psychological insecurity is culturally functional (and conformist) in that it prepares people for expecting, accepting, and participating in social insecurity and the cultural factors that underlie it.

Cultural practices are utilized as templates of normal behavior. The precariousness of neoliberalism is recapitulated in personality attributes such as being “flexible,” “adaptable,” “tolerant of ambiguity,” and “multitasking.” These are a cultural technology of the self (as Foucault would call it) that is the subjective accommodation (acquiescence) to neoliberal political economy. Normalized psychology normalizes (facilitates) its social basis. Extolling uncertainty and uncommitment as “cool” is to extol neoliberalism as “cool” because uncertainty – in our time – is a symptom and a prop of neoliberalism.

Mental Disturbance

Cultural practices and psychology of society may be debilitating. This is certainly true in neoliberal society. Insecurity, competition, alienation, continual acquisitiveness and materialism, impulsiveness, and continual distraction by competing products take their toll on people (as research demonstrates). This toll consists of impeding other behaviors that are socially and psychologically desirable. The foregoing cultural practices impede generosity and altruism, accepting advice from others, thoughtfulness, and concentrating on a particular task. For instance, consumerism constantly distracts us by prodding us with myriad ads and products that vie for our attention and money. We are supposed to continually look for new products and be attracted by superficial features to forsake older products and impulsively buy new ones. Internet search engines such as Yahoo, and sites such as MySpace and The Huffington Post, distract concentration by providing hyperlinks that draw attention away from what one is reading to numerous extraneous web pages – the reason for this is that the sites receive advertising revenue for every click that viewers make on the hyperlinks. Many web users report a drop in their ability to finish reading a single work because of being attuned to distracting hyperlinks. This distraction is compounded by multitasking at work so that every moment and space is constantly productive (i.e., generating capital).

Workers are required to shift between several tasks at a time in order to be as productive/profitable as possible and never “waste” a moment. People conduct business using cell phones while going to the bathroom! Profit-generated multi-tasking at work and in consumerism has become a cultural icon and is carried over into personal time where people feel excited talking to one set of friends on the phone while having dinner with another set of friends. Deep involvement (attention to) in one activity is diluted through this transient involvement (attention) in multiple activities. Yet, culture also insists that we concentrate and follow through on tasks – pay attention in school, avoid distractions, keep to commitments.

Similarly, the individualism and materialism of consumer capitalism impedes social solidarity, altruism, concern with personal issues, and social support. (Milton Friedman said, “So the question is, do corporate executives, provided they stay within the law, have responsibilities in their business activities other than to make as much money for their stockholders as possible?” And my answer to that is, “no they do not.” In fact, the “corporate system,” say analysts, “has no room for beneficence toward employees, communities, or the environment.”) Yet people are expected to be benevolent, caring, and supportive.

This contradiction between competing social values is epitomized in the contradiction between cultural aesthetic ideals of a slim body and the ubiquitous plying of junk food to people.

The contradiction between competing social values places people in untenable situations. Accepting one of these values makes it difficult to achieve the other. Dieting to achieve a slim body fails because it is contradicted by the ubiquitous presence of junk food temptations.

This untenable state of affairs that tears people in conflicting directions and makes success difficult, is a pathological feature of the society; a social pathology. Eric Fromm (2010) calls it “a socially patterned defect” or “the pathology of normalcy.” Rieber calls it “psychopathy of everyday life.” I call it “the psychology of oppression.”

As oppressive practices and psychology become more intense and extensive, and as they impede achieving more positive cultural ideals which formerly mitigated them, more people become more seriously

impaired. Insecurity, distraction, impulsiveness, hyperactivity, competitiveness, egoism, acquisitiveness, and materialism become uncontrollable and dysfunctional as people become increasingly bereft of social support, solidarity, commitment, coherence, and the concentration necessary to master skills. Psychological disorder reigns in accordance with social disorder. Today, as much as one-third of the American population takes (legal) psychotropic drugs to palliate its social-psychological stresses.

Forty-six percent of college students said they felt “things were hopeless” at least once in the previous 12 months, and nearly a third had been so depressed that it was difficult to function, according to a 2009 survey by the American College Health Association. In recent years, more than 1,000 depression screenings were given to students, with 22 percent indicating signs of major depression. (New York Times, Dec. 20, 2010, p. A1).

Perversely, psychological disturbances are treated at the individual level by punishing and controlling individual behavior. The social pathology at the heart of psychological problems is ignored. In addition, false claims of biological etiology deny social causes. This, of course, makes treatment inadequate.

For example, hyperactive people are treated so that they can concentrate on tasks, while still participating in consumer culture with all of its distractions. Hyperactive people are expected to concentrate their attention in school and work while simultaneously attending to myriad advertisements, shifting their attention among competing products, superficially skimming magazines for whatever strikes their fancy, feeling bored when not stimulated by novel sensations, waiting passively for new external stimulation and sensations to energize behavior, shifting tastes to accommodate external stimulation (from marketers and also peers), and impulsively buying whatever they feel like at a moment’s notice. Hyperactives are never directed to understand or renounce these cultural demands which are the root of their hyperactivity. There is no concern about forming new cultural factors that would stimulate and support virtuous practices. Consequently, the roots of pathological behavior persist and undermine individual efforts to practice virtuous behavior.

In the standard approach of treatment, individuals are supposed to find inner strength within themselves,

in the form of psychological strategies of concentration, dieting, anger management, or emotional expression, to act in fulfilling ways. Yet pathological practices are institutionalized in neoliberal cultural factors. In this struggle between administered, funded, organized institutions, and isolated individuals, it is clear which side will be victorious and which will lose.

People are not treated so as to be free of impulsive-ness, fickleness, insecurity, alienation, competitiveness, egoism, materialism, and other debilitating values and actions – for that would require a social consciousness and social activism that would challenge the debilitating, neoliberal status quo. People are encouraged to use psychological strategies to manage themselves to endure (cope with) normal social and psychological life with all its debilitating features.

This trend of psychiatric treatment demonstrates that normal world of social practices determines how people are treated by the helping professions. “Help” is not a generic abstraction. It is informed by concrete cultural qualities that reflect and reinforce the social system. The helping professions may be as corrupted by the broad culture (political economy) as any sector is.

Psychological treatment takes the form of pep talks that extol the virtues of the status quo and encourage compliance to it. Treatment also takes the form of teaching coping skills to manage taken-for-granted, “normal” insecurity, alienation, egoism, competition, materialism, and distraction, so that one can concentrate on mastering tasks, having close personal relations, honoring commitments, and being well informed and socially active.

A more common tactic is to desensitize people to the conditions which generate their disease. Medication is the prime means of doing this. Psychotropic drugs desensitize people to their environment and dampen their reactions to it. This is the real meaning of curing psychological disease.

(Medication does not treat specific biochemical mental illnesses, because these are not an issue in the context which we are discussing. Of course, there are cases of biochemical disorders and brain injuries which incapacitate people psychologically. But these are irrelevant to the widespread social-psychological disorders we are discussing. Mental illness as a social problem is first and foremost due to oppressive cultural factors. This is overlooked in most psychological

accounts. Even cross-cultural and cultural psychologists confine their attention to describing distinctive cultural features of symptoms while neglecting the oppression that generates them. In our context of mental disorder as a widespread social phenomenon, there are no discrete biochemical mental diseases; rather there are diverse symptomatic behavioral/psychological responses to cultural stressors. Medication tranquilizes this broad variety of responses. Psychotropic drugs have general desensitizing effects (on perception and reaction) and this is why medications are interchangeable; they are not specific to specific mental illnesses).

Psychiatric cure includes desensitizing people to their injurious normal environment, rather than expanding awareness of it and changing its injurious features. The refusal to challenge debilitating cultural factors inexorably leads to accommodating the individual to them. Psychiatric treatment insidiously cripples the individual to enable her to function in a debilitating environment. Rather than eliminating cultural stressors materially and objectively, they are eliminated from view through distorting the perception (consciousness, subjectivity) of individuals. (This social and political conservatism is rationalized by subjectivistic epistemology that claims reality is reducible to subjective perception. Social problems are figuratively disappeared by adopting new views of them, rather than by changing objective social structures).

Despite its inadequacy, psychiatric treatment occasionally enables individuals to achieve success in business, politics, or school. However, this success still comes at a psychological price of curtailed sensitivity and reactivity imposed by the facilitating treatment. It is analogous to wearing gas masks during periods of lethal air pollution: The masks enable people to function in that adverse condition by greatly restricting their sensitivity and freedom of movement.

Neglect of Culture by Cultural Psychologists

Cultural psychologists could fruitfully use this analysis of neoliberalism to further study the extent to which its features are actually recapitulated and embedded in psychological phenomena. For example, to what extent is the social contradiction and mystification among cultural factors reflected in people’s consciousness; to

what extent do people experience and understand insecurity in their lives, and in what ways is it obscured, disguised, sublimated, or misunderstood because of obscurantist political propaganda and other practices? Other fertile questions for cultural psychologists to explore include the extent to which commodification, mystification, individualism, instrumentalism, and other aspects of neoliberal culture are embodied in people's self-concept, motivation, reasoning, emotions, learning, and understanding. Another question is how neoliberal psychology is learned/acquired/socialized. Another cultural psychological question is the extent to which individuals are aware of their role as social agents whose psychology serves to reinforce cultural factors.

Unfortunately, cultural psychologists ordinarily aver this kind of concrete study of culture and psychology. For instance, cultural psychologists who study educational psychology typically ignore the neoliberal political-economic character of education and its impact on students' psychology. Proposals to improve education and educational psychology do not challenge the neoliberal basis, characteristics, and function of educational issues.

In an article entitled "Construction of Boundaries in Teacher Education: Analyzing Student Teachers' Accounts," in *Mind, Culture, and Activity*, 17: 212–234, 2010, two authors used "cultural historical activity theory" (CHAT) to analyze the interaction of two activity systems: student teachers' learning trajectories and the learning by pupils. The authors analyze student teachers' accounts of their teaching "to explore how boundaries are constructed in interaction and how this creates limitations and opportunities for the student teachers' learning trajectories. In our study, boundaries are defined through the relations within and between activity systems; they are dynamic and evolving, constructed in the situated negotiation of the tools, rules, and divisions of labor of each of the interacting activity systems" (p. 215). The authors assume that activity systems are interpersonally constructed. Institutional rules are selected and utilized by participants, they do not structure behavior. Given these assumptions, it is not surprising that the authors fail to describe the sedimented history, structural and coercive aspects of institutional factors. They say they are interested in these, however they do not address them

in the way we have identified neoliberal cultural and political features of pedagogy, testing, privatized education. Their individualistic theory of activity leads them to regard institutional issues as mere opportunities for participants to utilize according to their own purposes. History, culture, and politics are thereby dissolved into individual constructs and "goal-oriented activity." "We analyze how the participants produce accounts for maintaining, challenging, or transforming the prevailing boundaries" (p. 220). This renders unnecessary any detailed description of history, culture, and politics because they are always recreated by individuals. The eliding of culture, politics, and history by individualistic reconstructions as personal goals is exemplified in the authors' statement that, "Positioning reflects cultural and historical distributions of power, legitimacy, and authority but is enacted in situated actions. In other words, positioning is collectively accomplished in a discursive process where one positions oneself and the other participants. In an utterance one makes available a subject position, which other speakers may or may not take up" (p. 220). Culture, politics, and history are mentioned but immediately displaced by voluntary choices in word use. If positions are voluntarily (may or may not be) taken up by individuals through their discourse, and thus readily changed by changing one's words, then power, legitimacy, and authority play no significant role in positioning. The individualistic, subjectivistic focus inexorably leads to stripping out cultural, political, and historical content from psychology and behavior and describing them in mundane, abstract ways. Thus, formulations about neoliberal, oppressive, class-based, profit-oriented, stupefying school testing are replaced by homilies such as: "In the two learning spheres, the student teachers work on the object by asking questions, bringing up dilemmas and problems, and making suggestions that are supported and elaborated by the others" (p. 226).

Additional examples of how culture is ignored under the rubric of cultural historical activity theory are found in Chaiklin (2001). Chapter 9 has the stated aim "to analyze instructional interactions in which one participant structures the overall solving of the task so that the other participant internalizes the skills and abilities that were accomplished jointly" (p. 148). This chapter concerns interpersonal interactions, not

history or culture. It focuses on micro interactions such as whether instruction is direct or indirect. Broader culture and history are never mentioned as descriptive constructs to deepen the description of the interactions (which I did with the example of school testing), or as explanatory constructs to help understand why the interactions occurred. This approach de-culturalizes, de-historicizes, and depoliticizes interpersonal interactions. It ignores the powerful cultural shaping of behavior – e.g., by neoliberal politicians and business people who relentlessly restructure educational activities and their boundaries – to create an imaginary sense of personal, subjective freedom apart from culture.

Chapter 10 would appear to include more culture and history in relation to psychology based on its title “Intersubjectivity in models of learning and teaching: Reflections from a study of teaching and learning in a Mexican Mazahua community.” However, the chapter exclusively concerns individual interactions which are never related to the culture. A typical statement is, “In Mazahua parent-child pairs, parents would initiate the activity by undertaking actions themselves while at the same time activating the child, mostly by giving the child an assignment” (ibid., p. 186). Mazahua culture is never described or implicated in psychology/behavior. It is simply mentioned as the name of the locale where the interactions occurred. Mazahua culture is never invoked as a descriptive or explanatory construct. Yet this analysis is called cultural-historical activity theory.

Using wrong words to describe action creates misimpressions as George Orwell observed. In this case it creates the misimpression that culture is reducible to voluntary interpersonal interactions, and that to study culture is to study these abstract, non-cultural, non-historical, non-political behaviors.

The ignoring of culture in cultural psychology is demonstrated by the fact that the word neoliberalism.

The word neoliberalism only appears once in 16 years of articles in the journal *Culture & Psychology*. It is never mentioned in the 17-year history of *Mind, Culture, Activity*. The word neoliberalism never appears in any article in *The Journal of Cross-Cultural Psychology*, which has been publishing for 30 years. The most dominant cultural force in the world over the past three decades is never mentioned (much less discussed) in the leading journals on culture and psychology. While the editors and editorial boards of these journals have

failed to mention cultural and psychological aspects of neoliberalism in their publications, other journals in anthropology, geography, sociology, cultural studies, education, and social studies of science have devoted special issues to these central cultural and psychological issues. In view of this disparity, editors and editorial boards of psychological publications are negligent (Ratner 2011a) (Note 6).

Sense of Time

Our third in vivo example of cultural psychology is sense of time. Time sense is a psychological phenomenon and a cultural factor.

Time is a cultural concept that is culturally specific and culturally variable. Time sense is a cultural factor that is objectified in clocks, parking meters, calendars, timed buzzers in school and at basketball games. It is required for specific forms of life activity. Socially inappropriate senses of time can undermine a particular cultural system, or way of life. A precise, punctual, quantitative sense of time is necessary for modern social life, and a person who lacks this cannot function in this kind of social system. If too many people lack this modern cultural time sense, the system will be jeopardized.

Time sense is also a subjective, psychological phenomenon. The cultural concept of time carries a psychological/subjective side which people experience as a clock inside their mind. One understands the importance of punctuality, one strives to be punctual by keeping track of time, one feels anxious about being late, and sorry when one misses a deadline. People feel annoyed (and suspicious) when someone misses an appointment with them. Our subjective sense of time reflects the social concept of time, just as personal insecurity reflects cultural insecurity, and racial psychological attributes reflected the socioeconomic position of blacks and whites. We have repeatedly emphasized that psychology must reflect and recapitulate cultural factors if the latter are to be maintained and if individuals are to succeed in cultural activities. This is why society rewards and punishes people for the kind of psychology they manifest. Society has a vested interest in inculcating psychology. It is not a personal choice. If psychology were personal and idiosyncratic, society would not inculcate it through rewards and punishments.

The historian E.P. Thompson (1967) has illuminated the connections between people's inward sense of time and the restructuring of industrial working habits and changes. He asked, "If the transition to mature industrial society entailed a severe restructuring of working habits - new disciplines, new incentives, and a new human nature upon which these incentives could bite effectively - how far is this related to changes in the inward notation of time?" (p. 57). This is a pregnant question that poses issues in terms of cultural psychology. For Thompson suggests that cultural incentives to work in a new fashion require a new psychology, or human nature, which will be receptive to them. (Just as incentives for consumerism require new needs, perceptions, and motives that will accept the incentives and act appropriately toward them.) A new subjective sense of time is thus an integral part of external work organization.

Thompson challenged the popular view that changes in time-discipline were simply by-products of new manufacturing techniques. He argues that time-discipline involved much broader, systemic cultural changes: a transformation in work ethic and orientation to labor. Time incarnated and reinforced a new social system of labor and capital. Time became treated as currency. It took on the features of money, it becomes monetized. This is why time was regularized/standardized, quantified, mastered, saved, wasted, calculated, and used up ("time is up, stop the game, hand in your exam"). Time was not simply "emphasized" in capitalist production; it was socially reorganized to include a new social character.

Time orientation replaced task orientation. Pre-capitalist time derives from working on a task; tasks defined time, e.g., planting required X days. This became reorganized by managerial demands of time – "produce a task in 15 s." Rather than the task determining time, time comes to define the task (how it is accomplished). Natural, irregular time became replaced by unnatural, regularized time. This culminates in changing nature itself to follow imposed time frames rather than natural rhythms. This is the basis of genetically modifying plants and animals – to make them grow quickly to maximize turnover, productivity, and profit. Time/speed determine the organism (how it will grow), rather than the quality of the organism determining the time to harvest it.

Capitalist time becomes abstracted from work/task, so it may become the parameter of work/task rather than the result of work/task (Note 7). The new time orientation clearly represents capital; it generates capital. Earning capital thus requires a new sense of time in which capital is incarnated. "We are concerned simultaneously with time-sense in its technological conditioning, and with time-measurement as a means of labour exploitation" (Thompson 1967, p. 80).

Capital exerted enormous pressure on the populace to adopt its time orientation (Note 8).

Thompson (1967, p. 69) notes the interdependence of the expanding time orientation throughout the populace and the increasing standardization of labor: "a general diffusion of clocks and watches is occurring at the exact moment when the industrial revolution demanded a greater synchronization of labour."

Time orientation was the subjectivity that drove capitalist productivity. Time orientation was not simply associated with productivity, and was not mechanically caused by it as a dependent variable is caused by an independent variable. Thompson explains how the need for clocks was a culturally created need that drove people to work for capitalism. "The small instrument which regulated the new rhythms of industrial life was at the same time one of the more urgent of the new needs which industrial capitalism called forth to energize its advance" (Thompson 1967, p. 69). The artifact of the clock embodied and promoted a need for monetized time, which drew people into capitalist production and labor.

Because time sense represented and reinforced a particular political economy, it was contested by the same parties who struggled over the political economy. It was supported by the commercial elite who dominated the capitalist political economy, and it was resisted by the working class who was exploited by the elite.

- ▶ Throughout the whole medieval period, there was a conflict between the cyclic and linear concepts of time. The scientists and scholars, influenced by astronomy and astrology, tended to emphasize the cyclic concept. The linear concept was fostered by the mercantile class and the rise of a money economy. For as long as power was concentrated in the ownership of land, time was felt to be plentiful and was associated

with the unchanging cycle of the soil. With the circulation of money, however, the emphasis was on mobility. In other words, men were beginning to believe that “time is money” and that one must try to use it economically and thus time came to be associated with the idea of linear progress. (Whitrow 1973, p. 402)

Accepting the modern time sense was tantamount to accepting its capitalist basis. This struggle over time is recapitulated in contemporary health care. Insurance companies pay physicians for 15-min appointments with patients. They utilize time as a labor enforcement tool, just as factory managers did. Calculating physician–patient interactions in terms of time is not simply technical record keeping, it is a means of labor exploitation as Thompson said. Standardizing interactions in terms of time is a proxy for the capitalist political economy (which demands and promotes this). Physicians correctly resist this kind of temporal standardization of medicine because they recognize it as a mechanism of control over their work, not simply an efficient form of record keeping and allocating their time. (Under a different political economy, the technical and exploitive aspects of standardized time could be differentiated. Standardized time could serve as information for efficiently allocating work to better serve people, as opposed to subjecting them to control by capital.) Physicians also recognize standardized, commodified time as a mechanism that subordinates human interaction and quality medicine to profit for the insurance companies – who are the new owners and bosses of medical labor. Because standardized time embodies, represents, and promotes capitalist political economy, resisting the imposition of standardized time in medical, educational, and other settings requires resisting its political-economic foundation. Short of this, resistance to time itself is futile.

Glennie, and Thrift (1996, p. 277) explain how the new cultural time sense was introduced externally but then became internalized:

- ▶ New time-disciplines were initially externally imposed through official timepieces and systems of communicating time to the workforce an enforcing continuous work during the working day. But these disciplines became internally realized in quite new every day time-senses among the labor force, and came to dominate society as a whole, not least through the school

system. This process of internalization was greatly facilitated by time ethics that had evolved from 17th-century Puritanism.

The new industrial time orientation was bolstered by educational and religious institutions. These applied the time orientation to subjective thinking processes (e.g., timing the speed of learning and regurgitating information). Time-discipline was a major emphasis of schools in the eighteenth century. Puritan religion also emphasized industrial time-discipline as valuable for good character and salvation. “Puritanism, in its marriage of convenience with industrial capitalism, was the agent which converted men to new valuations of time; which taught children even in their infancy to improve each shining hour; and which saturated men’s minds with the equation, time is money” (Thompson 1967, p. 95).

Thus Baxter, in his *Christian Directory* (1673) plays many variations on the theme of Redeeming the Time: “use every minute of it as a most precious thing, and spend it wholly in the way of duty”. The imagery of time as currency is strongly marked. “Remember how gainful the Redeeming of Time is in merchandize, or any trading; in husbandry or any gaining course, we use to say of a man that hath grown rich by it, that he hath made use of his Time” (Thompson 1967, p. 87). Evangelicals went so far as to condemn sloth as murderous, and sleep as felonious:

- ▶ Thou silent murderer, Sloth, no more
My mind imprison’d keep;
Nor let me waste another hour
With thee, thou felon Sleep.

Once consciousness itself had become re-engineered to operate according to monetized, abstract time, it would apply this capitalist orientation to everything it considered. Re-engineering consciousness is a more effective form of social control than conditioning single behaviors one by one.

Thompson observes how effective this coordinated network of institutional pressures were on generating a systemic psychology that centered on an internalized sense of time: “By the 1830s and 1840s it was commonly observed that the English industrial worker was marked off from his fellow Irish worker, not by a greater capacity for hard work, but by his regularity, his methodical

paying-out of energy, and perhaps also by a repression, not of enjoyments, but of the capacity to relax in the old, uninhibited ways” (Thompson 1967, p. 91).

This industrial cultural psychology of time is similarly revealed by contrasting it with the psychology of non-industrialized people:

- ▶ The Nuer have no expression equivalent to “time” in our language, and they cannot, therefore, as we can, speak of time as though it were something actual, which passes, can be wasted, can be saved, and so forth. I do not think that they ever experience the same feeling of fighting against time or of having to co-ordinate activities with an abstract passage of time because their points of reference are mainly the activities themselves, which are generally of a leisurely character. Events follow a logical order, but they are not controlled by an abstract system, there being no autonomous points of reference to which activities have to conform with precision. (Thompson 1967, p. 96)

Glennie and Thrift refine Thompson’s analysis by emphasizing that the industrial time sense was not monolithic, despite its cultural pervasiveness. Other senses of time persisted in the family and other domains. Some differences in experiencing time devolve around gender.

We must recognize that these alternatives are increasingly dominated by industrialized time. Time spent in hospital, or the doctor’s office, has become commercialized and abbreviated and depersonalized. Family interactions are increasingly gauged by how much time can be allotted to them from work time. Vacations and childbirth are bounded as time off from work and they are squeezed into (and haunted by) this boundary. Cultural factors, and psychological phenomena, tend toward coherence and hegemony because social coordination requires commonality. People must work for common ends using common means – including mental means – in order to pool their strengths and support each other. This is the advantage of culture.

The case study of time illustrates the principles of cultural psychology that the two previous case studies revealed. All three indicate that psychology is deeply rooted in cultural-historical processes. The examples indicate that psychology is a public, objective, cultural,

political phenomenon, designed in cultural factors, to promulgate/coordinate cultural factors, politicized by cultural factors, socialized by cultural factors, and struggled over in cultural factors. Understanding psychology requires understanding these cultural dimensions.

Cultural psychology emphasizes the importance of comprehending the concrete cultural features of psychology which stem from concrete cultural factors. In our case studies, we have emphasized that the emotions, perceptions, and memory of whites during Jim Crow had specific qualities that reflected particular features of the racial code. We emphasized how the self-concept and learning style of students in a neoliberal political economy and educational system have particular characteristics that reflect the system. Thompson similarly emphasizes that the modern time sense reflects concrete features of industrial capitalism, not more abstract aspects of culture: “Above all, the transition is not to ‘industrialism’ tout court but to industrial capitalism. What we are examining here are not only changes in manufacturing technique which demand greater synchronization of labour and a greater exactitude in time-routines in any society; but also these changes as they were lived through in the society of nascent industrial capitalism” (Thompson 1967, p. 80). All too often we overlook the concrete cultural-political basis and character of cultural factors and psychological phenomena. We concentrate on their technical, or abstract, aspects. Cultural psychology brings us back to concrete cultural-political aspects of cultural-psychological phenomena – including time, school tests, love, childhood, sex, and mental illness.

Methodology and Cultural Psychology

Objectivity and Cultural Psychology

Cultural psychology is an objective, universal theory. It says that all psychology of all people is part of culture and embodies cultural features. Cultural psychology explores the particular cultural factors in different societies to understand how they generate culturally specific psychological phenomena. Thus, the universal theory of cultural psychology accounts for cultural variations in psychology. Cultural psychology is thus

a paradoxical theory, for it posits a general, universal truth about psychology that paradoxically emphasizes cultural variations in psychology.

Equally, paradoxical is the fact that indigenous theories of psychology, proposed by a specific culture, may not acknowledge cultural factors as central to psychological phenomena. Mainstream Western psychology is a case in point. The psychological theories that have arisen in Western culture typically explain psychology in natural or personal terms such as genes, hormones, neurotransmitters, personal choices. Indigenous Western psychological theories are overwhelmingly non-cultural. They do not acknowledge the centrality of cultural factors to psychology. Indigenous psychological theories are not necessarily cultural psychological theories.

Indigenous explanations of psychology may postulate non-cultural explanatory constructs. In this case, a culture's own psychological theory may not be a cultural theory of psychology. The fact that a culture proposes a psychological theory must be distinguished from the kind of theory that it is, and it may not be a cultural theory of psychology.

Whereas a particular culture's theory of psychology may be non-cultural, the universal theory of psychology known as cultural psychology is a cultural account of psychology. Therefore, the universal theory of cultural psychology must supersede and correct culturally specific explanations that are non-cultural. The universal theory of cultural psychology may be more culturally oriented than indigenous cultural theories of psychology.

For instance, extensive research on the origins and character of the self, or personality, demonstrates that the self is dependent upon the stimulation, support, and structuring by cultural factors and cultural actors. Yet a number of cultural myths deny and obfuscate this objective, social character of the human self.

Many Western and Eastern cultural myths misrepresent the nature of the self. Western individualism misrepresents the self as individually formed by free will (personal choice), or as formed by biochemical processes such as genes, hormones, or neurotransmitters. Religious ideas claim that god gives people free will and intelligence. All these concepts ignore the profound impact that cultural factors have on the person. These concepts do not constitute a cultural

understanding of psychology. They impede understanding and changing the origins and features of self – which are social. Eastern myths such as reincarnation equally misrepresent the self. Reincarnation proposes that the self is transmitted from a former life into a present one. The self, or soul, can even be reborn in another species such as a spider or a carrot. The self is regarded as a disembodied spiritual entity that jumps from a dead organism to a living organism across species depending upon the acts that it has performed. This myth is not a cultural account of psychology.

Indigenous theories of psychological disturbance (“mental illness”) may be similarly flawed. “In current-day traditional Chinese medicine practice, depression is conceptualized as a disorder of qi (the life force that flows around and through the body). In traditional Chinese medical texts, depression is called *yuzheng*, which literally means a stagnation disorder. Within this model, depression is caused by qi stagnating in liver, spleen, and lung, and recovery is brought about by dispersing the stagnation of qi with herbal medicines or acupuncture” (Lee et al. 2007, p. 6). This indigenous theory is an interesting commentary on Chinese cultural concepts about depression, but it is not an accurate scientific account of it. Doctors cannot specify what qi is empirically, nor can they explain why or how it accumulates in the spleen, nor can they empirically locate any qi in the spleen – just as god and Jesus are not locatable in the sky. Lee, et al. conclude that the symptoms of their contemporary Chinese patients did not accord with the traditional account. “The centrality of sleeplessness in our informants’ narratives is in sharp contrast to the qi and mood conceptualizations of depression” (Lee et al. 2007, p. 6).

Moreover, the Chinese account of psychological disturbance does not make any reference to macro cultural factors that generate the causes or symptoms of mental illness. These have been identified by empirical research and by cogent psychological theories. Herbal medicine may help patients feel better, just as pharmaceutical medication may help patients to relax or become less reactive. But in neither of these cases do the medications eliminate the cause of the problem in a way that resembles an antibiotic killing the cause of an infection.

Unscientific cultural myths about self offer no insight into the real origins, features, and function of

psychology. On the contrary, these cultural myths only reveal that people can be wrong about their own psychology.

Cultural myths about psychology may comprise a psychology of mass delusion. This consists of suspending rational, logical, empirical thinking, and accepting on faith ideas about the self that are unintelligible. In the case of reincarnation, there is no conceivable way to explain how a human self becomes detached from its body, floats around intact in space, and then enters another body of a human or a spider or carrot and persists intact. The whole concept defies rationality, or empirical evidence (Note 9). The psychology of delusion also includes compartmentalizing thinking into a sphere of irrational, illogical faith that co-exists alongside a sphere of logical, rational, empirical thinking.

Uncritically accepting indigenous psychological constructs as true insights into psychological phenomena

- Prevents understanding how psychology truly works
- Prevents detecting erroneous concepts about psychology
- Traps people in ignorance
- Prevents people from knowing how to create fulfilling selves
- Denies the psychology of delusion
- Prevents studying the psychology of delusion

An objective critique of subjective errors does not demonize or persecute the individual, nor does it leave one bereft of identity. The point is scientific and educational: To help people understand the social character and social bases of their psychology so that they can better understand who they truly are and why they are that way. This enables them to realistically evaluate their identity and improve it by improving its social basis (Note 10). An objective psychological critique thus leads to improving society and freeing people from mystifying cultural factors. Cultural psychological science has political value.

If we did not have an objective psychological analysis, we would never know that indigenous understandings of self were erroneous; we would never know to search for malevolent cultural factors that mystify people about their psychology; nor would we

attempt to improve cultural factors in ways that would enlighten people about their psychology (we would deem them to be already enlightened, or we would use indigenous treatments such as psychotropic drugs or herbs, or we would place an article of clothing on a stick and wave it around to call home a wayward spirit).

Abandoning critical psychological science superficially appears to validate people by accepting their indigenous psychological understanding; however, it actually traps people within mystified understanding and mystifying cultural factors (Ratner 2011a, b). If people believe that their unfortunate social position and psychological state are due to their former lives as spiders, this prevents them from effectively analyzing and challenging the true causes of their misfortune. And if you treat mental illness with medicine instead of analyzing and altering distressing social factors, this distracts from real treatment and prevention.

Denying Universal Science

Multiculturalists generally denounce external, scientific critiques of culture and psychology as being elitist, patronizing, and dismissive of indigenous culture. The very attempt to evaluate another culture is denounced in principle. However, this is a misguided criticism. Expert, objective, scientific analysis is beneficial to help people understand and control events that affect them. When you go to a doctor to treat your cough, which you believe is caused by a cold, and he tests you and tells you that your cough is caused by lung cancer, he is providing an expert, scientific diagnosis that contradicts your own limited, incorrect knowledge. Yet this is beneficial to you; it is not dismissive, patronizing, or elitist. The same is true of psychological scientific analysis of psychological phenomena. The fact that it contradicts a people's indigenous opinion about the origins and characteristics of psychology does not make it dismissive, patronizing, or elitist. On the contrary, it provides useful information to people about the origins and characteristics of their psychology (Note 11).

Of course, psychological science is not as advanced as medical science; however, the principle of using objective scientific methods to arrive at conclusions which dispute people's common sense about psychology is constructive, salutary, and empowering in both

cases. This viewpoint leads to improving psychological science whereas the multicultural adulating of indigenous psychological constructs leads to rejecting psychological science that could critique these.

Nowadays, it is fashionable to disparage science as a fantasy about illusory objectivity and truth. Skeptics of science claim that all observation is ultimately subjective interpretation, constantly changing, and devoid of independent objectivity or truth (see Sokal 2008; Koertge 1998, chaps. 1–3 for a critique of this claim). This claim misunderstands subjectivity and objectivity. It is true that science involves subjectivity and interpretation, and scientific truths are struggled over and revised in line with new knowledge. However, science is based upon ontological and epistemological principles, including experimental controls and rigorous examination of empirical evidence and rigorous logical reasoning. This is far different from subjective opinion. Science does discover enduring facts about things. Even refinements in scientific knowledge reach greater truth about things; they do not testify to the impossibility of objectivity. We certainly know more about more things than in previous times. New scientific concepts are not random fluctuations in subjective opinion which disregard and disprove objectivity.

This is true in social science as in natural science. Cultural psychological science discovers facts and principles concerning the origins, characteristics, and function of psychological phenomena. This is what gives it value. Although social and psychological phenomena are human constructions, they are real constructions. The President has real power despite the fact that it is socially bestowed power. Money too has real power although it is socially bestowed. A person's anger is real and has devastating consequences, despite the fact that it is a humanly generated subjective state. These real facts have objective existence that can and must be accurately comprehended. One can be wrong in one's understanding of these phenomena. One can even be confused about one's own subjective state. Mistakes in this area have devastating consequences. Therefore, objective science is possible and necessary to apprehend humanly constructed phenomena.

Science skeptics falsely dichotomize subjectivity and objectivity. They believe that subjectivity and objectivity are antithetical. In their view, subjectivity prevents and refutes objectivity, and objectivity is mechanical, naïve

realism that displaces subjectivity. This dichotomy is false. Subjectivity and objectivity are dialectically complementary. The whole point of subjectivity is to comprehend the world. Human subjectivity comprehends things far more thoroughly than simple, sensory, animal processes do. It is indisputable that humans have more advanced subjectivity than animals and that we understand things far better than animals do. Our understanding of electrons, enzymes, and entropy is accomplished by subjectivity, it is not clouded by subjectivity. Conversely, objectivity requires and stimulates subjectivity, it does not contravene it. We must develop our subjectivity to comprehend the marvels of nature. They do not mechanically impose themselves upon our sense receptors without active subjectivity.

Subjectivity reaches beyond itself to the world; it is not absorbed in itself. Science skeptics reduce subjectivity to self-absorption. They reduce it to a personal process, located inside the person, colored by the person's individuality, and oriented toward the person. For them, subjectivity expresses and validates the person. Any attempt at apprehending a world beyond the person is not only impossible (because it is always refracted through personal attributes), it is depersonalizing in that it orients subjectivity away from the person. This desire to prioritize and affirm the individual in every act (and the fear of losing the individual in a larger world) is what stokes the passionate denial of a real, objective world beyond the individual that can be apprehended by science. The denial of science is essentially a political, social position (to affirm the individual), as most intellectual issues are.

Affirming science is equally social-political. It affirms worlds (natural and social) beyond the individual that can be known by directing subjectivity away from the individual to the greater worlds of which he is a part. Science is world-centric, while denying science is ego-centric. Affirming science brings the individual out of himself to vast worlds beyond him which he can and must understand and enhance. This growth requires subjecting his ideas to critical scrutiny from others and from nature. He cannot construe nature and society as he wishes, as his personal construction, within his own subjectivity. He relies on other people and natural phenomena to refine his own constructs. He has to work with them and through them to enrich his own life. All of this is implicit in the scientific outlook.

Science is a zone of proximal development in Vygotsky's sense. It is a good thing to subject the individual to social scrutiny and correction, as any teacher, parent, or friend does. This expands and enriches the person, it does not diminish him. This social view of people is implicit in the collaborative nature of science. Science skeptics have an individualistic view of the person.

Qualitative Methodology

An important methodology for arriving at a comprehensive, objective, scientific explanation and description and prediction of psychological phenomena is qualitative methodology. Qualitative methodology probes deeply into the quality of psychological phenomena which contains cultural and personal constituents. While psychologists prioritize positivistic methodology as scientific, and reject qualitative methodology out of hand, without knowing anything about it, this is a gross error. This issue has been explained in the book, *Cultural Psychology and Qualitative Methodology*. The flaws in positivistic methodology are discussed in the next section on cross-cultural psychology. Here the advantages of qualitative methodology for cultural psychology are indicated through the use of one example.

The example is a qualitative study on Chinese mental illness by Lee et al. (2007). They examined depressive experiences of participants by open-ended, in-depth, ethnographic interviews which were content-analyzed. These methods revealed six categories of affective experiences among the participants: Indigenous affective lexicons, embodied emotional experiences, implicit sadness, preverbal pain, distress of social disharmony, and centrality of sleeplessness. For instance, embodied emotional experiences combined affective distress with bodily experiences.

- The compound terms nearly always involved the heart—*xinhuang* (heart panic), *xinjing* (heart dread/frightened), *xinfan* (heart vexed), *xintong* (heart pain), and *xinyi* (heart dysphoric/depressed/clutched/compressed). Some informants were adamant that emotional distress could be felt right inside or over the heart. Other compound terms showed that *xin* (heart) could be both the anatomical heart and the metaphysical mind, as *xinxing* (heart wakeful) and *xinlei* (heart exhausted) indicated. It has been suggested that

“heart-mind” is the best formulation of *xin* as an embodied term.

“I felt my head swelling, very distressed and painful in the heart [*xin hen xinku*], my heart felt pressed . . . So . . . [sighing] . . . I felt my heart very irritated [*xin hen fan*], very upset . . . I felt my heart clutched and dysphoric [*xinyi*] . . . My brain swollen, so swollen inside. It is heart pressed and brain swollen [*xinyi naozhang*].” (Lee et al. 2007, p. 4)

Qualitative methods revealed the cultural-psychological quality of depression in a rich way that is important to cultural psychology and to an adequate understanding and treatment of psychology in general. No other methodology can reveal the nuanced quality of psychological phenomena that is necessary for understanding and treating them.

The cultural quality of psychological depression is real and essential.

- “Bodily complaints” are not best thought of as figurative or disguised symptoms. Rather they are bona fide experiences, as true as any other symptoms of depression, that deserve the same level of recognition and attention. Instead of regarding embodied symptoms, such as head swelling or chest pain, as atypical, metaphorical, or rudimentary, clinicians should view these expressions as windows that cast light on the deep sensibilities, personal and cultural, of being depressed. The failure to respect embodied affect can lead to therapeutic non-engagement. The failure of conventional diagnostic instruments to detect and capture embodied affective experience, as well as other ethnocultural expressions of depression, may explain the unusually low prevalence of depression reported in lay interviewer-administered epidemiological surveys among urban Chinese and in other societies.

We would like to emphasize that we are not presenting a critique of the DSM per se, but rather of psychiatry in general. We want to point out that contemporary psychiatric knowledge – as captured in the textbooks and diagnostic criteria – more accurately depicts depression in the West than in China. This result is unsurprising, given that the criteria and textbooks are based on Western patients. Nonetheless, we hope that the readers are aware that the phenomenology of depression is different in China and doubtless other non-Western societies. Hence, psychiatrists and

researchers working with non-Western patients need to ask different questions in order to elicit the depressive symptoms and illness experience. (Lee et al. 2007, p. 7)

It can be said that not only do conventional Western diagnostics fail to adequately apprehend the experience of contemporary Chinese mental illness, but traditional Chinese accounts, such as qi stagnating in the spleen, do not apprehend it either – as Lee, et al. mentioned in our discussion of objectivity.

Shweder et al. (2008) employ qualitative methodology to elucidate the cultural qualities of emotions. The authors usefully identify eight dimensions of emotions which are axis for comparing analogous emotions in different cultures. The authors employ qualitative methodology to identify the features of each axis. This yields a comprehensive qualitative portrait of all the dimensions of a particular emotion in different cultures. For instance, American anger is compared with its analog *lung lang* in Tibet. On the dimension of somatic experience, research reveals considerable overlap or similarity. Feelings of tension, anxiety, and heat were common to both cultures. However, affective phenomenology manifested significant qualitative differences. Americans were far more likely to experience anger lingering after the provocative event, whereas Tibetans were likely to have dissipated *lung lang* and replaced it with dysphoric feelings such as shame, regret, and unhappiness. This undoubtedly stems from differences in another emotional dimension, “normative social appraisal”: Tibetans regard *lung lang* as morally bad and leading to bad karma, whereas Americans regard their anger as morally ambivalent, neutral, or natural. Americans frequently emphasized the positive aspects of anger such as giving people energy to respond to problems or injustice. The different social appraisals of anger and *lung lang* also were the likely root of differences in another dimension, “self-management.” Tibetans were likely to believe that anger could be controlled and prevented; Americans did not believe this was possible or desirable. Americans felt that anger is natural and should be expressed for the benefits it yields. Tibetans felt their emotion is harmful and so it can and should be controlled and prevented. This also explains why Tibetans were quick to forget about anger while Americans continued to experience and recall it.

This qualitative research reveals how an emotion is an integral complex of qualitatively congruent dimensions that have an internal logic.

These examples demonstrate how qualitative methods apprehend the rich cultural-psychological quality of psychological experience/states. Since the objective of psychological science is to thoroughly comprehend the full complexity of psychological phenomena, qualitative methods may be said to be objective. They are clearly useful for elucidating subtle, nuanced cultural qualities of psychological phenomena. Positivistic methods are far less objective in this sense. They limit responses to simplistic, superficial, fragmentary responses to ambiguous, truncated test materials. This is evident in the shortcomings of cross-cultural research which rely upon these methods.

Cross-cultural Psychology from the Perspective of Cultural Psychology

To fully appreciate the distinctive emphasis of cultural psychology, it is useful to compare it to cross-cultural psychology. Cultural psychology arose out of dissatisfaction with cross-cultural psychology (Shweder 1990). This dissatisfaction must be elucidated in order to capture the genesis, motive, and telos that informs cultural psychology. There still remains a tension although cross-cultural psychologists have recently sought to downplay the differences and declare a “big tent” in which everyone concerned with culture and psychology can join hands. Several cross-cultural psychologists have written pieces and edited books on cultural psychology. However, differences in principle remain unresolved. “The big tent” is wishful thinking that papers over, rather than resolves, principled differences. This is harmful because it allows the weaknesses in cross-cultural psychology (that provoked cultural psychology to arise as a corrective) to persist. Eclecticism is regressive not progressive because it allows weaknesses to persist in “the big tent” and it blunts the critical effort to correct them. The controversy that existed in the 1980s and 1990s was healthy because it exposed the errors and fleshed out more valid directions in cultural psychology. However, eclecticism stifles controversy and criticism, and it embraces errors as just another viewpoint that has something to offer.

Because cultural psychology strives to avoid weaknesses of cross-cultural psychology, it is important to

know what these are in order to understand the thrust of cultural psychology. Cultural psychology, like any discipline, is defined in part by what it avers, because its aversions determine its direction along new lines.

We shall examine a representative example to illustrate the characteristics of cross-cultural research. The characteristics we shall encounter are the following: The authors rely on the positivistic ontology and epistemology that dominates mainstream, general psychology. This undercuts their efforts to identify and compare psychological content in particular cultures. The positivistic framework reduces complex, concrete factors that are interrelated in a specific social system, to fragmented variables which are abstracted from real systems and thus lose the nuanced, concrete content that they have in real life. Additionally, positivists' operational definitions of psychological and cultural variables are simplistic, superficial, and oftentimes irrelevant to the topic being investigated. They are usually developed to elicit expedient, easily quantifiable responses rather than to probe the psychological content/quality of an issue. The tests and measures thus provide little information about the topic of research. Oftentimes, detailed knowledge of cultural-historical factors is lacking, and is replaced by superficial, abstract, notions. Finally, statistical procedures supersede sensitivity to psychological issues. Statistical tests, which only indicate statistical probabilities, are used as criteria for whether research is significant. No psychological criteria are developed to assess whether empirical results are psychologically significant. This is a surreal situation that prevents psychologists from having any idea about the psychological significance of their research on psychological issues. Moreover, they do not see this as a problem that warrants correction. Instead, they blithely continue to use psychologically irrelevant criteria for assessing psychological research. This is as absurd as using psychological criteria for assessing research in physics – e.g., using the results of personality tests on physicists as criteria for whether their research on subatomic particles was significant (see Ratner (2002, 2006, pp. 26–30) for a comparison of cross-cultural psychology and cultural psychology).

Emotional Complexity

Our representative case study of these characteristics is Spencer-Rodgers et al. (2010) research on emotional

complexity (EC) – the co-occurrence of pleasant and unpleasant emotions. The authors assert that EC is more prevalent in East Asian than Western cultures. Euro-Americans traditionally show an inverse relationship between good and bad feelings; individuals who report experiencing positive affect frequently or intensely also report experiencing negative affect less often or intensely. In contrast, “In East Asian representations, constructs such as happy/sad are viewed as mutually dependent, coevolving, and existing in a state of balance. East Asians conceptualize the self in a dualistic manner and are more tolerant of contradiction. Consequently, they may have more complex emotional reactions to self-relevant experiences” (p. 110).

This description presents Asians as complex, balanced, and tolerant of contradiction and nuance. In contrast, Westerners are simple, one-sided, and crude.

This characterization of the populations is politically laden. The labels are implicitly demeaning to Westerners and congratulatory of Asians. Emotionally complex-balanced-tolerant is regarded by most people as more positive than simple, one-sided, crude emotionality.

In addition, applying the positive label of emotional complexity to experiencing multiple emotions simultaneously is a political act. This experience could just as well be labeled emotional confusion, or emotional inconsistency. Conversely, the Western separation of positive and negative emotions could be labeled as emotional consistency or emotional clarity. This choice of labels would reverse the positive and negative connotation of Easterners' and Westerners' psychology. Thus, the authors are engaging in a political act of degradation or glorification in their choice of psychological labels. Their choice is arbitrary because it could just as well have been reversed. (In the old days, Western male psychologists used labels in similarly political ways. They labeled the psychology of women and minorities with pejorative terms, which women and minorities objected to. Spencer-Rodgers, Peng, and Wang simply reverse this psychological imperialism and direct it against Westerners – just as it is now fashionable to label men as less emotionally sensitive, expressive, and complex than women.)

Indeed, the authors' measure of emotional complexity did formerly carry an opposite designation. The authors acknowledge that “In this study,

complexity scores are used to measure the extent to which participants reported experiencing both good and bad feelings over the past few weeks. Originally developed to measure ambivalence, these scores index the extent to which individuals hold *both* positive and negative attitudes or emotions” (p. 110). Thus, the correlation of positive and negative emotions was originally deemed to have a pejorative connotation of ambivalence; however, the authors arbitrarily reversed this connotation into a positive one of emotional complexity. This is a political act posing as social science.

Equally problematical is the validity of the conclusion that emotional complexity (EC) – the co-occurrence of pleasant and unpleasant emotions – is more prevalent in East Asian than Western cultures. Common knowledge about social life in China and the USA refutes the authors’ generalizations. Americans readily experience the complexity of emotions and the co-presence of sadness and happiness. Americans frequently experience a mixture of sadness and happiness when an infirm elder relative dies. Although we are sad at the departure of the loved one, we also feel relieved and happy that her (and our) suffering has ended. Upon marriage, almost all Americans feel a nuanced happiness that contains elements of worry about whether the marriage will end in divorce as 50% do. Most couples feel a mixture of love and disappointment for their partners. Hardly any Americans are deliriously happy about every aspect of their partner and have no grievances. Even losing a job can provoke a mixed sense of loss but also excitement at a new opportunity for a different kind of life. Graduation from high school or college typically provokes a nuanced sense of loss and excitement. Catholicism, which is believed by millions of Westerners, construes death as bittersweet because it is a passage to salvation at the same time it is a loss.

Conversely, Chinese often experience single, overriding emotions. During the Nanking Massacre, Chinese people felt overwhelming, single-minded hatred of the Japanese perpetrators. They did not feel a balance of fury and love for them. When a Chinese student is rejected from an elite university, his emotion is overwhelmingly sad; there is little tinge of elation. Conversely, when Chinese gymnasts win a gold medal, Chinese citizens feel elated; they do not feel a mixture of elation and depression.

The authors will say that they are only comparing degrees of emotional complexity; so of course some contrary cases will be expected in both populations. However, the counter examples that are enumerated are widespread, and not notably different in the two countries.

The authors do not assess these kinds of real life emotions in their study. Their measures do not tap real life practice/experience.

Emotional complexity was assessed using 20 items adapted from the PANAS. Participants indicated “the extent to which you have felt this way during the past few weeks” on a unipolar scale ranging from one (not at all) to nine (very much). They rated ten positive emotions (confident, content, calm, proud, bold, satisfied, pleased, energetic, happy, and interested) and ten negative emotions (sad, tired, bored, upset, disappointed, nervous, insecure, ashamed, angry, and embarrassed). EC scores were computed using the negative acceleration model by applying the formula, $([2 \times S] + 1)/(S + L + 2)$, where S is the smaller and L is the larger mean affect rating. Higher scores indicate greater EC.

This measure actually contradicts the sense of emotional complexity the authors present. Emotional complexity only exists when a given experience includes both positive and negative emotions, as in the aphorism which the authors cite: “For misery, happiness is leaning against it; for happiness, misery is hiding in it. Happiness and misery are interdependent and interpenetrating.” However, the authors’ positivistic measure of EC asks Ss to recall positive and negative emotions that were experienced separately during several weeks. Ss who experienced a positive emotion in one event and a negative emotion in a separate event would receive a score of 9 and be defined as emotionally complex. However, each emotional experience would have been simple and one-sided. The authors mistakenly equate a sum of separate emotions with an integrated, complex emotional experience. Their measure of EC violates the psychological meaning of emotional complexity which is an integrated, complex, nuanced emotional experience. Designating the measure as “emotional complexity” is a misnomer.

In addition, the operational definition relied on Ss’ memory of their emotions, it did not tap emotions that were actually experienced. Presenting, and entitling, the research as involving emotions is not quite accurate.

Statistical Significance

Another methodological problem with the research is that it subordinates psychological significance of the findings to statistical significance. For instance, the difference between Chinese and American students on EC was .06 ($M = .76$ for Chinese and $.70$ for Americans) which is miniscule and psychologically insignificant. Nobody would conclude that two people (or groups) whose score on a crude questionnaire about memory of events over a 2-week period differs by 0.06, are psychologically different, in a significant, meaningful way. (Of course, a more thorough psychological assessment of the data needs to be accomplished. However, positivists have resisted developing this kind of psychological assessment, so their study does not report any. We are forced to infer the lack of psychological difference from the minuteness of the score differences and from the crudeness of the measure of EC.) However, this difference in scores was statistically significant at the 0.05 level which the authors take as indicating their hypothesis.

But, statistical significance has nothing to do with psychological significance. The authors use a non-psychological criterion of statistical significance to produce a finding of significance, when a psychological assessment of the results indicates no significance (i.e., data indicate no significant psychological difference). They can only pretend their results are significant by using an irrelevant measure of significance. A true (psychological) assessment falsifies their results, so they use a false (statistical) assessment to validate their results. The false assessment converts the false results into significant results. The right assessment produces the wrong conclusion (no difference), for them, so they use a wrong assessment to produce a right conclusion, for them. They use an unscientific criterion to generate a socially acceptable conclusion because a scientific criterion generates a socially unacceptable conclusion (of no difference). They subjugate science to serve their social purpose of generating significant data (that will be socially rewarded by publications, social prestige and positions, and monetary rewards).

The authors, and all positivists, take the statistical finding of “significant” and transpose it to the psychological arena where it does not apply. This is nominalism. It uses a word to imply a reality that does not exist.

Dialectical Thinking

Another problem with this study is the authors’ ignorance of cultural factors in China and the USA.

The authors attribute emotional complexity to dialectical philosophy in Asian cultures. Yet it is not clear why the authors presume that dialectical thinking is an Asian attribute. For dialectics was developed by Western philosophers such as Plato, Hegel, Marx, Adorno, and Marcuse. Dialectics is an important element in Western philosophy. Vygotsky, for example, utilized dialectical thinking in many of his formulations. The word dialectics was coined in Ancient Greece, not in Asia. (Ratner and Hui (2003) have pointed out the error of identifying dialectics as Asian thinking.) So why do the authors presume that dialectics is the basis of Asian emotional complexity, rather than Western psychology? This is as unwarranted as presuming that emotional complexity is an attribute of Asian emotionality.

In addition, the authors do not understand dialectical philosophy. They operationally define it in a Dialectical Self Scale whose items include: “My outward behaviors reflect my true thoughts and feelings.” (reversed) This has nothing to do with dialectics. It would make lying the epitome of dialectics.

“I am constantly changing and am different from one time to the next.” This makes an unstable personality into the epitome of dialectics.

“My core beliefs don’t change much over time.” (reversed) This means that one is a dialectician if one changes a core belief that racial discrimination is bad to believing it is good.

Another item is: “When two sides disagree, the truth is always somewhere in the middle.” Thus, if one side says the Holocaust occurred, and the other side denies it, then believing something in the middle is dialectical! Another item: “When I hear two sides of an argument, I often agree with both.” That would mean that someone who believed humans co-existed with dinosaurs, and also believed humans did not co-exist with dinosaurs was a dialectician! Dialecticians such as Plato, Hegel, and Marx were a bit more sophisticated than this.

The DSS is a misnomer that reflects a profound ignorance of dialectics.

Dialectics does not accept two sides of an argument. Quite the opposite, it strives to identify inconsistencies in an argument which refute it as it stands. Socrates, for example, cross-examines his interlocutor’s claims and

premises in order to draw out inconsistency among them that warrants abandoning them.

For instance, in *The Republic* he argued that justice is antithetical to harming someone: “It is not then the function of the just man to harm either friend or anyone else, but of his opposite, the unjust. . . . If anyone affirms that it is just to render to each his due and he means by this that injury and harm is what is due to his enemies. . . . he was no truly wise man who said it. For what he meant was not true. For it has been made clear to us that in no case is it just to harm anyone.” Socrates’ dialectical argument culminates in a decisive, absolute position – in no case is it just to harm anyone – which refutes the opposite argument as unwise and untrue. Nothing could be more false than to claim that dialectical argumentation accepts both sides, a middle ground, or no truth.

Hegel’s *Phenomenology of Spirit* follows Socrates’ dialectical procedure of detecting inadequacies in philosophical positions (i.e., “untrue consciousness”) and correcting them to discover truth. The Introduction to the *Phenomenology of Spirit* announces the subject of dialectical philosophy as “the actual knowledge of what truly is.” This is achieved by “The dialectic process which consciousness executes on itself, in the sense that out of it the new and *true object arises*. . . .” The authors misunderstand dialectics to be the opposite of what Hegel says, i.e., to be compromising and denying truth. One of the measures of dialecticism on the Dialectical Self Scale is: “When I am solving a problem, I focus on finding the truth. (reversed)”

Marx condemned errors and distortions committed by bourgeois economists. He never accepted them along with his dialectical materialism. Mao explained dialectics in his essay “On Contradiction.” He recognized that “Hegel made most important contributions to dialectics,” and he embraced Marx’s dialectical thinking which he distinguished from Asian philosophy that he dubbed “metaphysical,” static, and reactionary (cf. Ratner and Hui 2003). He used it to denounce and correct erroneous thinking (including Chinese philosophical beliefs). He did not use dialectics to embrace all perspectives as equally true.

Confucianism

One might suggest that the measure of dialecticism is simply mistakenly labeled and is rather an indicator of

Asian philosophy such as Confucianism – which includes The Golden Mean and other modest concepts. Perhaps the operationalization should simply be retitled as Confucian thinking and then re-word the conclusion: Confucian thinking generates emotional complexity. However, the superficial, simplistic scale items are as divorced from Asian Confucian principles as they are Western dialectics. The study cannot be accepted as researching Confucian thinking.

Items such as “My outward behaviors reflect my true thoughts and feelings,” (reversed) “I am constantly changing and am different from one time to the next,” “I sometimes find that I am a different person by the evening than I was in the morning,” “I have a hard time making up my mind about controversial issues” do not represent Confucian thinking.

Confucius was a conservative thinker who emphasized the stability of kingdoms ruled by an aristocracy. Citizens must abide by social rules in order to maintain the system. Stability, order, commitment, obedience were the core values of Confucianism. Capricious individual behavior and uncertain, indefinite, unstable values (that are denoted by the study’s test items) would undercut the stability of the kingdom. They are as inconsistent with Confucianism as they are with dialectics.

This is clear from a number of Confucius’s statements: “The man who in view of gain thinks of righteousness; who in the view of danger is prepared to give up his life; and who does not forget an old agreement however far back it extends - such a man may be reckoned a complete man.” This is a definite, principled code of action that emphasizes adhering to old agreements. There is no hint here of constantly changing one’s behavior in different situations, or being uncertain or compromising about what is virtuous and true. Confronting gain and righteousness, the complete man definitely chooses the latter over the former. “The firm, the enduring, the simple, and the modest are near to virtue.” This is another clear statement about the value of the firm and the enduring. There is no celebration of change, unpredictability, and uncertainty. “To be able to practice five things *everywhere under heaven* constitutes perfect virtue...[They are] gravity, generosity of soul, sincerity, earnestness, and kindness.” Again, Confucius espouses consistent perfect virtue everywhere, in all action. Of course, virtue is rarely achieved, and is

always a state of striving, however, Confucius makes it crystal clear that virtue consists of particular, definite, universal attributes. He says, "Wisdom, compassion, and courage are the three universally recognized moral qualities of men." His statements are completely at odds with the authors' test items: "I often change the way I am, depending on who I am with." "I have a definite set of beliefs, which guide my behavior at all times." (reversed) "I prefer to compromise than to hold on to a set of beliefs."

Confucius clearly believed in right and wrong and in consistently upholding the former. He believed in absolutes such as virtue. He went so far as to espouse one word which serves as a rule of practice for all one's life: "Tsze-Kung asked, 'Is there one word which may serve as a rule of practice for all one's life?' The Master said, "Is not Reciprocity such a word? What you do not want done to yourself, do not do to others." This is clearly not open to change depending on circumstance and who I am with.

Finally, Confucius said, "When you know a thing, to hold that you know it, and when you do not know a thing, to allow that you do not know it - this is knowledge." In other words, knowledge is holding to what you know. The authors invent an opposite notion that "I often find that my beliefs and attitudes will change under different contexts."

The authors have concocted a set of measures that correspond neither to dialectics nor to Asian Confucianism.

Agreeing with two sides of an argument, or with a middle ground, is akin to postmodern relativism and eclecticism, and plain old lazy-mindedness, not dialectics or Confucianism. It is quite prevalent in American culture. Americans commonly say that many belief systems contain truth, they believe truth is a compromise among positions, and they accept multiculturalism that embraces all cultures as valuable. This contradicts the authors' claim that Americans think in either-or absolutes, and eschew nuance, balance, and complexity.

The authors do not understand the cultures they study or the psychology of emotional complexity that they study. They erroneously attribute dialectical philosophy to China, and they completely misrepresent dialectical philosophy in their operational definition of it. Plus, they rely on crude positivistic quantitative

measures and tests of significance which do not apprehend psychological issues.

Comparing Cross-cultural Psychological Research to Cultural Psychological Research

This cross-cultural psychological research pales in comparison with Lee, Kleinman, and Kleinman's qualitative study of Chinese depression. Qualitative methodology elucidated the felt experience of depression, while cross-cultural research blocks out experience by imposing simplistic, superficial, fragmented tests that reduce responses to similarly simplistic, superficial, fragmented, overt answers.

The cross-cultural research also pales in comparison with Ritterhouse's cultural psychological research on racial etiquette and psychology. That research was informed by a deep historical understanding of the topic. The cross-cultural psychologists were ignorant and confused about the historical character of their topic.

In addition, Ritterhouse dealt with a historically concrete, rich cultural factor – the code of racial etiquette – and elucidated its psychological elements that were internalized by southern whites. It elucidated the internal relationship between psychological phenomena such as emotions, memory, perception, self, and reasoning, and the cultural complex of values, strictures, power relations, property ownership, and legitimating-mystifying ideology. The mutual dependence and support of psychology and the cultural complex in which it was embedded were made clear. The richness of the cultural complex clarified and concretized the specific details of psychological phenomena, including the situations that provoked them and did not provoke them, their quality, their contradictions (e.g., violently attacking a black person who touched them on the street, or called them by their first name, but then allowing them to care for their children), their dynamics and organization.

In contrast, the cross-cultural research studied an ambiguous psychological issue, emotional complexity, that had no ostensible social importance. There was certainly no ostensible real life difference in EC between Americans and Chinese (as noted) that could have provoked the authors' interest in studying it. The lack of social significance made EC socially and

psychologically ambiguous and poorly defined. This contrasts with the glaring social significance and definiteness of white behavior toward blacks that Ritterhouse studied.

Our cross-cultural psychologists further deprived EC of social and psychological significance (reality and definiteness) by operationalizing it as a few superficial, simplistic questions that violate any meaningful sense of emotional complexity. Furthermore, the questions inquired about their recollection of their experience, which is clouded by all the distortions of long-term memory. Emotional complexity, per se, was not even studied.

Inadequate operationalizations similarly distorted the independent variable, “dialecticism.” The test items that operationalized it represent no recognizable cultural or historical phenomenon. The items are a self-contained invention that have no cultural basis or significance. They do not represent dialectics; nor do they represent Asian philosophy such as Confucianism. Taken at face value, they indicate a deceitful, vacillating, uncertain, lazy-minded, conformist, unprincipled, uncontrollable person. How this could be equated with dialectical or Confucian thinking is not clear.

It seems that every aspect of the cross-cultural study contorted real issues into unreal caricatures and misnomers. The authors concocted a realm of surreal constructs, tests, measures, and indicators that have no connection to the real issues these were said to denote. They create an Alice in Wonderland inverted world where nothing is as it seems. For example, the wrong test/criteria generates the wrong empirical conclusion (e.g., significant differences), yet these are presented as the right test that generates the right conclusion. The wrong operational definitions are used; yet, they are presented as objectively measuring psychological and cultural phenomena.

Consequently, conclusions based on the study’s methodology are phantoms. They are uninformative, and misleading about, actual cultural psychological issues such as dialectics, emotional complexity, and significance. The authors violate Confucius’s dictum: “The whole end of speech is to be understood.” Violating this dictum has serious consequences which Confucius pointed out: “If names are not right, words are misused. When words are misused, affairs go wrong. When affairs go wrong, courtesy and music droop, law

and justice fail. And when law and justice fail them, a people can move neither hand nor foot.”

This study pales in comparison with Ritterhouse’s cultural psychology in that it fails to elucidate any psychological connection between “dialecticism” and “emotional complexity.” There is no indication of why “dialecticism” fosters “emotional complexity” or how it does so. Cross-cultural psychology has no broader psychological theory of why culture affects psychology. What is the internal relation between the two? Why does psychology have a cultural genesis, character, and function? More specifically, what is the relation between cognition (a belief system, a way of thinking) and emotion?

In contrast, cultural psychology develops a psychological and cultural theory that explain these relationships, and refines the explanation through empirical research (Ratner 1991, 2006).

Spencer-Rodgers, Peng, and Wang’s research was conducted by prominent psychologists and was published in a prominent journal after being peer reviewed by prominent psychologists. Moreover, it continues a series of similar research that the authors have published over the years in other venues approved by diverse peer reviewers and editors. It is therefore representative of cross-cultural psychology.

Not all cross-cultural research is this flawed. However, positivistic methodology generates errors which are never completely avoided by cross-cultural psychologists. Positivistic methodology is a flawed, limiting methodology that dominates the best intentions of researchers. Even when positivists have a historical understanding of significant cultural and psychological factors, their methodology renders these unrecognizable by contorting them into simplistic, superficial, abstract, contrived, misbegotten definitions-measures (e.g., collectivism, parental control, responsiveness, and expressiveness that are devoid of cultural content) which are treated with statistical procedures having no bearing on psychological significance (Ratner 1997).

This is why cultural psychologists such as Shweder developed cultural psychology in opposition to cross-cultural psychology.

Positivistic methodology should not be confused with rigorous, quantitative, experimental, scientific methodology in general. Popper correctly designated

positivism as pseudo science, which he termed “scientism.” Quantitative, analytical, experimental methodology does not have to commit the errors that scientific positivism commits. Quantitative, analytical methodology has been usefully employed to pinpoint cultural factors that generate various physical disorders. These factors are difficult to perceive without quantitative, analytical methodology. Obesity and HIV are two illustrative examples.

In the case of obesity, there is a “social gradient of obesity” in which “the incidence of obesity is greater among the least privileged and most economically insecure in society; people with the least control over their lives and critical sources of self-worth; e.g., African-American and Mexican-American women” (Wisman and Capehart 2010, pp. 939, 945; Raphael 2009). Obesity prevalence was stable from 1960 to 1980, after which it has doubled to where 1/3 of the population is obese. The prevailing view of obesity continues to construe it as a disorder of individual behavior, rather than highly conditioned by the socio-economic environment. Other explanations that blame obesity on sedentary activities are also faulty. Television watching, automobile driving, and household labor saving devices became far more prevalent between 1960 and 1980, yet no corresponding increase in obesity was observed until after 1980. “Calories expended have not changed significantly since 1980 when the epidemic began” (Raphael 2009).

Wisman and Capehart explain the relation between insecurity/stress and consuming fatty and sweet foods as follows. Such foods appear to act as calming opiates to relieve stress. In animals and human infants, the ingestion of sweet and fatty foods, including milk, alleviates crying and other behavioral signs of distress. Eating high-fat and other “comfort” foods helps in reducing biological stress system activities and negative emotions resulting from stress (Wisman and Capehart 2010, p. 947).

Quantitative, analytical methodology also reveals that poverty is the primary cause of HIV. The US Centers for Disease Control studied 9,000 heterosexual men and women living in poor neighborhoods who were not at high risk for HIV (e.g., excluding gay and bisexual men). 2.1% of them were HIV positive. This figure is 20 higher than the prevalence of HIV among heterosexuals in the general US population. 2.1% prevalence is also double

the threshold for a generalized epidemic. Therefore, poverty alone (without personal factors such as homosexuality) is sufficient to generate an HIV epidemic. HIV is at least as much a function of where you live as who you are. The report’s author concluded that reducing HIV requires a structural approach that addresses housing, education, access to health care, and jobs (*Wall St. Journal*, July 19, 2010, p. A2).

Quantitative, analytical methodology can be profitably employed without positivistic errors to ferret out cultural causes of behavior that are not immediately apparent.

Microcultural Psychology

A recent development in cultural psychology has been the emphasis on individual factors which mediate culture. This approach champions individual creativity in selectively assimilating culture. Advocates of this approach reject the idea that culture has the power to organize psychological functions. Instead, culture is regarded as an external context which the individual utilizes and reconstructs as she sees fit. This approach defines culture as the outcome of a negotiated interaction between an individual, other individuals, and social institutions-conditions. In their negotiations, interpretations, selections, and modifications of institutions-conditions, each individual constructs a personal culture out of her own experience. Social life is like a tool kit which provides individuals with the means for constructing what they like.

I call this approach “microcultural psychology” because it construes culture and psychology as primarily organized by small, informal, interpersonal relationships which are continually negotiated to express each individual’s needs and interests.

Microcultural psychology denotes the level of analysis a researcher employs to explain culture and psychology. What is key is that the micro level of interactions is used to explain the origin of culture and psychology. Microcultural psychologists are not unique in trying to explain micro level social-psychological processes. This chapter has presented numerous attempts to explain micro processes in terms of broader, macro cultural factors such as racial honor codes and capitalist industry. Microcultural psychologists are distinctive in regarding the micro level as the basis of the macro level and of psychology.

The emphasis on individuals constructing culture out of a social environment has been a central theme of recent psychological anthropology (cf. Ratner 1993). For example, in her analysis of Balinese emotions, Wikan rejected trying to understand Balinese emotions as reflections of social categories. She sought instead to elucidate the personal experience of emotions. She said, “were we to make sense of Suriati’s endeavor by appealing to a Balinese ‘culture’ endorsing ‘grace’ we would come close to reducing her to an automaton: a mere embodiment of ‘her culture.’” “People do not live and embody culture. That would be too much of a reification” (Wikan 1990, pp. 13, 14). Wikan goes so far as to say “In my account, people occupy center stage, while my concern with ‘culture’ is incidental” (Wikan 1990, p. 19).

Wikan espouses the individualistic orientation in a later ethnography about poor people in Egypt. She explicitly disregards the socioeconomic context of her subjects, saying “I do not attempt to analyze the macroforces that determine the economic and social inequities that create poverty. Instead, I am trying to show how the particular forms of poverty and misery are experienced, and how they are actively shaped and transformed by the people who suffer them” (Wikan 1996, p. 3).

Wikan’s statement expresses the essence of the individualistic orientation to cultural psychology – namely, that individuals create their own cultural psychology out of conditions, and that their cultural psychology can be comprehended through the self-expressions of subjects without any additional analysis of the socio-cultural system. Wikan acknowledges that external obstacles constrain people, thwart their opportunities, and corrode their social relationships (Wikan 1996, p. 15). However, she paradoxically believes that individual actions transcend this context. She repeatedly states that her subjects are resilient, energetic, resourceful, and successful. She glorifies individual transcendence of social conditions to such an extent that she sub-titled her book *Self-Made Destinies in Cairo*.

The individualistic, micro approach to cultural psychology also finds expression in the work of Jaan Valsiner. He recognizes that there is a collective culture of socially shared meanings. However, “belief systems that exist within a collective culture do not have an effect in the sense of being copied directly (or

appropriated) by individuals. Instead, they constitute resources from which active persons construct their own (personal) belief structures” (Lightfoot and Valsiner 1992, p. 395). “Individuals construct their idiosyncratic (personally meaningful) system of signs, practices and personal objects, all of which constitute the personal culture” (Valsiner et al. 1997, p. 284). Valsiner’s co-construction of culture combines two entirely distinct and separate processes: an impersonal, social component plus a non-social, personal component. The collective part is “alien” while the personal part is “one’s own” (Valsiner et al. 1997, p. 285).

As an example of this personal construction of culture and psychology, Lightfoot and Valsiner discuss how a parent might react to an advertisement. She may comply with the message and buy the product. However, she may just as likely re-interpret portions of the advertisement and purchase other kinds of products; or she may reject the message completely and buy nothing. Her reaction is her choice, it is not shaped by external social situations. Social situations are grist for the individual’s mill, they are not the mill which structures the individual’s work. Lightfoot and Valsiner (1992, p. 411) state that “the particular hierarchy of beliefs constructed from media suggestions may vary from individual to individual.”

In other words, individual processes determine the effect that social life has on a particular person. Social life only affects someone to the extent that he allows it to.

In contrast to cultural psychology which construes the individual as profoundly affected by culture, the new viewpoint, called co-constructionism, grants primacy to the individual’s decision about how to deal with culture. Valsiner states, “The logic of the argument supporting the relevance of the social environment in human development is reversed in the co-constructionist paradigm” (Branco and Valsiner 1997, p. 37). According to the new paradigm, “most of human development takes place through *active ignoring and neutralization of most of the social suggestions* to which the person is subjected in everyday life” (Valsiner 1998, p. 393, emphasis in original).

In this model, social influences are regarded as “collective cultural viruses” which are “affect-laden meanings [symbolic concepts] meant to infect or penetrate personal belief systems (systems of personal

sense). Their success, however, depends on whether the individual's personal culture in its present state is susceptible to such influence, or whether it contains psychological 'antibodies' or conflicting beliefs (that had emerged during previous experiences), that block or neutralize the 'attack'" (Lightfoot and Valsiner 1992, p. 396).

These comments reveal that microcultural psychology is a statement of cultural phobia, not cultural psychology. Culture is construed as an infectious disease that injures people. People must resist culture by bending it to their individual will which they exercise in mundane acts. Cultural phobia leads these social scientists to displace cultural influences by subjective constructions of meaning.

Microcultural psychology is inspired by cultural phobia; it is a symptom of cultural phobia; it promulgates social phobia. Where you find an emphasis on individual, subjective construction of meaning, you will generally find a fear of culture, an animosity toward it, an aversion of it, a denigration of it (e.g., by calling it reified), an ignoring of it, a denial of it, a neutralizing and minimizing of it.

This cultural phobia is reflected in the characterization of social structures as reified. This implies that social structures are inherently dehumanized, depersonalizing, and immune to transformation. As such, the best and only way to achieve psychological fulfillment is to rebuff social structures and emphasize individual processes of social and psychological construction.

For example, in Lightfoot and Valsiner's discussion of individual interpretations, selections, negotiations, and modifications of advertisements, they fail to consider societal influences on the individuals' subjectivity activity. The authors never indicate societal factors which lead certain parents to comply with advertisements and others to resist in various ways; they are unconcerned with how many parents manage to reject the ads; they never pin point the extent to which individual acts differ from cultural norms, i.e., whether the acts are superficial, incomplete challenges. Any parental reaction is deemed to be an individual choice.

The authors do not want to perceive social influence on behavior because they construe it as reified and implacable.

However, the social model of microcultural psychologists is faulty. Their view of social structures and institutions as reified is wrong. And their alternative social model – of society as the sum of individual, micro level actions – is necessarily also wrong. Creating and attacking a straw man leads to erecting another straw man in its place.

I have demonstrated in the early part of this chapter that structures are humanly constructed and depend upon subjective processes. Neoliberalism, and social change in China, have been sweeping, coordinated, coherent, systemic, structural changes in society that were actively designed and implemented by human social agency. This is why structures are changeable. One of the greatest structuralist sociologists, Emile Durkheim, clearly recognized this: "sociology in no way imposes upon man a passively conservative attitude." On the contrary, "sociology, by discovering the laws of social reality, will permit us to direct historical evolution with greater reflection than in the past" (Durkheim 1909/1978, p. 75).

The correct way to understand society and psychology is to recognize that social structures contain and organize behavior/psychology. This is just how role theorists included subjectivity in social roles. Bourdieu includes subjectivity in his concept of the habitus which is organized by social structures.

The Contrast Between Cultural Psychology and Microcultural Psychology

Empirical evidence demonstrates that psychology is shaped by cultural factors. Ritterhouse amply shows that individual differences in the behavior of southern whites occurred within the parameters of the cultural codes, embodied these parameters (though in certain idiosyncratic ways), and never challenged them. "Although many white parents went beyond the core curriculum of racial etiquette to encourage moderation, almost none taught racial equality" (Ritterhouse 2006, p. 81). The basic core of behavior persisted despite marginal, ineffective efforts to transcend it.

Even when certain whites felt twinges of guilt over the way they and others treated blacks, these disruptive feelings were generated by the contradiction between the conflicting social values that all whites lived with:

democracy and Christianity vs. slavery. Clearly, the former would lead sensitive people to doubt their participation in slavery. This doubt is not some personal, non-cultural construction. It is the subjective reflection of an objective social contradiction. As Leontiev (1978, Sect. 4.4) said, “If the individual in given life circumstances is forced to make a choice, then that choice is not between meanings but between colliding social positions that are expressed and recognized through these meanings.”

Smith (1961, p. 39) expresses the pathos of cultural contradictions for the individual: “Something was wrong with a world that tells you that love is good and people are important and then forces you to deny love and to humiliate people. . . What cruelly shapes and cripples the personality of the Negro is as cruelly shaping and crippling the personality of the white. Though we may, as we acquire new knowledge, live through new experiences, examine old memories, gain the strength to tear the frame from us, yet we are stunted and warped and in our lifetime cannot grow straight again any more than can a tree, put in a steel-like twisting frame when young, grow tall and straight when the frame is torn away at maturity.”

Valsiner would deny and ignore this. He would facetly proclaim that people can simply ignore and neutralize social contradictions and endorse any aspect of culture one wishes to.

Microcultural psychologists also deny social trends which can be predicted and directed. For the free choices individuals make in constructing personal culture are unconditioned, unpredictable, and uncontrollable. Valsiner says that “the actual course of development is not predictable” (Valsiner et al. 1997, p. 284). This negates social science which strives to detect order, relationships, and principles of social life.

However, real life refutes Valsiner’s opinion. The actual course of development is predictable from knowledge of an individual’s race and class.

Research on racial demographics testifies to the structural shaping of behavior and the denial of individuals to freely shape their behaviors. Blacks are many times more likely than whites to experience poverty while never achieving affluence, less likely to purchase a home at an early age and build up significant levels of home equity, and more likely to experience asset poverty across the stages of the life course. Moreover, the

economic trajectories of whites and blacks across the American life course widen over an individual’s life. Blacks do not catch up to whites, hard as they wish to, and should be able to if they could negotiate and construct their behavior repertoires as microcultural psychologists believe. The increased racial disparities are striking.

A representative, longitudinal sample of 18,000 individuals over 40 years yielded striking increasing racial disparities:

Cumulative percentages of encountering at least 1 year of affluence for whites and blacks across adulthood			
Age	Whites	Blacks	Difference
25	2.2%	0.3%	1.9%
75	54.8%	13.1%	41.7%
Cumulative percentages of encountering at least 1 year of poverty for whites and blacks across adulthood			
25	3.3%	19.9%	16.6%
75	45.5%	88.2%	42.7%

Percentage of group achieving at least 1 year of affluence with no poverty during lifetime	
Whites	Blacks
33%	3.7%
Percentage of group achieving at least 1 year of poverty with no affluence during lifetime	
Whites	Blacks
25%	80%

For blacks, the American experience is captured by a staggering likelihood of encountering poverty during adulthood with little chance of attaining significant economic affluence. Only 3.7% of blacks will encounter 1 year of affluence without experiencing poverty during their entire adulthood. On the other hand, nearly 80% of black Americans will encounter poverty in their lives with no chance of ever achieving affluence (Rank 2009, pp. 60, 62).

Since blacks obviously do not relish these trajectories, structural forces are constraining them and preventing individuals from realizing their aspirations.

These structural forces override cognitive skills. In a longitudinal study of 9,000 individuals, children who

scored in the top quartile on cognitive competence when they were five, had a 65% chance of remaining at that level when they were 10, if they were from the upper socioeconomic class. Only 10% of these high SES children fell below the median at 10 years. For low SES children, on the other hand, only 27% of the top quartile at 5 years of age remained at that level at 10 years. 37% of high-scoring low-SES children fell below the mean by 10 years of age. More of these children fell below the mean than remained at their original high cognitive level.

For children who score in the bottom quartile of cognitive competence when they are 5, only 34% remain there when they are 10, if they are from high SES. However, 67% remain at the bottom if they are from the lower class. In addition, only 3% of low cognitive achievers at 5 reach the top quartile at 10 years of age; however, 14% of high SES children reach the top (Ratner 2006, pp. 125–126).

A high-ability student coming from a family of high SES is approximately 3.5 times more likely to obtain a graduate degree or professional education than a student with similar cognitive ability who comes from a family with low SES.

These facts refute the tenets of microcultural psychology. They refute the notion that individuals stand apart from society and imperiously select from it whatever they please, and use it any way they wish to fulfill any desire they spontaneously effervesce. The facts decisively demonstrate that individuals are bound by cultural factors in powerful and profound ways. Their cognitive levels are more affected by their class position than by their own cognitive competence.

Contrary to the wish that personal meanings are the individual's own, the reality is that "ideological themes make their way into the individual consciousness (which as we know, is ideological through and through) and there take on *the semblance* of individual accents, since the individual consciousness assimilates them *as its own*" (Volosinov 1973, p. 22, my emphasis). Individual consciousness erroneously takes the presence of meanings in subjectivity to have been created by subjectivity, when, in fact, they are cultural phenomena. This subjectivistic illusion, to which microcultural psychologists subscribe, is akin to regarding the moon as the origin of moonlight when it merely reflects light that originates in the sun.

Leontiev stated the opposition between the macro psychological approach and the micro psychological approach:

- ▶ The individual does not simply "stand" before a certain "window" displaying meanings among which he has but to make a choice; these meanings - representations, concepts, ideas - do not passively wait for his choice but energetically dig themselves into his connections with people forming the circle of his real contacts. (Leontiev 1978, Sect. 4.4)

Psychological phenomena are structured in and by cultural factors. They are not personal constructs. They have cultural origins, characteristics, and functions. Even the manner in which people regard and construct knowledge is institutionalized and administered. Different epistemologies are institutionalized in organizations which socialize and justify them, and condemn competing epistemologies. One's view of what counts as knowledge and how knowledge should be acquired is not a personal construct. Epistemology is institutionalized and objectified in organizations, and organizations have epistemological (mental, subjective) functions along with their other functions. Whooley (2010, p. 495) explains the epistemological function of organizations, specifically the adjudication of knowledge claims and the delineation of the universe of possible knowers through organizational formation and practices, which promote or demote epistemologies through the allocation of resources. If we think of epistemic commitments in terms of "dwelling in" an intellectual system, then organizations serve as the formal dwellings that shape the epistemological terrain for actors. Insofar as organizations validate certain epistemological standards over others, they set the parameters of intellectual debate, shaping the content of possible knowledge. Given these functions, actors attempt to harness the power of organizations to promote their epistemological agenda and to alter the epistemological terrain through organizational practices.

For example, journals in cultural psychology and cross-cultural psychology take principled stances on epistemological questions, accepting only articles that conform to their standards, and rejecting those that employ competing epistemologies and methodologies.

Other philosophical and scientific organizations promote rigorous, objective, independent epistemology

that is not biased by political or economic directives. Scientific thought/research is institutionalized in socially and spatially differentiated organizations which insulate epistemological standards from economic and political interests. It is not protected through the mental fortitude of individual scientists alone.

This objectification/institutionalization of epistemology even takes the form of enshrining independent, objective scientific thought in ethical principles. It is unethical for scientists to tailor their research processes and conclusions to political and economic ends. This is regarded as corruption. This ethical dimension of scientific objectivity and independence is crucial for generating the psychological desire of scientists to remain independent of political and economic interests.

These varied, mutually reinforcing objectifications of epistemology/cognition make it a cultural phenomenon – like most all psychological, mental phenomena are – far beyond the realm of personal constructs.

When neoliberal political and economic interests seek to influence scientific research for their own gain, they alter the epistemology and thinking of scientists by breaching the institutional and ethical walls that exclude these interests. Important strategies in this regard include (a) engaging in political and economic work to deprive scientific institutes of public funding, so that they will become dependent upon the private resources of political and economic interests; (b) promoting proprietary intellectual property rights that justify keeping scientific results and procedures private and secret (c) promoting the commodification of knowledge as a commodity to sell and buy, (d) altering the ethics of scientific research so that accepting political and economic direction is no longer unethical. This massive institutional, legal, and conceptual activity is necessary for altering scientific thinking, or consciousness. It proves that epistemology is not a personal construct that is individually decided for personal reasons.

Elucidating Culture in Psychological Research on Chinese Psychology

The different emphases between cultural psychology and microcultural psychology appear in research. Reflecting microcultural psychology, Goh and Kuczynski (2009), researched ways that Chinese parents are becoming more child-centered, and children

are consequently becoming more demanding and assertive. They vaguely mention that there have been macro changes that have affected the family; however, they do not mention one specific example except for the one-child policy that led parents to spoil their single child, in contrast to having to spread their largesse among several children as in the past. The language is revealing: “As the number of children in each household has decreased, traditional children as old age insurance, i.e., economic value, has been replaced by the emotional and psychological value of children” (Goh and Kuczynski 2009, p. 507). This statement implies that the number of children has an intrinsic affect on child rearing. The authors never mention consumerism, corporations, media (e.g., Western), advertising, government policies, private property ownership and the free market in labor that requires people to secure their own jobs and domiciles and be prepared to make decisions, instead of accepting assigned housing and jobs.

The authors assume that the number of children has an intrinsic, natural affect on child rearing apart from cultural institutions, concepts, and artifacts. “Children are few in number—in contrast to the larger families of previous generations—allowing the child to have one-on-one personal relationships with caregivers. Each adult caregiver has an emotional stake with the child” (p. 525). It is akin to an animal instinct that drives parents of a single child to develop strong emotional ties with her, which, in turn, naturally leads to being receptive to her demands and spoiling her, and even naturally, by itself, displaces the authority of grandparents. For instance, “Some parents were even resigned to the fact that the position of the grandparents has declined as compared to the single children, recognizing this as an inevitable consequence of the one-child policy” (p. 509). Of course, none of the parts of the sequence are naturally related. Single childhood does not necessarily generate strong emotional ties with a child, nor does a strong emotional tie necessarily lead to spoiling a child and being permissive with her, nor does any of this necessarily lead to reducing the authority of elders in the family. Omitting any cultural factors that might contribute to parents’ permissive child rearing of single children makes it appear to be a natural impulse that would lead even hunter-gather

parents to have the same psychology if they were left with only one child.

The authors' decontextualized thinking about childhood also leads to positing natural tendencies to children. The emotional ties that parents have with single children "means that the child's relationships with multiple caregivers *increase the child's relational resources*, which can be exploited to meet the child's goals" (p. 525, my emphasis). No reasons are given for children's desire to exploit their parents' emotional tie to them. Evidently, all children do this, even hunter-gatherer children. It is natural; akin to evolutionary psychology's notion of naturalistic expenditure of resources which govern behavior – e.g., the evolutionary account of male jealousy I mentioned in the introduction which is based on males conserving their resources by refusing to raise another male's child. Attributing child-centered socialization to having only one child is a naturalistic explanation, not a cultural one.

The authors obtained reports from family members about obedience, e.g., which adult the child obeyed more. From these mundane accounts, the authors conclude that "the little emperor was found to be an agentic child" (p. 504). "Agency was displayed in sometimes subtle and creative ways, in overt resistance that exploited weaknesses in each of their different relationships, in behavioral compliance accompanied by private rejection of parental messages, in creative attempts at evasion and delay, and in strategically using relationships with some adults to offset the influence of others" (p. 525).

This conclusion is taken to confirm "social relational theory" which claims: "Bidirectional influence comes about as parents and young or adult children acting as agents interpret or construct meanings from each other's behaviors and anticipate, resist, negotiate and accommodate each other's perspectives during interactions" (p. 508). This is the familiar mantra of individualistic cultural psychology. It glorifies individual, personal agency as creative, fulfilling, and self-expressive. It insists on bilateral negotiation among individuals, no matter what, as an inherent principle of human sociality.

However, this theory contradicts any cultural explanation of psychology. For if individuals freely negotiate their personal interests in a mutual give and take, how

can there be any cultural organization of behavior? Free negotiation of personal interests is antithetical to cultural organization. This is clear from free market ideology – which is the basis of microcultural psychology – that denounces social regulation of the "free market." Microcultural psychologists give lip service to "contextual embeddedness" of interactions; however, they never explain how this is compatible with free, bilateral negotiation among agents. Nor do they include cultural issues within the negotiation process. Cultural issues remain extraneous and indefinite, as in the authors' conclusion that children are agentic and creative. The authors vacillate between claiming some indefinite cultural influence that generates agency, and natural subjectivist individualistic agency which exists regardless of culture and in opposition to culture. Because microcultural psychologists seek to promote absolute, universal free agency, they rarely mention cultural factors in relation to agency, and when they do, they construe culture in vague, superficial ways which cannot interfere with free agency. Goh and Kuczinsky manifest both of these errors.

Social relational theory, like all microcultural psychology, is an absolute, ahistorical universal of human nature. This makes all people the same everywhere. All children are agentic in the sense of constructing meanings, negotiating, and resisting. It doesn't matter what social system they live in; they will always be this way. This eliminates, marginalizes, or trivializes cultural features and variations in agency and psychology. Microcultural psychology presumes that agency already exists in people, it requires no particular social organization. This is the whole point of microcultural psychology – to emphasize individual freedom from culture.

When cultural issues are mentioned, they contradict the notion of agentic negotiation. For instance, when the authors mention that the traditional Chinese family exercised authority over children, this countervenes the absolute insistence that children and parents engage in bilateral negotiation, and children resist parental authority. Social relational theory even contradicts the authors' claim that the one-child policy allowed for more childhood agency than previous customs had allowed. According to the theory, children have always been agents; consequently, no policies affect this.

The thrust of microcultural psychology is to reject and marginalize substantive culture in an effort to free the individual as an independent agent. Notice that the description of agency by Goh and Kuczinsky uses terms such as resist, avoid, and offset social influence. They never construe agency as embracing, benefitting from, and contributing to culture. This echoes Valsiner's characterization of culture as a set of viruses which must be resisted.

The increased individualism in China, as in the USA, is rooted in and promoted by top-down decisions by leaders of social institutions such as the government. (This does not deny that sentiments and struggles for these changes were present among the populace. It argues that the changes were only realized through coordinated, concerted leadership of social organizations. In this historical period, that leadership is undemocratic and coercive. In future periods, social leadership will hopefully be democratically controlled by and representative of the populace who can realize their sentiments through their own institutions. Footnote 13 discusses this point.) Yan's research documents the decline of organized sociality such as mass rallies, collective parties, and volunteer work for the public good; and the dissolution of the social safety net that guaranteed jobs and housing for all. This individualization of social policy fostered a popular sense of individualism in a wide range of social activities – from finding a job to a house to a spouse.

For instance, the Chinese Sports Federation used to pay for athletes' training and therefore set the rules for training, arranged their travel, and also kept most of athletes' monetary winnings. The Federation recently changed its official policy and now allows athletes such as tennis players to keep 88% of their earnings, hire their own coaches, train on their own, and plan their own trips to international competitions. This official policy changes the collective sense of personhood into an individualistic sense.

Far from individualized sense of self being a personal construct, Yan (2010, p. 489) demonstrates that "the rise of the individual and the consequential individualization of society should be viewed as a reflexive part of China's state-sponsored quest for modernity." "China and Western Europe were both forced into the current round of individualization through the impact of globalization, especially due to

the global triumph of neoliberalism and the capitalist mode of production." (p. 507).

- ▶ whenever individualization and privatization became necessary, the party-state did not hesitate to use its power to launch institutional changes. . . the three major reform projects since the late 1990s, namely, the privatization of housing, the marketization of education, and the marketization of medical care, are all institutional changes launched by the state to force individuals to shoulder more responsibility, to more actively engage in market-based competition, and to assume more risks and to become more reflexive. [One blunt way that the State forced individualization was to fire millions of State employees and force them to fend for themselves in market activities.] Chinese official data recognize that between 1998 and 2003 more than 30 million workers were laid off from the SOEs, representing a 40% cut in the state owned enterprise workforce. [Foreign data double this figure.] The life-style of the laid-off workers changed immediately once they lost both their jobs and their sense of security. (Yan 2010, pp. 498, 499)

In keeping with Bourdieu and macro cultural psychology, Yan illustrates Vygotsky's statement that psychology is a product of historical forces:

- ▶ While experiencing the radical changes in her/his life situation and biographic pattern over the last three decades, the Chinese individual has also gone through an equally radical breakthrough in the subjective domain, that is, a re-formation of the self and a search for individual identity. The institutionalized changes in the labour market, education, and career development, for example, have led to the rise of what Nicolas Rose calls the 'enterprising self', meaning the calculating, proactive, and self-disciplined self that is commonly found among the younger generations of Chinese labourers. (p. 504)

This culturally induced change in self-concept brings the same psychological pressures as in the West:

- ▶ The pressure to remake the self in one way or another created not only an additional responsibility but also a new psychological burden for the Chinese individual. Squeezed between the increasing market competition on the one hand and the decreasing support from

family, kinship, and state institutions on the other, many Chinese individuals suffer from various degrees of mental illness. According to a recent report, doctors at the National Center for Mental Health quote the startling figure of 100 million Chinese suffering from mental illness. Another noteworthy trend is that many individuals have turned to telephone hotlines, talk therapies, and psychological counseling for professional help instead of seeking support from relatives, friends, and family members as most people did in the past. (505–506)

In addition, consumerism has fostered a strong sense of individualism. Individuals were encouraged to consume by government policy as a way of stimulating the economy, fostering social content, and distracting people from social injustice and autocracy. Government policy encouraged banks to make consumer loans at low interests with low down payments. The media praised consumerism. “Chinese consumers’ enthusiastic embrace of commercial opportunities and products has accentuated the role of individual choice and diversified the venues in which individuals from a broad spectrum of urban society socialize.” “The ideology of consumerism, which simply encourages people to indulge themselves in the pursuit of personal happiness, effectively dilutes the influence of communist ideology.” (Yan 2000, p. 185).

Individualism did not spring out of spontaneous personal wishes, which magically coincided throughout the urban areas of China. Nor did it spring out of one child in the family. It was rooted in concrete cultural institutions (banking, media, ideology, advertising, employment practices) and normative activities which were encouraged by social leaders for political and economic purposes. It is these concrete cultural institutions and norms that are the crucible for particular psychological phenomena: “Mundane and commercialized activities of consumption provide the concrete content, the specific form, and the particular space that make this new kind of [individuality] possible” (Yan 2000, p. 185). All of this was deliberately cultivated by the government to regain social stability after the Tiananmen uprising in 1989: “The triumph of consumerism has drawn the public’s attention away from the political and ideological issues, overshadowed the increased social inequality and widespread

corruption, and eased the legitimacy crisis of the CCP after 1989” (Yan 2000, p. 188).

Ng (2009, pp. 424–425, my emphasis) amplifies the macro cultural-political changes that replaced Chinese style collectivism with modern individualism.

- In Maoist China, personal problems were moralized and politicized rather than medicalized and psychologized as in the West. Time outside of work became highly regulated. Leisure took place in group settings, and failure to participate in state-sanctioned leisure activities provided grounds to criticize individuals for “cutting themselves off from the masses” and “lacking collective spirit”

In the 1980s, the new leadership under Deng loosened state control over most domains of social, cultural and personal life. New urban sites including billiard parlors, bars and beauty shops have shaped patterns of consumption and city culture. *Economic and socio-political decentralization have opened new physical and social spaces for personal autonomy and subjective experience.* Parallel changes in the socioemotional landscape have also been documented in rural areas in China Broadly speaking, social life in both urban and rural areas has become increasingly depoliticized, and public discourse on mood and emotion has become less dangerous and more commonplace. Ordinary citizens could now openly express opinions, hopes and fears on an individual level. Popular media and professional literature have begun to utilize terms such as psychological (xinli), stress (yali), mood (xinqing) and depression (youyu) more regularly.

An important macro cultural factor in the individualizing of Chinese psychology has been the psychobiologizing of experience such as depression under the direction of capitalist pharmaceutical corporations: “With the influence of foreign pharmaceutical companies, availability of glossy psychology magazines at newsstands, popularization of psychology talk shows on television and radio, increased mental health education campaigns by the government and easy access to pirated foreign films and soap operas, many Chinese in Shenzhen are well aware of the concept of depression” (Ng 2009, p. 426).

Goh & Kuczynski know about some of these cultural developments (historical forces), yet they refrain from mentioning these in their study of family

relations. Rather than explaining how economic and sociopolitical decentralization and depoliticization, and corporatization (supported by the media) have organized new physical and social spaces for personal autonomy and subjective experience – which cultural psychologists should do – the authors extirpate them from analysis and zoom in on the family unto itself in order to create the impression that Chinese parents and children are active agents. The notion of free agency drives the authors – and the journal’s editor and reviewers – to decontextualize, deculture, and depoliticize family and personal relations (see Kurki and Sinclair 2010 for a similar critique of constructivism in international politics).

Contextualizing family changes within broader, political macro factors would reveal that Chinese individuals are conforming to imposed cultural parameters which they do not create through negotiation with the powers that be, and rarely resist, ignore, or prune effectively. Ng (2009, pp. 438–439) refers to this macro cultural forming of psychology, as a way of comprehending the psychology expressed in psychiatric narratives. Her macro cultural psychological discourse analysis is as follows:

- ▶ To better understand the four interviewees’ narratives of distress, it might be helpful to note the changing relationships between individuals and work in China across the decades. Major structural changes to the workplace in the reform era have led to increased flexibility and mobility for both employers and employees, in contrast with the stability and rigidity of Maoist-era work units (*danwei*). For workers of the Maoist era, one’s work unit was not individually chosen, and it defined one’s identity for all legal and bureaucratic purposes, as well as many aspects of one’s social life. Although some may not have been too satisfied with their allocations, the posts were seen as “iron rice bowls” one could count on, usually for life. Thus, the relationship to the workplace was one of restraint, yet also one of reliability and support. The obligation was mutual.

The transition toward a market economy in the reform era has seen the dismantling of this model.

While the work unit still exists, its influence has been diminished due to the increasing influence of privatization. Workers and employers can now

“negotiate” employment, particularly in the private sector. Fewer promises are made from both ends. “This has led to a related shift of attitude in younger workers, who prioritize the well-being of their personal and (often nuclear) family lives over that of the greater community and workplace. In this context, Mr. Tian’s narrative of frustration toward national policies and younger employees can be seen as a response to the changes in both workplace structure and worker psychology in the post-Mao era.” (Ng 2009)

Shifts since the 1990s toward a neoliberal model of funding have led to many reductions or outright termination of pension benefits, leaving some older workers and retirees nostalgic and bitter about promises made in the Maoist past. Across the country, workers and retirees have organized public protests over the depletion or denial of benefits. “Lacking reliable safety nets in the socioeconomic domain, many younger workers and students such as Mr. Zhong and Mr. Lu feel that they must indeed ‘rely on themselves’ for their own welfare and livelihood, as the availability of employment and benefits remains in constant flux, particularly for migrant laborers like Mr. Zhong. Thus, in experience of bipolar disorder, “the contents of complaints are very much in step with the socioeconomic atmosphere of their times.” (Ng 2009).

This research flatly contradicts the insistence of micro cultural psychologists that culture and psychology are individual constructs. Zhang’s (2010) superb ethnography of middle class life in China adds more evidence that “The emergence of the new middle class in China is fundamentally linked to the post-Mao market reforms and economic liberalization that set the conditions for the growth of private businesses and the accumulation of private wealth” (*ibid.*, pp. 5–6). “Privatization was a deliberate shift in China’s governing strategy to set citizens free to be entrepreneurs of the self” (Zhang & Ong 2008, p. 2; see also Hansen & Svarverud 2009). The emergence of the middle class was clearly not a product of interpersonal negotiations among individual agents as micro cultural psychologists insist.

Zhang brilliantly demonstrates that psychology (of the Chinese middle class, in this case) is objectified in, structured by, and functional for public, objective, cultural factors such as housing. “Privatization is a set of techniques that optimize economic gains by priming

the powers of the private self...This subjectivizing aspect of privatization as a mode of thinking, managing, and actualizing the self is a central element of the neoliberal doctrine” (Zhang & Ong 2008, p. 3). Newly formed private housing, that was promoted by and institutionalized in governmental laws, was a new spatial artifact that “provides the physical and social ground on which the making of the new middle classes becomes possible...Such emerging places offer a tangible location for a new class to materialize itself through spatial exclusion, cultural differentiation, and lifestyle practices” (Zhang 2010, p. 3). Such objective, public cultural factors are indispensable for the formation of middle class social identity and psychology.

This key cultural artifact of private housing was not interpersonally negotiated by individuals, it was an element of the new Chinese social system. It embodied the autocratic politics of the system: “The rapid expansion of the real estate industry and the rise of the new middle classes is not simply a matter of successful entrepreneurial endeavors or innocent [individual] consumption practices. It is also a matter of remaking urban spatial order and cultural distinctions between the relatively affluent and the less affluent through massive displacement. The glamorous new central financial district and private residential paradise for the new middle classes is built on the ruins of millions of demolished homes of long-term ordinary residents who have been forced out of the urban core [through forced evictions].” In Kunming in the 1990s, “In the three years before the Horticultural Expo, over 90% of the old neighborhoods were destroyed; tens of thousands of residents were forced out of the city. This was a major government-orchestrated event and individual families had little chance to resist” (p. 138, 139–140). Thus, the cultural artifact – housing – that was the locus and support system of middle class identity and psychology, was instituted by other cultural factors, namely political-economic institutions. Middle class identity and psychology rest upon this complex, massive, administered social system.

Zhang (2010, chap. 6) explains that among urban dwellers, self-concept now hinges on owning one’s own house, in contrast to the previous period (pre-1980s) when the men’s and women’s identities hinged on living in the husband’s parents’ abode. Social pressure falls heavily on men to define themselves as adequate

males in terms of acquiring wealth and owning a house. Failing in these material aspects directly causes men to feel insecure about themselves. It affects their virility as well. Most men feel threatened by women who are wealthy and own houses.

For women, self-worth is intertwined with conforming to social ideals of physical beauty and demeanor. There is a proliferation of clinics devoted to breast enlargement, eye lifts, face lifts, and other procedures. Women feel inadequate when they do not measure up to cultural standards of feminine beauty. They spend time, money, and psychological energy to measure up. Self-concept and sexuality are clearly organized by cultural values and practices.

Zhang & Ong (2008, pp. 1–19) construct a detailed, complex, nuanced, rich understanding of contemporary Chinese social structure and politics and they explain how this concrete culture fosters a culturally concrete self-concept. They first point out that neoliberal economic reforms are limited to certain social domains of personal lifestyle and consumption which co-exist with state control of the political economy. This makes Chinese neoliberalism distinctive from Western forms which are not dominated by state control of enterprises. The individualism associated with neoliberalism is thus more limited and personal than the individualism of Western market economies. And this means that the individualistic self that is associated with socio-economic-political individualism is more limited and has a distinctive character in China compared with the West. The individualistic self in China is contradictory to the state-controlled cultural practices, whereas it is more congruent with unrestricted market cultural practices in the West. There is consequently more tension built into Chinese individualism than in Western individualism because it is relegated to a pocket within State control of the political economy. The authors call this “an uneasy marriage” (p. 17).

Zhang & Ong concretize neoliberalism, individualism, and the individualistic self by observing their cultural formation. The authors dispel universalistic, generic notions of these constructs. These are not the same in all countries: “Privatizing needs, desires, and practices can be enhanced, deflected, or subverted by whatever else is going on under or around them” (ibid., p. 10).

This thorough, detailed analysis of culture and psychology contrasts with Goh and Kuczynski who only mention the one-child policy in relation to culture, and only mention children's "assertiveness," and "agency" (with no cultural or psychological detail) with regard to psychology.

The detailed social science research on China additionally corrects the misunderstanding of Chinese culture and psychology by cross-cultural psychologists. They misconstrue these in abstract notions such as collectivist or individualistic. And cross-cultural psychologists render China as collectivistic, oblivious to the rising individualism since the 1980s. This line of research that reduces culture to simplistic variables such as individualism/collectivism has been roundly criticized in numerous journals: *Asian Journal of Social Psychology*, vol. 2, issue 3, 1999; *Psychological Bulletin*, Jan. 2002.

As I observed in footnote #1, non-psychologists, such as Ng, Yan, Zhang, Pred, Thompson, Foucault, and Ritterhouse, have keener insights into cultural psychology than psychologists do (Note 12).

Agency

Agency is a microcultural psychological construct. Agency is regarded as a personal ability to initiate action that expresses the individual. This conception of agency is supposed to protect the individual from social determinism. Agency is what enables us to keep our bearings in the world, to make sense of the world, to resist undue social pressure, and negotiate with the world to express ourselves in the world. Agency is construed as an intrinsically liberatory force within each of us. This kind of agency has nothing to do with culture, except to counterpoise the self to culture. But it is not a cultural phenomenon in the sense of originating in culture, embodying culture, or having a cultural function. It is an individual attribute that counterbalances culture.

However, such a conception of agency is abstract, asocial, naïve, and false. It contradicts the principles of cultural psychology. Cultural psychology emphasizes that agency is a cultural phenomenon that derives its character from the kind of society in which it functions. Agency has no intrinsic, personal, liberatory character. In oppressive society, agency is stunted. It is an obstacle to liberation. It must be overcome through a social analysis of self and society. I have discussed this under

the rubric of the psychology of oppression (Ratner 2011a, b). Volosinov states the point accurately: "The content of the individual psyche is by its very nature just as social as is ideology, and the very degree of consciousness of one's individuality and its inner rights and privileges is ideological, historical, and wholly conditioned by sociological factors" (Ratner 2011a, b, p. 34).

Consequently, agency has no intrinsic capacity to liberate the people from oppression. Liberation requires looking outward toward society to understand its workings, the reasons for social problems, and how to construct viable transformations in the social organization of cultural factors. Agency is nothing more than the subjective activity that must carry out this social praxis. Agency does not have a built-in character that guides our praxis. One cannot find a way out of social problems by looking inward toward properties of agency. For our inner agency has been shaped by our social milieu such as racial honor codes, neoliberal political economy, and industrial concepts of time. Given this cultural form of agency, liberatory subjective activity must be developed. Agency must take on the content of a specific kind of social praxis. Agency must be trained to understand cultural factors and to transform them.

Liberation cannot be predicated on agency. On the contrary, achieving true agency (that initiates fulfilling behavior) depends on living in humanized cultural factors that are conducive to fulfilling behavior and authentic agency. Agency must develop its capacity to bring about more democratic and cooperative social institutions in order to realize itself as authentic agency. Agency must construct the material basis necessary to realize itself. It must construct a social environment that will stimulate and support authentic agency. Agency must "get beyond itself" in order to create the conditions for itself. (If agency wishes to become educated, it must construct an educational institution in which it can become educated; an educational institution that will provide the resources for its education.) This is the dialectical spiral of culture and consciousness enriching each other that is the cornerstone of cultural psychology.

Individualistic agency was itself developed through conducive cultural factors; it was not a natural, universal tendency. Our previous discussion of individualism in China testifies to this point. Yan and Ng demonstrate

that dramatic changes in state policy led to the blossoming of individualistic agency throughout China from the 1990s onward. “Villagers, after they were untied from the collective regime [by the government’s privatizing land and housing in the 1980s], began to make independent decisions and to engage in various self-chosen activities. . . . These traits of individual agency continued to develop in the subsequent 20 years” under pressure from social policy. “Modern social structures compel people to become proactive and self-determining individuals who must take full responsibility for their own problems and who develop a reflexive self.” This is “compulsive and obligatory self-determinism,” not the natural eruption of endogenous self-determining agency (Yan 2009, pp. xxi, p. 275).

An interesting and important way that individualistic identify was fashioned at the cultural level was through the issuance of personal identity cards by order of the National People’s Congress in 1985. Prior to this, only families received identity cards which identified people as members of families or work units. There were no cards identifying people as individuals (Yan 2009, p. 277–278). The personal identity cards bestowed an official, public, objective, objectified individual identity on people. This is a telling example of a public creation of a psychological phenomenon. The society defined people in new terms. This was reflected in the way people referred to themselves linguistically. For four decades,

- ▶ Self-identity did not exist in public life, and therefore the individual could never be an unit in public discourse. Consequently, people tended to use the plural term to substitute for the singular “I”, such as “we,” “our work unit,” etc., instead of saying “I,” “my work unit,” or “my family.” This customary usage of the plural “we” gradually disappeared in the 1990s and, by the late 1990s, a new Chinese phrase, “wo yi dai” (the I-generation or the me-generation), was coined to describe those were born in the 1970s and who had grown up during the reform era because of their proud usage of the first person.” (Yan 2009, p. 280)

This generation expresses its culturally formed individualistic agency in culturally appropriate individualistic behavior. Not only do young adults take to the free market in labor and business opportunities, they also live in their own dwellings after marriage,

instead of living with in-laws as in former times. Filial piety in the family is being replaced by individualism.

If individualistic agency is the product of macro cultural factors (rather than the product of human nature or spontaneous choice), then other forms of agency can be achieved through constructing other cultural factors to elicit and support them.

This requires exposing the individualistic politics that are implied by the popular use of “agency,” and emphasizing that agency can take other forms. We must do the same with related terms such as self-actualization. This term implies that humans actualize themselves as individuals, on their own. It assumes that social support, social concern, and social transformation are irrelevant to actualizing a person. This is a definite politics that legitimates the capitalist status quo. However, actualizing human potential requires social support, social concern, and social transformation. Thus, the individualistic politics inherent in “self-actualization” must be exposed and replaced by social politics.

Politics and Cultural Psychology: Psychological and Social Change

All social science is political because it carries assumptions about behavior, psychology, and society that either support or challenge the political interests which govern the status quo. The psychological theory that territoriality, violence, patriarchy, monogamy, racial inferiority, gender inferiority, jealousy, and exchange are innate psychological tendencies, supports the politics of the status quo. Conversely, a psychological assumption (and finding) that cooperation, collaboration, gender equality in psychological capacities, and racial equality in psychological capacities are psychological attributes necessary for mental health and development, challenges the competitive, privatized politics of the status quo, as well as gender and racial hierarchy. A conception of human nature as a general potential for all kinds of behavior is political insofar as it allows for the social possibility of erecting a social system based on equality and cooperation and altruism. No innate psychobiological forces are working to preclude these.

This chapter has observed that time sense is political in the sense of embodying a social system of work relations, exploitation, profit, etc. It is also observed

that emotional tones expressed by whites toward blacks during Jim Crow were political in the sense of representing the Jim Crow system. Self-concept also reflects and supports particular political-cultural systems. Fairclough (2001) explains how sociolinguistic conventions incorporate and reinforce particular relations of power in society. For instance, "The social dialectic which developed into standard English was the East Midland dialect associated with the merchant class in London at the end of the medieval period" (p. 47). Other dialectics spoken by the working class were designated as vulgar, and were marginalized. (Fairclough appropriately criticizes conversation analysis that "has been resistant to making connections between 'micro' structures of conversation and 'macro' structures of social institutions and societies." p. 9). Indigenous psychology and skepticism toward science are political in validating bourgeois individualism.

Psychological questions are political. The typical psychological question is "which individual will manifest a particular psychological phenomenon?" E.g., who will become violent, suicidal, hyperactive, genius in math? The focus is on individuals and individual explanatory factors: genes, hormones, neurotransmitters. The environment is construed as generally homogenous, with individual processes determining different individual responses to it. For instance, modernity is considered to be generally stressful, yet some people break down while others excel, depending upon constitutional factors. Constitutional factors determine the specific response that individuals make to the general environment. The questions which typical psychologists ask lead to addressing individual factors and circumventing cultural factors. Looking for individual causes and variations of psychological phenomena leads to redressing them through individual factors, not cultural ones.

In contrast, the cultural psychological question is "what are the cultural reasons this particular kind of psychological phenomenon exists in this culture/subculture?" "what is the social demographic of a particular psychological phenomenon? What groups manifest these phenomena in highest frequency?" "Why do so many people commit suicide, crime, violence in this society? Why are so many people in this subculture good students?" We look for social explanatory factors,

not individual ones. The cultural environment is specific and it constitutes the specificity of peoples' behavior. Understanding and altering the specificity of behavior requires changing its formative culture, not constitutional factors.

For cultural psychologists, It doesn't matter which particular individuals (John Doe or Mary Jones) manifest deleterious psychology. We do not try to predict this. That is the task of clinical psychologists. We try to predict the prevalence and the social distribution of the phenomenon. We try to improve cultural factors so as to enhance the prevalence of beneficial psychological phenomena, and reduce the prevalence of deleterious psychological phenomena. These cultural efforts will have the greatest impact on the most people. In contrast, identifying and treating individuals impacts small numbers of people. Indeed, the individualistic approach assumes that few people need treatment. If issues were regarded as widespread/social it would make no sense to treat them on the individual level.

We can see that politics is built into the questions psychologists ask about the nature of psychological phenomena. In fact, these political issues are what drive psychological science. The reason that psychologists look for individual causes of psychological phenomena is that solving psychological problems can justifiably be directed at individual factors, not cultural ones. Psychological science justifies political practice, it is not the primary instigator of political practice. It seems to academic psychologists that their theories are intellectual products which precede and generate practical solutions to psychological problems. It seems that scientific theory occurs in a rarefied realm of intellectual activity and that practitioners utilize this theory for practical means. However, the reality is opposite this appearance. It is practical approaches to solving problems that generate the development of psychological theory and methodology. It is the political need to find individual solutions to problems, which do not challenge the social system, that generates individualistic approaches to psychological science and theory.

Cultural psychology is equally animated by political considerations. In this case, the need to improve the broad culture leads to considering cultural aspects of psychological phenomena in the science of psychology. We would argue that this approach to psychological science is valid on scientific grounds. Empirical

evidence verifies cultural psychology as a science. The humane politics of striving to improve our culture and civilization generates a valid science of psychology. Psychological science is political, but it is not merely political ideology. It is valid science as well as being progressive politics.

Microcultural psychologists are driven to their view of society and psychology for social-political reasons. They seek to protect the individual from oppressive social conditions. They do this by adopting the concept of political freedom as rooted in inviolable individual autonomy and choice. This ideal leads to viewing culture as determined by individuals at the microcultural level, through negotiation as free agents with other agentive individuals. Valsiner and Litvinovic (1996, p. 61) claim that individuals continuously change culture in the simple act of dialoguing with it. Wikan (1996) similarly insists that individuals resist and transform culture in their everyday actions.

The political ideal of personal freedom also leads to endowing the individual the freedom to decide how he will react to culture and how he will construct his personal world of psychological meanings. The political ideal of personal freedom also leads microcultural psychologists to characterize social structure, social regulation, and social influence as toxic and reified.

The individualistic political ideal and ensuing conception of culture and psychology conform to the free market concept of neoliberalism, which we have described above.

Microcultural psychology is politically supportive of the free market/neoliberal status quo in glorifying individual action, individual agency, and renouncing the need for structural, political change in social institutions. Microcultural psychology postulates that people are already authentic agents who can express themselves through fulfilling acts. There is thus no reason to consider or transform social institutions in order to improve life. All that is needed to be done is to exercise its existing agency within existing society. (Of course, microcultural psychologists may contradict their psychological theory in real life, and may work for political change outside their professional activity. The chapter describes the political ramifications of their psychological theory, whether they follow these themselves or not. Inconsistency does not invalidate the real implications of academic work.)

For instance, Valsiner et al. (1997, pp. 287–292) complain that the asymmetry of parents directing children's behavior gives too much authority to parents and limits the child's self-actualization. However, a facile solution is at hand – children can mentally distance themselves from parental guidance, they can co-construct their culture by imagining their own goals which they may implement at a later time. Social asymmetry, and associated social problems, is dissolved by individual imaginary thought!

This formulation appears to be apolitical in disregarding politics and cultural factors. However, this very oversight is political on a deeper level. It exempts macro cultural factors from confrontation and therefore enables them to persist with impunity and immunity.

Although it presents itself as a radical alternative to social determinism, microcultural psychology is a counterrevolution against substantive social reform (Note 13).

In addition to being politically conservative, microcultural psychology is scientifically erroneous about the nature of society and the nature of psychology. Social systems are not reified as microcultural psychologists claim. Nor are they created bottom-up by individuals in interpersonal negotiations.

We have seen that neoliberalism is an organized, coherent political-economic-ideological system that structures virtually all areas of individual people's social life (Braedley and Luxton 2010). Yet neoliberalism is not reified because it is a movement initiated and implemented by active individuals. Neoliberalism was “a counter revolution from above” (Schulman and Zelizer 2008, p. 154; Pierson and Hacker 2010), instituted by people who transformed the structure of macro cultural factors. All systemic, structural changes are human (and all substantive, extensive, enduring human changes require transformations in social structure); they are neither reified nor reducible to personal interactions and reconstructions of meaning.

The individualistic political ideal of freedom, society, and psychology, eliminate the advantage of culture. Culture is a superorganic, emergent, collective entity that unifies individuals in supra-individual enduring, objectified, stable, predictable, dependable, historically sedimented, administered, institutionalized structures of joint intentionality and cooperation, objectified in

artifacts. These cultural factors are organized into differentiated systems which support and strengthen individuals materially, socially, and psychologically. Culture is not simply shared behaviors among individuals. It is massive, weighty structures. Indeed, the more massive and weighty, the more supportive they are. A factory exemplifies a beneficial, massive, weighty character of a cultural factor. It is productive of goods far beyond what casual, “light,” easily undone/renegeated, “shared practices” can provide. Destroying such cultural structures by reducing them to casual, personal, subjective (unobjectified), renegotiable interactions deprives us of culture’s benefits.

Micro cultural psychologists seek to circumvent alienation and exploitation, for example, by eviscerating the substance of cultural factors – their coherence, extensiveness, weight, strength, and supportiveness. They seek to solve concrete social problems on the abstract level, by destroying culture in general. They destroy culture in order to protect us from it. They cannot see the way to transform culture into a humane social system that preserves the advantages of culture.

Microcultural psychology misconstrues the individual, psychology, and freedom in anti-cultural terms, and it misconstrues cultural factors and systems in anti-human, anti-subjective terms. This undialectical thinking results in bad social science and bad politics.

The political weaknesses of microcultural dovetail its scientific errors. Both stem from denying cultural structures as influences on psychology. The science and politics of the discipline of psychology go hand in hand. Good science and good politics require addressing the cultural basis, character, and function of psychology. Denying this results in bad science and bad politics.

Cultural psychology is scientifically correct about society and psychology, and it provides effective avenues to improve social and psychological life.

Since psychology is fostered by cultural factors, occurs as part of them, is objectified in them, objectifies them in subjective processes, and reinforces cultural factors via galvanizing specific cultural behavior, it follows that new forms of psychology require a new cultural structure. Cultural psychology thus utilizes psychological phenomena to challenge the system, whereas microcultural psychology uses psychological

phenomena to engage in illusory escapes from the system which never threaten it.

Cultural psychology (at its best) identifies concrete cultural factors that are alterable; it does not get lost in abstractions about culture and psychology which are not amenable to change. To improve educational psychology, one could identify ways that educational administration, pedagogy, and educational psychology reflect deleterious neoliberal and consumerist characteristics, and would work to transform these within and also outside the field of education. We would not speak abstractly about helping students to become interested in their studies, nor would we speak abstractly about honoring students’ human rights (Note 14).

Furthermore, cultural psychology’s detailed conception of culture leads to the broadest and deepest social change, and therefore the fullest liberation from problems of the status quo. Cultural psychology appreciates culture as a system in which all the factors/elements are interdependent. From this structural notion of culture, it follows that changing one factor requires changing the network of related factors on which the one depends. A powerful example is that non-school factors such as family income determine 60% of students’ success in primary and secondary school. In-school factors such as teaching pedagogy accounts for about 10%. Thus, improving educational success requires changing the system in which school is embedded, more than it does changing school-specific conditions (Ravitch 2010, p. 23; New York Times, Dec. 27, 2010, p. A1). The fact that any cultural factor is deeply ingrained in other factors makes it weighty, entrenched, and obdurate. It is not a simple, single, free-standing element that is easily changed. The dialectical opposite of this obdurateness is that it draws us to transform many factors simultaneously in order to change any one. Thompson (1967, p. 80) expressed this with regard to the changing sense of time in the eighteenth century: “The stress of the transition falls upon the whole culture: resistance to change and assent to change arise from the whole culture. And this culture includes the systems of power, property-relations, religious institutions, etc., inattention to which merely flattens phenomena and trivializes analysis (Note 15).

Solidity, coherence, systematicity, and obdurateness of culture dialectically lead to broader and deeper social change. And structural change retains the advantages of

culture such as support and stimulation from large numbers of individuals. Of course, structural change is difficult, but as with all difficult work, its payoff is great. Studying a difficult subject matter in school is difficult to master; however, it pays greater dividends (in the knowledge you acquire) than superficially studying a simple subject does.

Approaches to culture, politics, and psychology which overlook macro cultural factors as the cause of problems and the solution to problems propose superficial, incomplete, or false causes and solutions. These include scapegoating, fear mongering, militarism, speculation, superstition, supernaturalism, myth-making, fundamentalism, suppression of dissent, and heightened security – all of which are abetted by the social elite to protect the status quo (Schulman and Zelizer 2008). These can only be avoided by identifying macro cultural factors as the source of problems and working collectively to humanize our culture.

Anti-structural approaches to culture pride themselves on circumventing the obdurateness of culture and making change viable. One gambit is to escape into subjectivity. Microcultural psychology does this, as does postmodernism. They claim that subjectivity defines culture; so we can easily change culture by simply changing a thought or behavior. Another way to circumvent social structure is to reduce it to single, discrete factors. Each one is addressed separately in an effort to improve it. Proposals are offered for improving education, or health care, or family interactions separately.

While both these anti-structural approaches appear to make social change manageable, they actually limit it. For they are based on myths. They simply ignore and deny the structured reality of society and psychology. This reality acts behind the backs of those who refuse to perceive it. The only real way to improve society and psychology is to address their reality. (Realism is the only path toward liberation.) Realism in social science and politics means comprehending and challenging the structured social system of cultural factors, including their subjective which is psychology. Vygotsky stated this with his characteristic aplomb: “Life becomes creation only when it is finally freed of all the social forms that distort and disfigure it. . . Not in the narrow confines of his own personal life and his own personal affairs will one become a true creator in the future” (Vygotsky 1997a, p. 350).

Notes

1. Pred’s insights into culture, psychology/subjectivity, and their interrelationship are complemented by research from geographers, anthropologists, historians, and sociologists. Historian Lucien Febvre (1933) called for a historical psychology that emphasized “mentalities.” (See Plamper (2010) for interesting interviews with historians about their work in cultural psychology of emotion.) This research into cultural psychology by non-psychologists is deeper than cultural psychological research by psychologists – as we shall demonstrate with additional examples. Evidently, training in social science attunes scholars to the richness of culture that is absent from training in psychology. Perhaps this explains the general failure of psychologists to engage with social science research in cultural psychology.

2. The point of neoliberalism is to free natural resources and labor to be exploited by capitalists to maximize their private profit. Natural resources and labor are to be freed from protective social policies and organizations – e.g., regulation, unions – and humane concerns that counter their exploitation by capital. Freedom is a devious term that really connotes freeing natural resources and labor from community regulation so they can be exploited by the free, unrestricted activity of capitalists. Freedom for neoliberalism does not connote autonomy, self-fulfillment, and freedom from exploitation, but rather freedom to be exploited.

Neoliberalist freedom is an Orwellian term that means the opposite of what it claims for the populace. It is the freedom for the capitalist class to exercise and extend its hegemony over society. Neoliberalism is not freedom for the populace to develop itself. This is proven by the vast enrichment and empowerment of the capitalist class in the societies where neoliberalism is dominant. It is well known that the American superrich has greatly increased its wealth and power while the subaltern classes have lost wealth and power since the 1970s when neoliberalism was unleashed. In addition, social mobility has stagnated as public programs to enhance the educational and occupational opportunities of the underprivileged have been decimated (by Democrats and Republicans alike) and individuals rely more on private, family assets. Privatization makes people more dependent upon the resources at their disposal, which keeps the

wealthy rich and the disadvantaged poor. This is proven by the fact that Intergenerational income mobility – the difference between the wealth of parents and their children – has decreased in the dominant neoliberal economies. England has the lowest level of intergenerational income mobility in the world, with the USA the second lowest in the entire world (*New York Times*, October 16, 2010, p. B6). This means that American and British children are less free (have less opportunity) to deviate from the conditions of their birth, whether rich or poor. In contrast, children have more freedom to rise out of poverty and to fall from privilege in other countries with less neoliberal freedom.

Neoliberalism restricts personal freedom to be independent of socioeconomic conditions! That is its *raison d'être*: to maintain the class structure of society with all of its exploitation, inequality, and insecurity for the masses. This is why neoliberalism is endorsed and funded by the capitalists. They would never fund a movement that could reduce their class power by granting empowerment and freedom to the populace.

Neoliberal freedom is class-based. It is freedom for the ruling class but not for the subaltern classes. However, it is used as a general term devoid of class, and applicable to all individuals. Neoliberal ideology semiotically obscures the class basis and class limits to freedom. It overgeneralizes freedom to subaltern classes that are unfree. Neoliberal ideology thus semiotically inverts the unfreedom of lower classes into freedom. Whenever we hear the word freedom applied abstractly to all individuals, we must remember its concrete class character and class limits. We must remember that these do not extend to subaltern classes. When referring to the populace, we must reinvert the meaning of freedom into unfreedom to correct the rhetorical inversion of unfreedom into freedom. Semiotic terms cannot be accepted at face value. They must be compared to social reality to determine how accurate, or objective, they are.

Abstract terms such as freedom, people, agency, opportunity, individual are misleading in class society. Abstract terms strip away concrete distinctions among exemplars and promote the appearance of equality or identify. However, class society rests upon inequality. In class society, freedom, people, agency, opportunity, and individual exist in grossly different conditions with grossly different features. Rhetorically equalizing them

through abstract terminology obfuscates their concrete inequality. Abstract terminology serves the political function of smoothing over inequality, injustice, exploitation, and social class, without explicitly denying them. Denial would entail acknowledging their possible existence; it would also risk counterargument. It is safer to erase these features through utilizing the abstractness of language which simply has no place for them, and renders them inconceivable. The reality of social class is symbolically eradicated through the silence of abstraction, not through the vocalization of argument about class, or noisy political struggle to eradicate it.

3. Modern capitalism has brought about new forms of work which are brought within the orbit of neoliberal practices and policies. Capitalism now depends largely upon immaterial labor power such as affective labor of care providers, personal relations, and information networks. The relations, networks, affect, and technology that bring labor together are central to surplus value generation and they are infused with capitalist social relations such as commodification. The networking, communication, and psychological output of capitalist work is recapitulated in social networking technology such as internet sites. The new commodified forms of networking, communication, and psychological expression must be researched by cultural psychologists to discover the ways they are embedded in psychological phenomena. Cultural psychologists would do well to follow Arlie Hochschild's research into the emotional commodification of service workers who "employ" emotions as they are employed at work.

4. These "security" measures are really designed to surveil and suppress people from challenging the insecurity of the market political economy (Wacquant 2009; Melossi 2008). Security measures thus actually reinforce their opposite – insecurity.

5. To wit: one out of every seven applicants for private health insurance was refused coverage by American insurance companies in 2009 because the applicants had a prior medical condition that made them liable for expensive care which the insurance companies did not want to pay. One of the medical conditions that disqualified an applicant from health insurance was pregnancy, or attempting to adopt a child! (*Wall Street Journal*, October 13, 2010, p. A2).

6. Lave et al. (2010) describe how neoliberalism also affects science. This is an important aspect of cultural psychology. For cultural psychology analyzes the cultural origins and nature of psychological science as well as psychological phenomena.

Understanding the politics of social science approaches is explored in the academic discipline known as science, and technology studies (STS). It studies how social, political, and cultural values affect scientific research and how the latter affect society, politics, and culture. A leading journal in the field is *Social Studies of Science*.

7. Using time as the parameter of work increases productivity and profitability by cramming more work within the fixed parameters of time and wages. In the old task orientation, increasing production output would lead to expanding the time required, and this would maintain productivity (work per unit of time) and profitability at constant levels.

8. In England,

- ▶ the preliminaries to the industrial revolution were so long that, in the manufacturing districts in the early eighteenth century, a vigorous and licensed popular culture had evolved, which the propagandists of discipline regarded with dismay. Josiah Tucker, the dean of Gloucester, declared in 1745 that "the lower class of people" were utterly degenerated. Foreigners (he sermonized) found "the common people of our populous cities to be the most abandoned, and licentious wretches on earth." "Such brutality and insolence, such debauchery and extravagance, such idleness, irreligion, cursing and swearing, and contempt of all rule and authority. Our people are drunk with the cup of liberty." The irregular labour rhythms [of this socioeconomic activity] help us to understand the severity of mercantilist doctrines as to the necessity for holding down wages as a preventative against idleness... (Thompson 1967, pp. 80–81)

Time orientation and time discipline thus served to carry out broad social change in the life activity of the lower classes so as to subjugate them to industrial labor and capitalist class rule. This was reinforced by a corresponding new sense of character that was elevated by punctual, consistent work, and was compromised by idleness and indolence. Being a good person was defined in capitalist terms just as time was.

Former pleasurable, social activities such as wakes and holidays and the annual feasts of friendly societies, and "the slothful spending the morning in bed" were denounced as "shameful devourers of time and money."

9. It demonstrates that religion's role is not to enlighten people about unfathomable mysteries. Religion only provides a subjective comfort of feeling protected by a higher being, feeling a higher purpose or order to life, feeling connected with people, nature, and the universe, or a sense of justice – reincarnation contains this sense since the soul is connected to individual bodies and even species, and rebirth justly rewards or punishes one depending upon previous actions. But this sense of purpose, order, connectedness, justice, and protection are wishful metaphors. Real life is divisive, disconnected, unfair, exploitive, chaotic. Most religion posits a spirituality that is opposite to these and which exists alongside material life. Most religion does not improve material life, and this is why it never deals with material issues. It abandons them and retreats to a metaphorical, metaphysical realm of spirituality that supposedly exists outside (alongside) real, material, social life. It allows people to suffer all the slings and arrows of real social life, but then believe in a better spiritual world apart from this. But this gambit accepts the evils of material, social life. (Of course, people are expected to be kind in their interpersonal interactions, but without any alteration in the social institutions and artifacts in which they conduct their lives.) This is why exploitive societies endorse religion: it allows them to exploit people with impunity and to look to nonsocial spiritual solutions to social problems. The most conservative, exploitive rulers embrace religion because it allows them to claim to be sympathetic to justice, order, connectedness, and protection on a spiritual level; while they simultaneously exploit people in the real, material, social realm. Exploiters know that most religion will not challenge their material, social practices because it has accepted social life as it is, and escapes into an unreal, metaphorical, metaphysical realm to explain and solve problems. This explains why the Catholic Church never officially condemned fascism, and actually condoned it in many instances.

Religion's disengagement from understanding and reforming social reality leads it to adopt a spiritual,

metaphysical outlook that is similarly disengaged from physical, scientific reality. Abandoning social reality (to the exploiters and the sufferers) and retreating to an unreal realm, the constructs that are relied on to provide social protection, purpose, justice, and connectedness are devoid of any intelligible, specific, or empirical properties. There is no specification of what god is, how “he” created the earth. Nor is there any specification of how a soul becomes reborn in another body and even species. Nor is there any interest in such real questions. By definition, religion cannot posit real, intelligible, empirical phenomena because it has abdicated real, material, social life and retreated to a metaphorical, metaphysical realm. It is fruitless to challenge religious devotees to explain their constructs in terms of real mechanisms (e.g., in relation to scientific knowledge) because they are not designed to deal with real things. They are designed to simply give people a metaphorical sense of order, connection, protection, and justice without any reality to these. Irreality is accepted as part of the metaphysical, metaphorical, spiritual realm. It can never lead devotees to renounce their constructs.

Religion does not enlighten people about the mystery of things; on the contrary it compounds the mystery by introducing explanatory constructs – e.g., a higher being, or reincarnation – that is unintelligible. Not only is the origin of the earth difficult to fathom, but the god that is supposed to explain it is unintelligible. We now have two mysteries instead of one. (See Belzen 2010 for a cultural psychological analysis of religion.)

10. An objective analysis of psychology not only enables us to identify and refute fallacious concepts about psychology, it also enables us to trace them to their cultural roots. We can explain the features of society that generate false concepts about psychology. We can critique capitalism for organizing an oppressive content to our psychology – e.g., egocentric, consumerist – and also for obscuring the full character and origins of our psychology, thus making it difficult to alter.

11. The politics of the external, critical perspective and the indigenous, multicultural perspective that validates diverse cultures “for who they are,” is revealed in the dispute over the Nobel Peace Prize that was awarded to a Chinese dissident, in prison, on October

8, 2010. The dissident, Liu Xiao Bo, was serving an 11 year prison sentence for his writings urging democracy, an independent judiciary, and multi-party elections in China. The Nobel Commission awarded him the Peace Prize as a way of supporting the cause of democracy, despite the fact that Liu’s activities were judged to be illegal by the Chinese system. The Commission challenged indigenous Chinese practice on the basis of a higher standard of human rights. The Chinese denounced this external social critique as not respecting Chinese law and culture. They accused the Nobel Committee of imposing “Western” values on China and showing contempt for its legal system. They used the indigenous cultural argument that a culture’s practices are immune from external critique.

The Chinese government threatened to punish Norway economically and diplomatically for granting the award to a dissident criminal. The government also blocked announcement of the Peace prize from its news media and from internet sites that carried it. Anyone typing the words “Nobel Peace Prize” or “Liu Xiaobo” into Google found themselves facing a blank screen. And the police raided a private party in a Peking restaurant where a few Chinese who learned of the Prize were celebrating. The police imprisoned several of the group on charges of disturbing the peace. The police did not even know who Liu was. The government also placed Liu’s wife under house arrest and cut off her cell phone – because her husband had received the Nobel prize!

This case illustrates the politics of the two positions we have been discussing. If you support the indigenous, multicultural viewpoint, you would endorse China’s defensiveness and nationalistic pride. If you support the external social critique argument, you would endorse the Nobel Commission’s actions. That is, if you were consistent in your thinking. Of course, many multiculturalists in the domain of social science would be aghast at the Chinese’s actions, even though their dismay contradicts their indigenous, multicultural position in social science.

12. A related example of cultural psychological research that minimizes real culture is Gladkova’s (2010) comparison of linguistic connotations in Russian and English. She concluded that words such as “sympathy” are used differentially toward in-groups but not toward members of out-groups in Russian,

however, these words are used equally toward both groups in English. A cultural explanation was proposed: “These differences in meanings can be attributed to the prevalence of different models of social interaction in these two cultures” (p. 280). Specifically, Americans do not distinguish in-group and out-group as dramatically as Russians do. This cultural explanation is faulty in several ways.

First, it is dubious. Americans segregate in-group from out-group quite strongly. Every American child is taught “do not talk to strangers;” cliques are rampant in school, and the cause of considerable anxiety among outsiders who cannot break into an in-group; American residences are protected against outsiders by gates and guards; employees treat supervisors at work completely differently from a friend or spouse.

Secondly, Gladkova offers not a single example of these purported cultural models. She particularly fails to mention examples in public, objectified laws, moral precepts, historical records, philosophical concepts, entertainment programs, and child-rearing literature, where they would be true cultural factors, subject to politics and other features of cultural factors I have enumerated throughout this book. These features are necessary for models to be shared, intelligible across a society, and useful for achieving cultural purposes. To casually mention some vague “cultural model” as the cultural explanatory construct of semantic meaning, without any specification or documentation is alarming – especially for an article which is entitled “A Cultural Analysis” and which is published in a journal named *Culture & Psychology*.

A third weakness in the author’s treatment of the social model as cultural explanation, is that it is isolated from any other cultural factors. The model of social interaction is ungrounded in cultural factors, structures, conditions, ideology, politics. It ignores the horizontal and vertical “hermeneutic circles” that comprise the social structure. Gladkova’s “social model” is suspended in time and space, it is deculturated and depoliticized. (This abstractness is what makes it vague.) This is again alarming for a “cultural analysis.” In fact, it is insidious. For it pretends to be a cultural analysis when it is not. The unwary reader will be led to believe that casual, abbreviated mention of some vague, undocumented, ungrounded – and dubious – cultural phenomenon

suffices as a cultural analysis. This is a dangerous model of cultural analysis which impedes serious interest in culture as a substantial, organized, administered, meaningful, concrete, consequential influence on psychology.

13. Joseph de Maistre described counter-revolution in the following poetic terms: “La Contre-Révolution ne sera pas une révolution contraire, mais le contraire de la Révolution.”

14. The concrete struggle to identify and humanize cultural factors is a topic in its own right. That struggle certainly begins among individuals. However, even at this stage, it is always a struggle that is directed at macro cultural factors. It is not a discussion in which individuals negotiate their personal desires for self-expression, which microcultural psychologists focus on. Furthermore, struggles for social and psychological change always expand beyond the initial small group of individuals who foment them. They are realized in organized campaigns that strive to alter macro cultural factors via broad dissemination of social propaganda through social media outlets that reach masses of people simultaneously. Social change is not a sequential movement of interpersonal interactions.

15. For instance, the development of the individualistic self/agency in China required state policies regarding employment, land ownership, and allocating housing, along with corresponding changes in family relations, dowries, sexuality, youth culture. Similar grand societal changes are necessary to construct or transform any cultural factor (e.g., education) and its psychology (educational psychology, time sense, prejudice).

See Also

► [Structuralism](#)

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Cultural Psychology and the Cinema

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- Dreams hang in fragments at the end of the (screening) room, suffered analysis, passed – to be dreamed in crowds, or discarded.

F. Scott Fitzgerald, *The Last Tycoon*

If the cinema is not made to translate dreams or all that which, in conscious life, resembles dreams, then the cinema does not exist.

Antonin Artaud, *Cinema and Reality*

Introduction

Cinema may be considered a form of mass communication. Nevertheless, there is much more to this medium that makes it even more complex and interesting. If there is one word that has been associated

with the motion picture since its inception, it would have to be entertainment. There are serious movies and edifying movies and movies that teach and promote ideologies or beliefs. But generally speaking, we go to the movies to be entertained. And it is that very capacity to effectively deliver entertainment – bypassing our critical faculties – that make movies so powerfully influential for better and for worse in ways that we may not even be aware of. Consider what Shakespeare taught us in what is widely regarded as his best play – *Hamlet*. Here, Shakespeare helps us to gain insight into the process of what is actually involved in the entertaining us. Hamlet's dialogue with the players highlights three possible forms of entertainment: as history, comedy, and tragedy. In the play within the play, he famously makes his intentions clear, asserting, "The play's the thing/wherein I'll capture the conscience of the King." But the theater and film also have the capacity to capture consciousness as well as conscience, and I believe Shakespeare would consider it an agreeable addition. Both conscience and consciousness are essential factors because they constitute the foundation of what we call Cultural Psychology of the Cinema – or what I call the Social Dream – which constitutes the major subject matter of this discussion. How entertainment can reach our conscience and affect our consciousness will become the "light motif" (the cinematic techniques) and "heavy motifs" (the impact of the content conveyed by means of those techniques) throughout. I will begin by tackling the question as to how cinema's evolution allowed movies to create an ever more palpable illusion of "reality" for viewers, holding them captive in the artificial worlds they create. After all, our conception of reality is not based exclusively on what our senses tell us, it is also what goes on in our heads – specifically in our imagination and the associations that surface in our memory. And if there is one thing that movies have shown themselves successful at, it is getting into our heads. As Richard Eberwein put it in his book on film and dreams: "Film gives us the dreams we never had, the dreams we yet await. . . . Film's overwhelming images invite a return to that state in which the ego dissolves" (Eberwein 1984).

By the canny (or uncanny) use of such techniques as flashbacks and flash-forwards, jump cuts and montages, the technicians of cinema have been able to evoke to some extent the way in which memory works and

how emotion colors the way we perceive the external world. But movies have also proven to be remarkably efficient vehicles in duplicating dreams. Indeed, surrealists like Salvador Dali and Luis Brunel were among the first to exploit the possibility of using film to create dreams on the screen (think of the iconic image of a razor slitting an eyeball in *Un Chien Andalou*). Brunel has stated that film seems expressly designed for exploring the subconscious, noting that the images, as in dreams, can appear and disappear through "dissolves" and fade-outs while the laws of time and space are routinely violated.

Movie mavens and students of psychology alike have long observed the similarity between the state of dreaming and the state of the viewer's mind watching a movie. "An analogy between cinema and dreaming has long been drawn, film appearing to us as dreamlike, while our dreams are experienced – at least to our waking minds – like movies," observes Elizabeth Cowie, a British film scholar. Even though we are conscious when we sit in a theater, she says, we are still in a passive position – "immobile, silent and . . . attuned to only those stimuli arising from the film performance. . . . oblivious to other events around us, while the exigencies of reality, and the demand to test for reality, are placed in abeyance" (Cowie 2003).

But I will also look at the ways in which film has become a means of recording and transmitting the collective dreams of culture and society – what Roland Barthes called "collective representations" – whether or not the filmmakers understand what those dreams are. I will then proceed to examine a sampling of the cinematic dreams that have haunted our collective unconscious over the last several decades and focus on three of the principle types of characters or archetypes that have figured prominently in these dreams, indeed, have effectively defined what the dreams are really about (My use of the terms 'collective unconscious' is not meant to imply that I am a Jungian. However, for the purpose of this discussion it is a convenient and apt description of the kind of social dream that films can embody).

Pinpointing the origin of cinema is more difficult than might be imagined. It depends largely on which invention you identify as the first moviemaking device. Some scholars choose the camera obscura used by Renaissance painters. Others favor a device known as

a phenakistoscope, a spindle viewer invented by a Belgian physicist in 1832 or opt for the zoetrope invented a year later by a British mathematician. More weight probably should be given to Edison's kinoscope, which was introduced at the Chicago Exposition of 1893. To operate the device you dropped a nickel into a slot, triggering a small motor that allowed you to peer through a magnifying glass and watch a girl dancing or boys fighting. Your nickel bought you half a minute of entertainment. However rudimentary these devices, all had one thing in common: the capacity to create the illusion of movement out of a sped-up sequence of still images.

Early Psychological Views of Cinema

Just exactly how films can operate on our minds was a question that psychologists were already grappling with in the early part of the twentieth century notwithstanding Freud's belief that it was impossible to "graphically represent the abstract nature of our thinking in a respectable form." (Freud rebuffed offers to write a photoplay on several occasions, even turning down an offer of \$100,000 from Samuel Goldwyn, a fortune at the time.) Modern cinema and psychoanalysis both emerged around the same time. Freud and Joseph Breuer's pioneering *Studies on Hysteria* was published in the same year (1895) that the Lumière brothers were screening films they had produced using their new "cinematograph." The two explorations had a great deal in common. Freud and Breuer were investigating the phenomena of hysterical fits among patients at Salprière hospital, examining behavior that they characterized as "automatism" – spontaneous verbal or motor behavior or acts performed unconsciously. Meanwhile, the Lumières were bringing the inanimate to life on screen – or at least the representation of life – in a jerky, uncoordinated manner that recalled the uncoordinated movements of the patients Freud and Breuer were observing. The new medium illustrated what Freud called the uncanny – a juxtaposition of the familiar and the strange, the animated and the lifeless.

It appears likely that the first experiment to assess the impact of film on the spectator was conducted in 1916 by the eminent Harvard psychologist Edwin Boring. In his "picture-test," viewers composed of children and adults of both sexes were presented with

a 1-min scene from an Edison film entitled *Van Bibber's Experiment*. The clip depicted a confrontation between a "gentleman and a burglar." The test was designed to measure the accuracy of reporting by the viewers – what they retained of what they saw. A sex difference in suggestibility emerged from the study especially among the adults: "The men exceed the women in range of report, range of knowledge, accuracy of report, assurance (and) reliability of assurance. . ." The results led Boring to conclude that "in general the men appear to be superior as witnesses to both women and boys, whereas between women and girls and between girls and boys there is a much less striking difference." He did not hazard a guess as to why men were so much superior reporters; perhaps men were more susceptible to the new medium than women or responded to the subject matter more enthusiastically. It would have been interesting to learn whether a similar "picture-test" showing two women in a domestic situation would have yielded the same results (Boring 1916).

Munsterberg on Film

If Boring was in the vanguard of psychologists examining the influence of film, it is safe to say that the German philosopher Hugo Munsterberg is the medium's first significant critic and analyst. Munsterberg's seminal contribution is found in an almost forgotten monograph published in 1916 called simply *The Photoplay: A Psychological Study*. Not content with being a critic, Munsterberg flirted with filmmaking himself. In 1916, he approached Paramount Pictures with "material for a series of psychological test demonstrations in moving-picture form," noting that movies "have stirred up a very considerable interest for mental life in many cities." As an example of what he meant, he proposed to present the Montessori educational system in a cinematic form. If he were in charge of film studios, he wrote, they would specialize in particular categories because otherwise how were audiences to know what they were getting when they walked into a movie theater? "I think the greatest trouble in the moving-picture world today is the lack of discrimination and differentiation," he wrote, attributing "the crude state of the moving-picture industry" to this inconsistency. Instead he favored "a clean division of labor" among production companies (Munsterberg 1922, p. 125). History has shown that he proved more

prescient in his role as critic than he did at postulating a viable business model for Hollywood.

It should be pointed out that Munsterberg had no interest in the way in which cinema might embody a social dream. In what is arguably his most famous statement he declared: “The story of the subconscious mind can be told in three words: there is none.” (Munsterberg 1909, p. 125). Munsterberg’s inner philosopher, his daughter Margaret wrote, never allowed the inner scientist the final say on any problem of real life (Munsterberg 1922, p. 283). If the philosopher did not believe in the existence of a subconscious, no scientific data to the contrary was going to cause him to change his mind. So it follows that in his consideration of the cinema he did not take any interest in the way in which it affected a part of the mind that was not immediately accessible to our awareness. According to the critic Giuliana Bruno, Munsterberg conceived of psychic life “as a mechanism to be unraveled – a technology of sorts” that led him to recognize “the psychic function of the film apparatus.” Bruno writes that he regarded cinema as an “actual ‘projection’ of the mind.” Our minds, he believed, acted like screens in which a motion picture was rolling whether the subject was awake or asleep (Bruno 2009, pp. 190–191).

All the same, his pioneering study on the nascent medium provides us with valuable insights about the ways in which films do in fact infiltrate and embody our individual and collective dreams. He foresaw – correctly – that film had the potential of uniting the sensibilities of both the highbrow and the lowbrow and characterized the directors and screenwriters as photopoets who “recognize the special demands of the art.” (Munsterberg 1922, p. 283) It is a tribute to Munsterberg that he was willing to credit cinema as an art, not as a mere novelty. “What we need for this study is evidently, first, an insight into the means by which the moving pictures impress us and appeal to us,” he wrote. “Not the physical means and technical devices are in question, but the mental means. What psychological factors are involved when we watch the happenings on the screen? But secondly, we must ask what characterizes the independence of an art, what constitutes the conditions under which the works of a special art stand. The first inquiry is psychological, the second esthetic; the two belong intimately together” (Munsterberg 1916, p. 21).

In his monograph, the philosopher tackles the subject of film in two basic ways. First, he considers the influence of film through its technology and cinematic techniques – what he terms “processes of perception and attention” – developed by early masters like D.W. Griffith. Second, he examines the impact of these processes on the spectator in terms of his or her “interest, memory, imagination, suggestion, and emotion.” (Munsterberg 1916, p. 40) Whatever the limitations of Munsterberg’s outlook – we are all constrained by our time and place, after all – his views stand up to scrutiny even now. He is similarly perceptive when it comes to the impact these technologies and techniques have on the viewers.

Emotion was central to Munsterberg’s theory of film. It represented an “inner venture” and “an intimate voyage – a tour of the emotions.” Motion pictures were composed of “emotion pictures” and provided the psychic terrain in which feeling could be navigated “and charged cinema with the ‘moving’ power of emotion.” (Bruno 2009, p. 191) Depending on the context, Bruno writes, the audience will interpret the same shot of a facial expression with different emotional responses. One might, for example, “project” onto the same expression sadness or joy, love or hate, hunger or satisfaction. The test of a filmmaker’s ability to reach his audience was the effective use cinematic techniques as “a form of empathy” (Bruno 2009, p. 102).

How do Movies Operate on the Consciousness?

In Munsterberg’s view, the success of the motion picture is directly related to the processes of the mind. The objective world, he maintains, shapes and molds the mind; the mind in turn uses the stuff of the external world to develop “memory, ideas and imaginative ideas” and then “in the moving pictures they become reality.” He goes on to say: “The mind concentrates itself on a special detail in its act of attention; and in the close-up of the moving pictures this inner state is objectified. The mind is filled with emotions; and by means of the camera the whole scenery echoes them” (Munsterberg 1916, p. 21). The mind perceives the world on the screen in a different manner than it does the external world. “We perceive the movement; and yet we perceive it as something which has not its independent character as an outer world process, because

our mind has built it up from single pictures rapidly following one another. We perceive things in their plastic depth; and yet again the depth is not that of the outer world. We are aware of its unreality and of the pictorial flatness of the impressions” (Munsterberg 1916, p. 21). In other words, the spectator becomes a collaborator of the filmmaker. We understand that what we are seeing on the screen is not objective reality but “a product of our own mind which binds the pictures together.” The illusion of movement results from a dynamic between our perceptions and the deployment of the technical repertoire of the filmmaker. Consider, for example, the close-up. “The attention turns to detailed points in the outer world and ignores everything else: the photoplay is doing exactly this when in the close-up a detail is enlarged and everything else disappears.” His assessment remained valid even as films developed over the years. Roger Manvell, a noted British critic, said almost the same thing in the 1950s long after film was a nascent art form: “One of the first tests of filmmaking is the degree to which the camera is used to assist the spectator to select what there is to see, that is, when the camera is used to help interpret the action” (Manvell 1955, p. 23).

The ways in which the camera is used to shape the spectator’s movie-going experience, as described by Munsterberg, informs the next part of our discussion.

The Techniques

In Munsterberg’s scheme there are five principal techniques that filmmakers make use of to produce their movie magic: depth, composition, movement, the close-up, and what he calls the cutback. To this list we also need to add sound, an innovation that did not come about until several years after the monograph was published.

Depth, or rather its illusion, provided cinema with much of its effectiveness – so much so that “some minds are struck by it as the chief power in the impressions from the screen.” Munsterberg compares the impact of depth as conveyed by film with depth as perceived by theater audiences. (The theater, for obvious reasons, was the medium closest to the film.) He cites the poet Vachel Lindsay who wrote that “the little far off people on the old-fashioned speaking stage do not appeal to the plastic sense” with anywhere the same impact as the “dumb giants in high sculptural relief”

on the screen. Of course, the “dumb giants” on the screen would find their voice soon enough with the introduction of the talkies, a development that Munsterberg did not live to see. All the same, viewers were not deceived; they certainly did not mistake the depth of a scene they were watching on the screen with “true depth and fullness,” but on the other hand, they were perfectly content to be taken in. This illusory reality “brings our mind into a peculiar complex state; and we shall see that this plays a not unimportant part in the mental makeup of the whole photoplay” (Munsterberg 1916, p. 40). (When Munsterberg refers to the photoplay, he means the film as a whole and not just the screenplay.)

Depth is only an attribute of space; how it is used by the filmmaker to evoke a mood, establish character, and advance the plot is another matter entirely. (I am using the term filmmaker as a convenient term to refer to the director, cinematographer, and film editor, all of whom play a role in determining the shots that wind up in the final footage.) This brings up the “problem” of pictorial composition. As Marvell observes: “Composition can, consciously or unconsciously, greatly affect the attitude of the audience to what is going on in the story” (Manvell 1955, p. 31).

Unlike the problem of depth, which can be easily ignored by audiences, Munsterberg wrote, movement “forces itself on every spectator.” Explaining motion in film is “the chief task which the psychologist must meet” – essentially resting on his ability to account for the complex mental process that creates the impression of movement from a series of still images. The mind is fooled into perceiving motion, a happy illusion. At the same time, the philosopher points out, the spectator also realizes that the actors’ movements are not continuous; we see a hand reach for a gun and then the gun is in his hand and yet the interruption does not trouble us at all.

Filmmakers have other tricks up their sleeves in addition to the use of depth and movement to make audiences sit up and pay attention. They also know how to employ the close-up to optimal effect. “An unusual face, a queer dress, a gorgeous costume or a surprising lack of costume, a quaint piece of decoration, may attract our mind and even hold it spellbound for a while.” What was a small detail on the screen, easily overlooked, can be made to fill the entire screen, obliterating everything else,

so that we have no choice but to focus on it. In underscoring the importance of the technique, Munsterberg once again uses the theater as a basis for comparison: “The close-up has objectified in our world of perception our mental act of attention and by it has furnished art with a means which far transcends the power of any theater stage” (Munsterberg 1916, p. 56).

The last technique that Munsterberg examines in his discussion of the power of the film is what he calls the cutback and what we now refer to as a flashback. Noting that the cutback may have “many variations and serve many purposes,” he is mainly concerned with the flashback as “an objectivation of our memory function.” He believes that the cutback and the close-up are complementary or parallel functions. “In the one we recognize the mental act of attending, in the other we must recognize the mental act of remembering.” Here again, the film has an advantage over the theater where mental states can be suggested but seldom shown. “*It is as if reality has lost its own continuous connection and become shaped by the demands of our soul.*” The film has reversed the natural order: the external world has become “molded in accordance with our fleeting turns of attention or with our passing memory ideas” (Munsterberg 1916, p. 89).

The introduction of sound revolutionized the development of the new medium. The first commercial film with fully synchronized sound was shown in New York in 1923. “The film owes its power to the mobility of its images combined with the selective use of sound, and its aesthetic derives from this,” Manvell writes. “Its poetry lies in the richest use of these potentialities by the artist, as the power of literary poetry derives from the potentialities of words used in the service of emotional experience” (Manvell 1955, pp. 91–92). Sound – excuse the pun – amplified the illusion of reality on the screen, making it in Manvell’s words “an extension of our own world,” something the silent film could never be. (The strength of silent film was principally found in its depiction of fantasy, its other-worldliness.) While sound can represent reality, the British critic goes on to say, it is also “a highly artificial form of expression which the artist can control at every point” (Manvell 1955, p. 35).

Psychological Component

As I stated earlier, the spectator is a silent, but not necessarily passive, collaborator of the filmmaker. If

the spectator is not engaged nothing on the screen is going to have much of an impact. In Munsterberg’s theory, the filmmaker is deliberately trying to fool the audience, but the audience is in on the game, indeed, would not have it any other way. As Gregory Bateson puts it in his essay “Steps to an Ecology of the Mind,” “Conjurors and painters of the trompe d’oeil could concentrate on acquiring a virtuosity whose only reward is reached after the viewer detects that he has been deceived and is forced to smile or marvel at the skill of the deceiver. Hollywood filmmakers spend millions of dollars to increase the reality of a shadow” (Bateson, p. 182).

So “depth and movement alike come to us in the moving picture world, not as hard facts but as a mixture. . . . They are present and yet they are not in the things. We invest the impressions with them” (Munsterberg 1916, p. 4).

If we consider both the “outcome of esthetic analysis” and “psychological research,” Munsterberg writes, than it is possible to combine the results of both into what he calls a unified principle that he defines thusly: “the photoplay tells us the human story by overcoming the forms of the outer world, namely, space, time, and causality, and by adjusting the events to the forms of the inner world, namely, attention, memory, imagination, and emotion.”

We will now turn to the ways in which the actions of the inner world can enhance the effectiveness of a representation of the outer one.

Munsterberg is like a visionary who has seen the future, and the future is cinema. Here he is extolling the power of the medium in almost ecstatic terms: “The massive outer world has lost its weight, it has been freed from space, time, and causality, and it has been clothed in the forms of our own consciousness. The mind has triumphed over matter and the pictures. It is a superb enjoyment which no other art can furnish us” (Munsterberg 1916, p. 173).

How does our mind achieve this remarkable triumph over matter and the pictures when it is the pictures that are the very source of that triumph? Consider: Even though we may suspend our disbelief when we walk into a movie theater, that does not mean that we relinquish our identities. We come to each film armed with our memories and our imagination. The film has the capacity to stir *our* memories (sometimes

of a previous film we have seen no less than memories of our own experiences). And, as Richard Eberwein points out, it also has a capacity to bring us into “greater contact with a character’s mental life” because of the way that film resembles individual dreams while simultaneously having the ability to evoke a social dream. “To this screen we bring memories of how we experience the rapid jumps, incoherent connections, and ambiguities of our own dreams. They serve as constitutive psychic coordinates helping us to follow through the dreamer’s experience. . . In this sense, our involvement in the filmic dream seems to be part of a collective dream experience” (Eberwein, p. 54).

At the same time through its use of flashbacks (cutbacks in Munsterberg’s parlance) a film can also evoke the memories of the *characters*. “Memory breaks into present events by bringing up pictures of the past. . .” Similarly, film goads and provokes the imagination, heightening expectations or even imposing a narrative on the film that might not be what the director originally intended. For the characters, however, “the imagination anticipates the future or overcomes reality by fancies and dreams.” Film is uniquely able to mimic the mental processes – the way in which “our mind is drawn hither and thither” – by showing “intertwined scenes everything which our mind embraces” (Munsterberg 1916, p. 171).

Munsterberg argues that filmmakers have managed to abolish time or at least manipulate it so that it can be attenuated, compressed or chopped up into bits and pieces, served up on screen at intervals when they are likely to pack the most punch. “The temporal element has disappeared, the one action irradiates in all directions,” Munsterberg avers although he is quick to add a qualification, noting that the technique can be overdone, especially “if the scene changes too often and no movement is carried on without a break.” As an example, he notes that at the end of *Carmen*, starring the legendary Theda Bara, the scene changes no less than 170 times in 10 min, an average of a little more than 3 s for each scene, which, he admits introduces “an element of nervousness.” When Munsterberg talks about time, he is really talking about cause and effect or more simply, the concept of causality. The film makes a mockery of causality by interrupting one series of events on screen with another series of events that do not immediately lead to the consequences they would have in the real world. “A

movement is started, but before the cause brings results another scene has taken its place. What this new scene brings may be an effect for which we saw no causes.” As a result, different objects can fill the same space, a physical impossibility in the world we have left behind when we entered the theater. “It is as if the resistance of the material world had disappeared and the substances could penetrate one another.” You are unlikely to find someone who buys a ticket to a movie because he wants to “experience this superiority to all physical laws.” But that, says Munsterberg, is what he is really doing (Munsterberg 1916, p. 185).

Munsterberg seems to understand that the movies do not quite cause time to disappear as much as they play havoc with our sense of time by speeding it up or slowing it down. Films have a particular rhythm; in that respect they are similar to music, a point made by the director Ingmar Bergman (who pointed out that the film has more in common with music than it does with the novel in spite of the fact that both usually rely on narrative). “The melody and rhythms belong together,” Munsterberg writes, observing that “as in painting not every color combination suits every subject. . . so the photoplay must bring action and pictorial expression into perfect harmony.” The images “roll on with the ease of musical tones” (Munsterberg 1916, p. 176).

Manvell agrees: “Because the film as a whole takes the form of a succession of many different shots, the timing as well as the order of the shots must be considered. Just as variation of rhythm in music has a great effect on the listener, so the tempo of the cutting of a film affects the audience.” The rhythm of the film depends largely on the film editor. Indeed, in his study *The Technique of Film Editing* the director Karl Reisz contends that the development of a true principle of editing helped the medium discover its real powers (Manvell 1955, p. 26).

That films are free to leave the “world of space and time” behind and dispense with causality, Munsterberg writes, does not mean that films are not bound by certain laws in much the same way that music is governed by rules of harmony, melody, and rhythm. These rules are established by rigid esthetic criteria, he argues. In music “everything is completely controlled by esthetic necessities.” Even a creative genius cannot get away from “the iron rule that his work must show complete unity in itself.” Film, too, for all freedom it

permits filmmaker to play with “the physical forms of space, time, and causality,” if not escape them completely, “does not mean any liberation from this esthetic bondage. . .” (Munsterberg 1916, p. 184).

Anticipating the current argument about multitasking – whether it is possible to attend to or effectively carry out several different tasks simultaneously – Munsterberg notes that the psychologists of his day were debating the question. Could the mind “devote itself to several groups of ideas at the same time” or was it a “rapid alteration” of attention? In either case, he maintains that “this awareness of contrasting situations, this interchange of diverging experiences in the soul, can never be embodied except in the photoplay.” This brings him to the idea of association. The scenes on the screen trigger a mental process by means of suggestion. A suggested idea, he says, takes root in our mind in much the same way that ideas do that are inspired by memory or the imagination. When we see a landscape depicted on the screen, for example, it can evoke any number of associated ideas based on the memories and fantasies that already exist in our minds. While the filmmaker controls what we see on the screen, we are in control of how we perceive and react to the images and sequences. The suggestion, he writes, is “forced on us,” but what we do with that suggestion is another matter entirely. The “outer perception” is not just a starting point but “a controlling influence” so that we never mistake the associated idea “as our creation but as something to which we have to submit.” Taken to an extreme, the film acts as a hypnotizer, keeping us spellbound in the theater or at the very least keeping us in a “in a state of heightened suggestibility.” Once again we are straying in the direction of the dream and the idea that film is a medium which invites its audience to share the dream it presents. “*It is as if reality has lost its own continuous connection and become shaped by the demands of our soul*” (Munsterberg 1916, p. 95).

What really excites Munsterberg – and spurs him to make such impassioned declarations – is the film’s capacity to connect a variety of “parallel currents” on the screen and in the minds of the spectators. (With its multitude of links the Internet has a similar property.) We may be confined in a single room, he writes, but every phone call we receive in that room brings news of the outside world. Film provides us with that same

sense of interplay and connection. “There is no limit to the number of threads which may be interwoven. A complex intrigue may demand coöperation at half a dozen spots, and we look now into one, now into another, and never have the impression that they come one after another.” Once again he is eager to show us how the film can abolish the temporal element and sabotage our traditional conception of causality.

The juxtaposition of images or the rapid succession of images and scenes that Munsterberg is talking about is now referred to as a montage. The foremost proponent of the montage was the great Russian director Sergei Eisenstein. “At its simplest,” says Manvell, the theory of montage boiled down to “the axiom that, in editing, one plus one equals not two, but two plus; in other words, that the total effect of a series of shots purposefully placed in sequence is the creation in the audience of an entirely new train of thought and feeling, different from anything that could arise out of those shots seen as a number of separate units.” (Manvell 1955, pp. 191–192) Montage, as opposed to mere representation, Eisenstein contended, “obliges spectators themselves to create” and arouses emotions in a way that a film that simply conveyed information cannot (Eisenstein 1943). In effect, Eisenstein is advancing the same argument that Munsterberg does when he refers to “emotion pictures.” (Eisenstein propagated his theory in a 1923 essay called *The Montage of Attractions*.) But credit for the use of montage (or free association if you will) belongs to the pioneering French filmmaker George Melies who believed that every image on the screen “possessed the element of magic.” (And he should know; he was also a magician by trade.) By splicing in parts of different films, clever editing, and altering scenes to create “illusion of magical transformation, appearance, and disappearance,” he was able to turn a human into an animal or separate a man from his head and track them as they went on their separate ways. “He could make anything happen at all so long as it didn’t violate the laws of everyday life.” So at the end of the film, man and head would be reunited. “Melies sensed or knew that fantasy and magic, like dreams and nonsense language, have a structure and logic of their own, and to deviate from them is a sure way to lose an audience.” (Sklar 1994, p. 137) Here again we can see the resemblance between film and dreams. The unconscious seems to

make liberal use of montages – it is possible that every dream *is* a montage – and the filmmaker is simply tapping into the same emotions and associations that fuel our dreams.

In the final chapters of the monograph, Munsterberg turns his attention to the emotional impact of the medium. It is safe to say that today's audiences, growing up with TV and accustomed to watching video on the Web, are not quite so strongly affected by the film as the audiences of Munsterberg's time. He notes that "neurasthenic" spectators were known to experience hallucinations and "illusions" after watching a movie and remarks on the "strange fascination" of film that could induce audiences – especially among the "rural population" – to applaud "a happy turn of the melodramatic pictures." Movies also had "a profound effect on fantasy life," writes Robert Sklar in his book *Movie-Made America*. These cinematic fantasies "provided rich materials for dreams about sexual partners, settings and passions far removed from the reality of one's environment" (Sklar 1994, p. 307). Sklar is not quite as alarmed by the potentially pernicious effect of film on audiences as Munsterberg who warns: "...it is evident that such a penetrating influence must be fraught with dangers." When one thinks of the impact of Nazi propaganda films like Leni Riefenstahl's *Triumph of the Will* (1935) it is hard to say that Munsterberg was exaggerating. The Nazi propaganda machine was run by a great film admirer, Joseph Goebbels, who was especially impressed by Hollywood films and adopted many of their techniques for his own malign ends. (Color films enthralled him even though most politicians of the time who used film to disseminate their messages found them too unreliable.) Although he disdained detective movies and comedy reviews, he was fascinated by documentaries, appropriating their cinematic vocabulary to create the illusion of veracity, most notably in the notorious anti-Semitic film *Jud Süß* (1940), a box office sensation across Germany and Europe, based on a novel by Lion Feuchtwanger.

In spite of these "dangers," Munsterberg insists that the depiction of emotions (and by extension, the evocation of emotions in the spectators) "must be the central aim of the photoplay" (Munsterberg 1916, p. 66). Words are not necessary for film to achieve its effect (recall that he is writing before the advent of

talkies) since "the actor whom we see on the screen can hold our attention only by what he is doing and his actions gain meaning and unity for us through the feelings and emotions which control them." The film sets in motion a kind of feedback loop in which the actors display emotions on the screen, stirring emotions in the audience which may, of course, be entirely different. By the same token, the emotions evoked in the spectator may color how he or she reacts to the film. Here is how the author puts it: "If we start from the emotions of the audience, we can say that the pain and the joy which the spectator feels are really projected to the screen, projected both into the portraits of the persons and into the pictures of the scenery and background into which the personal emotions radiate" (Munsterberg 1916, p. 83).

Dream Language

We have seen that the "language" of film is very similar to and may have borrowed from dreams. This language consists of montages, flashbacks, and close-ups, and it is characterized by the abolition of the temporal element and the subversion of causality. Let us now try to examine more closely what the language of dreams consists of and how it differs from the languages of logic, mathematics, and software programs. Leave aside for the time being the controversy as to whether dreams have a psychological function. (I suspect, though, that dreaming performs a very useful psychological function by helping us understand and resolve our problems.) The languages we use in our waking life and that we rely on to keep our computers running require rules. These rules allow users to produce statements in a limitless number of variations that can be understood on one or more levels, literally or implied. Such languages rely on symbols whose meanings transcend the symbol that represents them. The word "chair" stands for a real chair even though it does not convey anything particularly chair-like in terms of its appearance or sound. (In computers, the symbols consist of two numbers – 1 and 0). We call these languages discursive languages. By contrast, in the privacy of our minds, when we tell ourselves stories or engage in reveries or dream, we are using a distinctly different kind of language which we call nondiscursive. That is not to say that nondiscursive languages do not have a given set of rules or a lexicon of sorts – they do – but

they do not use symbols in such an abstract manner. Nondiscursive languages tend to favor metaphors, similes, and analogies. But where we are most likely to find the use of nondiscursive languages is in myths, folklore, fairy tales – and dreams. Symbols in nondiscursive languages may be pan-cultural insofar as they are found in many different cultures (Not surprisingly, the sun and moon have been deified by any number of cultures.) But symbols can also be culturally specific like flags and logos; the cross, the swastika, and hammer and sickle are cases in point. Finally, symbols can be accidental or idiosyncratic in that they are more personal. Individual dreams tend to be filled with accidental and deeply personal symbols (Rieber 1997, pp. 110–111).

Some film theorists believe that our way of perceiving and absorbing the images we see up on the screen and those we see in our dreams at night both have their origin in the way that we as young children navigated the world, relying on visual and sensory experiences without regard for logic of space or time – which is to say, in a nondiscursive language. Cinema, in their reading, can lead the viewer “into a dreamlike world where regression is possible and where one senses a unity with the external world” (Eberwein 1984, pp. 24–25). In other words, we are reverting to a childhood state of consciousness, if not unconsciousness, when we sit in a movie theater: “Given the replication of the dreamlike state in the viewing process, our sense of ego differentiation is at first heightened: those characters up there on the screen are ‘not-me.’ . . . That is, the dreamlike film, the film as sensed and perceived as being like a dream, brings us back to a state. . . in which we are more susceptible to the loss of ego, and, hence, to identification with those characters who are ‘not-me’” (Eberwein 1984, p. 41).

The use of discursive and nondiscursive languages is not discreet nor is there a firewall between their domains. Sleeping and waking are bipolar elements that the human organism needs in order to develop an ability to exist cognitively, affectively, and volitionally as well as to assimilate diverse sensory experiences. Communication between these two polar states – being asleep and being awake – takes place in both nondiscursive and discursive dialects. Human knowledge is a continuum that moves between these two states, while daydreaming represents an

intermediate state which shares attributes of both poles (Rieber 1997, p. 111).

What I call “knowledge” is not exclusively confined to the intellect. In addition to cognition, minds also are a crucible of emotions and instincts. Dreams share these components to varying degrees so that one dream might be influenced by an individual’s emotional problems whereas another might yield a solution to a vexing work-related problem. A society also responds both affectively as well as cognitively to sensory input. Scientific and technological knowledge is the domain of cognition, transmitted by means of documentaries, nonfiction, and academic papers. (Mathematics is a good example; the same equation or algorithm can be understood by a mathematician anywhere in the world.) But society also dreams, so to speak, through its artistic expression. That expression takes the form of intrasocietal nondiscursive communication. And like individual dreams, society’s can be used – intentionally or unconsciously – to present and resolve conflicts (Rieber 1997, p. 111).

The act of dreaming functions as a kind of symbolic process, revealing not only an individual’s intellectual and emotional development, but also involving the play of imagination and the state of his or her physical and mental health. Dreams can often be serious experiments whose outcome depends on an understanding of the dream language – for example, its symbols and images. There are seldom one-to-one correspondences where each symbol has an easily identifiable counterpart in real life. Instead, a symbol’s meaning usually involves a dynamic complex rather than a simple entity. It is a part of a Gestalt pattern. Human nature attempts to transcend culture and actualize itself by self-examination and criticism, a dialectic process developed in the waking state by means of objective discursive introspection. In the sleeping state, however, this process takes place when we dream – using nondiscursive images (Rieber 1997, pp. 111–112).

Films and dreams have something else in common: their evanescence. “Like dreams, the screen resists physical scrutiny; touch it and it breaks,” writes Robert T. Eberwein in his book *Film & the Dream Screen A Sleep and a Forgetting*, “If we want to retrieve the images from dreams or cinema, we must rely on memory. In both cases, we must be content with fragments – the images left in our minds of what we experienced”

(Eberwein 1984, p. 23). While they may offer “us a momentary triumph over our isolation from the world,” films also exert a spell that is difficult to break when the movie is over, as he points out: “. . . reentry into reality after we awake from the dream or conclude our viewing of the film plunges us back into our alienation from our perceptions” (Eberwein 1984, p. 23).

The types of social dreams can vary widely and almost invariably depend on the cultural context. Social dreams certainly do not require film to express them. For instance, the dramas of Sophocles and Euripides represented the social dreams of ancient Greece and B.F. Skinner in *Walden Two* represents the social dream of a psychologist as realized in a fictional ideal community. Myths and dreams expose ideas by means of images. Because social dreams express anxieties, prejudices, and desires that often are not articulated – or cannot find adequate expression in words (e.g., discursive language) – film may prove the best medium for exposing the dreams to the light of day (Rieber 1997, p. 108).

“Film language” is something of an oxymoron since language is antithetical to film. The spectator receives images on the screen, watches the actors, observes their behavior and facial expressions, registers the background music, and understands what is happening. Movie going is an act of inference. (Dialogue may or may not be necessary to comprehension.) It is in that sense that films are illiterate events. But if we consider film language as a kind of dream language, we can draw some valuable insights about these social dreams.

The Dreams That Money Can Buy

I have stated that films can function as social dreams that express the dilemmas and anxieties of a culture; by the same token interaction with the culture can affect the dreams of the individual filmmaker. We can think of the culture as a dream machine or factory. Those creators who are able to benefit from the fruits of this machine can produce works with the power and the resonance to bring unconscious longings and fears of their audiences to the surface.

Film factories are most closely associated with Hollywood. The major production studios were interested in two things: entertainment and the bottom line. Exploration of the psyche was largely left to the avant garde films – what film critic Philip Sitney in his

seminal history of the genre *Visionary Films* called “trance films” – that enjoyed something of a golden age in the 1940s and 1950s. According to Sitney, trance films were “an erotic quest,” and its quest figure was “either a dreamer or in a mad or a visionary state.” In their investigation of the unconscious, these films broke taboos that the big studios would never address – homosexuality in Kenneth Anger’s *Fireworks* (1947), masturbation in Stan Brackhage’s *Flesh of the Morning* (1966), and the premonition of and desire for death in Maya Deran and Alexander Hammid’s *Meshes of the Afternoon* in which the end of the dream also represents the end of the life of the dreamer (Sklar 1994, p. 307).

Perhaps no trance film exemplifies the interaction between the artist and the dream machine than the aptly titled *Dreams That Money Can Buy*, a 1947 film which is both about dreams and is in its own way a dream itself. It is difficult to think of any dream that relies so much on the nondiscursive language of a dream. The film is the creation of the German modernist artist Hans Richter. He did not start out as a filmmaker, but rather as a painter strongly influenced by surrealism and Dada. However, many of the same preoccupations and themes that informed his painting found their way into his moviemaking as well. “But even if I recognized film as a form of expression independent of painting, I still felt how closely related these two arts were,” Richter wrote, “Problems of the one seemed to touch on the other. . . Roads lead from painting to film and from film back to art. . . Film was not only a region for a painter’s experiments, but a part of modern art, the expression of a new total experience” (Richter 1965, p. 35).

In service of his vision, Richter marshaled new photographic and technical skills such as extreme boom shots, zoom shots, enlargements, photo montage, extreme angles, transparency, and negative and multiple exposures (von Hofsker 1998, p. 129). Richter was not just trying to be a virtuoso with the camera. Here is how Richter put it: “The technical liberation of the camera is intimately interrelated with psychological, social, economic and aesthetic problems” (Richter 1965, p. 46).

Richter was particularly interested in the effects of juxtaposing elements that did not logically fit together – just as dreams do. “Richter’s method was to establish relationships between similar and similar actions by

improbable association,” noted critic Marion von Hofsker. “Movement from frame to frame is continuous and their associations are surprising.” In one of his earlier films, for example, a scene showing two men shaking hands abruptly changes into two boxers shaking hands. In another sequence, the moon’s surface is transformed into a man’s bald head. In a series of rapid cuts, we are shown legs pedaling a bike, a child kicking, a small plane flying, a high diver, and a pigeon in flight – a series of associations that are meant to duplicate the kind of phenomenon we experience in our dreams every night (von Hofsker 1998, p. 138). In his 1927–1928 film *Inflation*, Richter limited his imagery to depicting two objects: paper money (German marks) and the owner of that money. The German mark expands in size as the number of zeroes increase until there are more zeroes than can fit on the screen. It is a simple but biting comment on the out of control inflation that destroyed the economy in Weimer Germany earlier in the decade. It is also a salient example of a social dream (von Hofsker 1998, p. 127). Richter employed a similar montage technique in his use of sound which he believed ought to enjoy a role equal to that of the visual images. One soundtrack featured music from a barrel organ, spoken words, and unintelligible phrases played in short intervals and in rapid succession (von Hofsker 1998, p. 139).

What Richter was hoping to do in film was break away from, even revolt against, traditional narrative forms of theater and the nineteenth Century novel. “We expect stories from film, not only because we are so conditioned by experience; we even ‘invent’ stories if none are offered. The flow of images will always ‘make’ a story, because our perception and imagination work that way, even if abstract form follows on abstract form” (Richter 1965, p. 114). The process Richter is describing is similar to the way in which we try to make stories (sense) out of our dreams.

Richter realized that the film was a medium uniquely capable of duplicating the form and feeling of a dream, noting that “the use of the magic qualities of the film to create the original state of the dream, – the complete liberation from the conventional story and its chronology. . .in which the object is taken out of its conventional context and is put into new relationships, creating in that way a new content altogether” (Richter 1965, p. 47).

Dreams That Money Can Buy is the result of an extraordinary collaboration; actually, it is composed of several “dreams” conceived of and realized by some of the twentieth century’s most celebrated artists (Fig. 1). “Since 1925 I had had many discussions with (Ferdinand) Leger about a film-project,” Richter wrote regarding the film’s genesis. During a stroll through lower Manhattan, Leger suggested a film which would be entitled *Folklore d l’Americaine*. “In Grand street we found what we had in mind: miles of bridal gowns on both sides of the street. A lovestory between 2 wax-mannequins! . . .and so my film *Dreams that Money can buy* began.” He rounded up old friends from “beloved but bereaved Europe” – Leger, Max Ernst, Alexander Calder, Yves Tanguay, Marc el Duchamp, Jean Cocteau, Man Ray, and Jean Arp. “And so a very un-warlike document grew in the midst of war through the cooperation of 2 Americans, 2 Frenchmen and 2 Germans, – in the then cultural center of the free world.” They shot the film on a shoestring budget, using a condemned building in Manhattan’s garment center as their studio. They could only work on weekends or at nights since



Cultural Psychology and the Cinema. Fig. 1 Wax mannequins from *The Dreams that Money Can Buy*

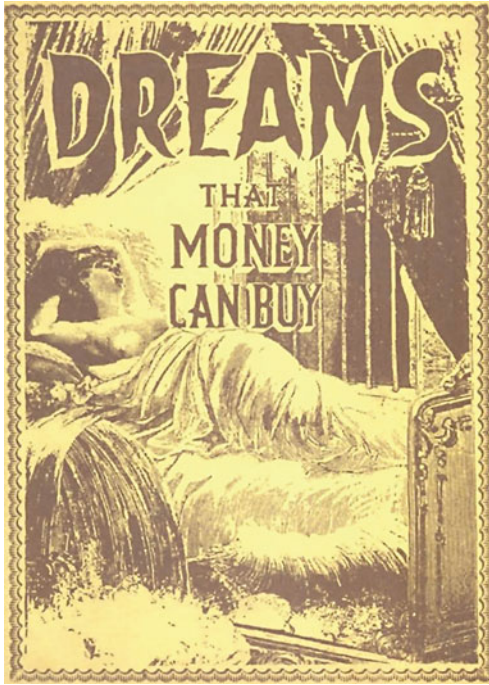
Richter was otherwise occupied in his day job as Professor of City College (Richter 1965, p. 114).

On one level, *The Dreams That Money Can Buy* bears a resemblance to a detective story. (Ever since Freud, of course, psychiatrists and therapists have been acting in the role of detectives trying to unravel the meaning of their patients' fantasies and dreams.) But any attempt on the spectator's part to find a traditional narrative is doomed to failure. That is not the point. The protagonist (to use the word loosely) is memorably named Joe Narcissus, an utterly unmemorable man, who has to figure out how to pay for the rent on a room he has just leased. But when he looks in the mirror (as Narcissus is wont to do) he discovers that he can visualize the images and thoughts running through his mind – voila! He now knows how he will pay the rent. “If you can look inside yourself,” he tells himself, “you can look inside anyone!” He will put his unique talent to use in the service of others by selling them dreams. This is the setup for the seven dream sequences that follow: *Desire* (directed by Max Ernst); *The Girl with the Prefabricated Heart* (directed and written by Fernand Léger); *Ruth, Roses and Revolvers* (directed and written by Man Ray); *Discs* (written by Marcel Duchamp); *Ballet* (written and directed by Alexander Calder); *Circus* (written by Calder); and *Narcissus* (written and directed by Richter). The sequences make little or no effort to hook the viewer with a traditional narrative. In *Desire*, for example, a couple Mr. and Mrs. A. come into Joe's office. Mr. A. is an accountant – and that is the problem says his wife. His mind is like “a double entry column; no virtues, no vices.” And no dreams she could have added. He is desperately in need of a dream, one “with practical values to widen his horizons, heighten ambitions, maybe a raise in salary.” Joe finds a dream for Mr. A. using a collection of art images cut out of magazines – a woman reclining in bed; a woman sitting on an old man's lap; a woman being shot by an animal-headed man; a red liquid passing through water, and a melting wax figure of a woman – as the source material for the accountant's dream. These images are transformed into the sort of dream that Mr. A. could only dream about. Leaves fall to the ground beside a red curtain. As a woman in white reclines on a red-curtained four-poster bed a small golden ball rises into her mouth and drops down from it with every breath she takes. Finally she swallows one of the balls

and falls asleep. Bars suddenly separate her bed from the viewer. A man watches from behind the bars as if he can visualize her dream in which both nightingales and calves' hooves have an important part to play. But it turns out that the man is not watching her dream; he is a part of it – but that does not mean that he has any idea of what he is doing there and so he “telephones” her to discover what is going on. In a voiceover, she informs him that “they talked about love and pleasure” – and who could ask for a better dream than that? Then her telephone falls to the floor. A misty smoke enshrouds her and Mr. A's dream is over.

In the second dream that Joe sells, two store window mannequins – inspired by Richter and Léger's sighting on Grand Street – conduct a kind of mechanical romance accompanied by a song written by John Latouche and sung by Libby Holman and Josh White, called “The Girl with the Pre-Fabricated Heart.” Subsequent dreams become even more abstract with contributions from Man Ray and Duchamp. One dream consists of a “ballet” of billiard balls on wires conceived of and realized by Calder. The final dream appropriately enough takes the form of a psychoanalytical session as seen through the disturbing – and distorting – lens of the unconscious. *The Dreams that Money Can Buy* is actually a dream within a dream within a dream. The first dream belongs to Joe Narcissus, the purveyor of dreams. The second dream is the dreams of the customer who buys them from Joe. The third dream is the “dream” of the audience watching it (Fig. 2).

As the distinguished film critic Siegfried Kracauer observed, “Modern art, as it appears in this film, intertwines the region of pure forms with the virgin forest of the human soul. What lies between – the vast middle sphere of conventional life – is tacitly omitted or overtly attacked. Both the Léger and Richter episodes are very explicit in defiance of our mechanical civilization.” In this respect, this movie, which is predicated on dreams and presents the bewildering, acausal nature of dreams, is also, at least in part, a social dream insofar as it is a critique of a mechanistic society, in Kracauer's words, “which smothers the expression of love and creative spontaneity.” That, he says, explains why modern artists like those recruited for the film are so preoccupied with “unconscious urges,” and why dream imagery comported so well with their surrealist and Dada roots. Kracauer cites the superimposition of the female



Cultural Psychology and the Cinema. Fig. 2 Image from *The Dreams That Money Can Buy*

nudes and Duchamp’s “rarified movements” and the juxtaposition of a primitive mask and “a sort of ram’s horn” with Calder’s mobiles. “And in the Max Ernst sequence the turmoil of sex so radically upsets the nineteenth century interiors that they seem on the point of disintegrating-scattered elements predestined to be reborn with non-objective textures” (Richter 1965, pp. 118–119). The power of *The Dreams That Money Can Buy* lies principally in its canny use of associations. Even a philosopher with an aversion to the subconscious would understand why Richter’s work represents a breakthrough – but also a dead end. Dreams can also be a bore except for the dreamer. Films are most successful at embodying and transmitting social dreams when they tell a compelling story. In other words, they almost go out of their way not to entertain. Trance films were solipsistic “expressions of psychic interiors” which like dreams, required audiences to interpret rather than to enjoy them (Sklar 1994, p. 307).

The Social Dream

Psychological phenomena – self, agency, emotions, sexuality, perception, cognition, memory – do not

arise exclusively within the individual. They also need to be considered within the context of the larger culture. We all operate in an environment that consists of various institutions, artifacts, and cultural concepts. Psychological processes are always at work as people conduct their activities or respond to these institutions and concepts. These psychological processes assume particular form and content. In other words, people mold their psychology in congruence with or reaction to certain macro-cultural factors. A struggle is constantly taking place among groups to direct (control) macro-cultural factors in their interest. Whoever dominates this struggle dominates the form that cultural factors take, and by extension the corresponding form that psychological processes take. Consequently, it would be a mistake to think of psychology only in personal terms when it is also a cultural and political phenomenon. So what we see happening is a kind of feedback loop in which psychological phenomena are then objectified in the culture and transmitted to individuals as they participate in the culture. The ways in which the sense of self, romantic love, and pathologies like schizophrenia become objectified cultural phenomena help define society. Individuals draw upon these cultural-psychological factors to define and understand themselves – just as they draw upon standards of beauty, dress, and status.

What is less clear is whether a social or collective dream is still capable of embodying or representing a nation or a region, the way that German cinema did, for instance, in the 1920s and 1930s. That films could be distinctively “French” or “Italian” or “British” was probably true to some extent through the 1950s, as Martha Leites and Nathan Wolfenstein tried to argue in their 1950 book *Movies: A Psychological Study*, but globalization has made such generalizations and stereotypes a more problematic exercise as Sklar explains in his own book about American films: “American movie presented American myths and American dreams, homegrown for native audiences, yet only man-made borders, kept them from conquering the world” (Sklar 1994, p. 212). Those borders have been disappearing ever since.

So how is this interaction between the culture and the individual expressed in a social dream – a social dream that takes the particular form of a film? Like psychoanalysis, film has long been preoccupied with

identity and the fragile sense of self. Jean Cocteau's *Orpheus* (1950), for instance, explores the tenuous border between reality and imagination. In Ingmar Bergman's *Persona* (1966), a nurse played by Bibi Andersson becomes one with her patient played by Liv Ullmann. The viewer is drawn into Bergman's dream so that it becomes our dream to an extent as well. In one interview, Bergman has called all of his films his "dreams." "The reality we experience today is in fact as absurd, as horrible, and as obtrusive as our dreams," he told an interviewer, "We are as defenseless before it as we are in our dreams. And one is strongly aware, I think, that there are no boundaries between dream and reality today" (Peter Cowie, *Sweden 2*, cited by John Simon, *Ingmar Bergman Directs* (NY: Harcourt Brace, Jovanovich, 1972) 239). In another context, the director declared, "When film is not a document, it is a dream. . . .No form of art goes beyond ordinary consciousness as film does, straight to our emotions, deep in the twilight room of the soul" (Bergman 1960, p. 73).

But while a filmmaker's work might tap into his dreams for inspiration or even be conceived as equivalent to a "dream," it does not invariably follow that the filmmaker is aware what the dream is, on an individual level and certainly not on a collective level. Artists working in any medium usually do not consciously try to represent a social dream in their work and often do not realize that they have done so except in retrospect. More often, other people can recognize that a work has greater resonance than its creator. And that is probably for the best: if the artist were aware that he was trying to convey a social dream, he would probably be paralyzed or else produce a work that was attenuated or polemical.

In some cases, the social dream as projected by film (literally and metaphorically) can have a beneficial effect. During the bleak days of the Depression, for instance, films were able to knit society together "by their capacity to create unifying myths and dreams." In spite of clergymen in backwater towns who railed against "sin on the silver screen," the academic, media, and literary elites of their day regarded filmmakers "with considerably more respect, awe and envy" since they were in "the possession of the power to create the nation's myths and dreams" (Sklar 1994, p. 159).

The question of identity has always made for a powerful social dream, especially during periods

characterized by upheaval, social, economic, and cultural. A case in point is *Sybil*, the purportedly true life story of a woman with multiple personality, which appeared first in book form in 1973 and then as a TV movie of the week in 1975 with Sally Field as the title character and Joanne Woodward as her psychiatrist. The authors Flora Schrieber and Cornelia Wilbur, *Sybil*'s psychiatrist, maintained that *Sybil*'s condition was a result of early childhood trauma, although the evidence was shaky at best and fabricated at worst (*Sybil*'s real name was Shirley Mason). A psychological oddity, so bizarre and rare that it was barely mentioned in most textbooks before 1973, multiple personality disorder suddenly acquired respectability and acceptance in the aftermath of *Sybil* in her various incarnations, eventually making its debut in the 1980 Diagnostic and Statistical Manual of Mental Health which classified it as an important disorder. The number of cases and therapists specializing in the treatment of MPD escalated quickly and so did the number of personalities that victims claimed. (One therapist identified over 1,000 personalities in one patient, not all of them human). With its emphasis on childhood sexual abuse, it also spawned two other related obsessive phenomena: one was the belief that people were being adversely affected by buried memories and the other was that only by reawakening those memories through hypnosis was recovery possible. Together, the three phenomena constitute what I term "a trinity of affinity." It is hardly surprising that these phenomena arose in the wake of the 1960s (a time of intense tumult) and the early 1970s, when in the aftermath of Vietnam and Watergate, all authority and institutions were being challenged. America's own sense of identity was being shaken like never before. In the decades that followed, the *Sybil* myth lost much (but not all) of its appeal, supplanted by other social dreams. It is true that several memoirs have appeared whose authors claim to have suffered from MPD, but they have not sparked the kind of media publicity or spawned a similarly ersatz therapeutic movement as the original *Sybil* did. (For a more detailed discussion of the *Sybil* case please see my book *The Bifurcation of the Self* published by Springer in 2006.) A remake of the TV movie in 2007 barely caused a blip on the media's radar screen. However, with the economic downturn that the US began to suffer in 2008, we can reasonably expect to see more films that

are centered about problems of identity. So many Americans, after all, especially men, have identified their lives so closely with their work that when they lose their jobs, they often find themselves at a loss, unable any longer to figure out their place or purpose as husband, father, or as a productive member of society.

Sybil was not a horror film per se, but it had a lot in common with the genre in suggesting the possibility of monsters lurking within us. Horror films work even when we know that what we are seeing on the screen is not “real.” Gregory Bateson, for instance, observed that there are two types of messages or signals – those that are untrue or not meant and those that denote signals that do not exist. In his essay “Steps to the Ecology of the Mind,” he cites the example of a viewer struck by terror as he cringes from a spear thrown in his direction in a 3-D film or feels that he is plunging from a cliff to his death in a nightmare. Neither spear nor cliff exist, Bateson points out, and the viewer and the dreamer (at least on waking) understands as much, recognizing that the images do not denote what they signify, but nonetheless the fear is real (Bateson 1972, p. 118). Otherwise, horror films would not have the impact they do. And if a horror film did not produce thrills and terror (much like a roller-coaster ride), what would be the point of making it?

Certainly horror and thriller films have had a field day excavating the recesses of the mind for things we would rather not acknowledge. The monster elicits a “visceral response of revulsion and disgust,” observes Donald Campbell in his essay on the Italian horror filmmaker Dario Argento. Campbell contends that this revulsion can be traced to adolescence, observing that adolescence is characterized by a pull-push relationship in which hormonal and psychological changes are pushing the adolescent toward adulthood while he or she is being pulled in a regressive direction toward childhood in which infantile fears and anxieties about survival and omnipotent fantasies of triumph over loss, death, and castration predominate (Campbell 2003). Campbell focuses on what he calls “body horror” – those horror films in which monsters emerge out of normal human beings. Think of all the “normal” people in movies who, having been bit by vampires and savored the taste of blood, turn into vampires themselves. Or consider Brian DePalma’s *Carrie*

(1976) which depicts in an exaggerated manner the fear and disgust that menstruation arouses. Rouben Mamoulian’s *Dr. Jekyll and Mr. Hyde* (1931) is another example of body horror where the protagonist by means of a drug turns into a monster. At the same time, these body horror films also evoke social dreams that touch on issues related to the stability of identity. It is not the monster outside of us that we are so afraid of, but the monster that we fear we could become.

Hitchcock’s *Psycho* (1960) and Jonathan Demme’s *The Silence of the Lambs* (1991) succeeded in terrifying their audiences and are no doubt responsible for countless troubling dreams. Each in its own way expresses a social dream, albeit a terrifying one. The *Stepford Wives* (1975) and its tepid sequel *Return of the Stepford Wives* (2004) are horror films of a different kind, exemplifying not so much the inequalities between the sexes as the actual struggle and conflict. The social dream in these films warns of disintegration of the family as well as of the blurring of male and female roles (Rieber 1997, p. 128).

The Western is a genre where the social dream is often explicit, tapping into myths that still resonate in the USA – the myth of self-reliance, the myth of an undiscovered natural paradise, and the myth of boundless freedom. “Since Birth of a Nation American films have returned again and again to the basic problem of human conduct and the establishment of law and order in a new and widely scattered society,” Manvell writes in his consideration of the Western classic *The Oxbow Incident* (1943), “These have often proved wonderful subjects for films – the westering of the pioneers, the dawn of the concept of justice in remote regions, and the outbreak of gang or mob violence in the rural and urban areas” (Manvell 1955, p. 146). The Western exerted such an influence over the popular imagination that some directors who had grown up far from America tried their hand at it, most notably the Italians who invented a subgenre all of their own – the spaghetti Western. Its most famous exponent, Sergio Leone, was attracted to the Western because, he said, “the west was made by violent, uncomplicated men, and it is this strength and simplicity that I try to recapture in my pictures.” In *Once Upon a Time in the West* (1968), Leone cast Henry Fonda against type as the villainous enforcer for a railroad tycoon. The story is a scathing take on capitalist exploitation which takes the form of

a struggle over water, in this case a piece of land near Flagstone, Arizona called – appropriately – Sweetwater. It is the only source of water in a region where a railroad will be constructed. Water suddenly becomes valuable because it will be needed for the steam engines that empower locomotives. Leone's film was only one of a slew of Westerns about the epic struggle over resources (often pitting ranchers against cattlemen). The director also earned worldwide box office success for his Dollar trilogy: *A Fistful of Dollars* (1964), *For a Few Dollars More* a year later, and most famously, *The Good, the Bad and the Ugly*, which followed in 1966. The plot of *The Good, the Bad and the Ugly*, set during the Civil War, focused on three gunslingers who are after a cache of hidden Confederate gold and featured a young Clint Eastwood as a mysterious lone gunman with a lightning fast draw. It embodied two dreams at once, both of them integral to Americans' mythical – and mystical – association with the land and its resources. The first is the belief that if one looks hard enough there are always riches waiting to be found (in whatever form or currency) and the second is the conviction of being rescued by the savior who comes from out of nowhere, a hero who has integrity, a gun, and a good aim. Probably no film illustrated the obsessive and illusory – and finally tragic – quest for hidden wealth than *The Treasure of Sierra Madre* (1948) which starred Humphrey Bogart. In that film a savior never appears.

If Westerns harken back to the social dreams that have shaped America, science fiction often plays on the fears and anxieties of the present (usually dressed up as the future.) Superman emerged as a comic book hero in 1938 on the verge of World War II (before being incarnated in a TV series and in movies beginning in 1978). However, the quest for an *Übermensch* – the superior individual of Nietzsche who has the rational and emotional capacity and volitional need to transcend the problems of society – has been a social dream of any number of societies (Rieber 1997). It can be argued that Superman reveals a major flaw in the American national character because it relies on magical thinking, a hope for the superman magic and the belief that we have license to do something without taking full responsibility for our actions. Americans seem to be looking for the hero who will save them, and they are ready to pay any amount of money for the gimmick,

the product or the shortcut to get it without a full-hearted effort. The social dreams of our times seem to be screaming out, proclaiming this problem to us, but whether anyone is listening is another question (Rieber 1997, pp. 130–131). If anything, that old superman magic is more prevalent than ever given the increasing number of super heroes that recent films have appropriated from graphic novels: Spiderman, Batman, and Ironman to name just three of the cinematic saviors to have made their appearance on the big screen. If they have not achieved superman magic exactly, there is no disputing that they are responsible for creating box office magic, which says something about how deeply entrenched this particular social dream remains.

The recent resurgence of the vampire on TV, film, and in books (along with zombies) suggests that another form of social dream is emerging. The meaning of this particular dream, however, is not quite as easily interpreted as one might assume. Vampires have never gone away, of course; they have surfaced in any number of cultures since Vlad the Impaler, and vampires have been making regular appearances on American and international screens. The film adaptation of *Interview with a Vampire*, based on Anne Rice's novel, was a big hit in 1994. But why are they experiencing such a huge comeback now? 2008 was a banner year for vampires. That year saw the publication of *Breaking Dawn*, the final installment of Stephanie Meyer's *Twilight* series; it sold 1.3 million copies in the first 24 h. That was followed by the launch of HBO's wildly successful new series *True Blood*, the Swedish film *Let the Right One In* (whose plot revolved around preadolescent vampires), and finally the release of the film adaptation of *Twilight*. Both the HBO the *Twilight* series have attracted huge numbers of ardent young fans, especially prepubescent and teenage girls. These vampires are sanitized; the vampire who falls in love with the human girl is too nice to bite. Desire is suppressed in favor of a dreamy romanticism, which undoubtedly explains its exceptional popularity for its target demographic. A year later, the sequel *New Moon* broke box office records – and still no sex. The conventional explanation for the hold that vampires have on the imagination can be found in *Soul of a Popular Culture* by Mary Kittleson. “Symbolically, we can imagine vampires as unconscious energy that sucks us dry of the will essential to

desire life. . . At the same time, predatory impulses are an integral part of our human biological history” (Kittleson 1998). Unlike humans, vampires cast no shadows, she points out. Formulating her argument in Jungian terms, she argues that the culture has to do its “collective shadow work” in order to evolve. “Culturally, the vampire’s presence may be beckoning our society to kill off the adolescent conception of ourselves as innocent heroes and heroines who desire only the best for the world” (Kittleson 1998). But is this really the social dream that the vampire resurrection embodies? Most of the vampires who are enjoying popularity these days depart from the traditional conception of the vampire; far from being monstrous or evil, they are increasingly depicted as young, strong, and sensual beings. Even the vampires in *True Blood* are a different breed. To be sure, in contrast to the vampires in *Twilight* and *New Moon* who show such extraordinary, these Bayou vampires have no compunction about indulging in either sex with humans or slaking their thirst on human blood (although they often rely on a synthetic substitute). Nonetheless, they are presented as a kind of ethnic minority, stigmatized and subject to prejudice, but nonetheless are tolerated to some degree by the humans they live among. These examples suggest that it might be possible to give a more optimistic reading of the vampire’s new incarnations. Maybe the social dream that vampires represent indicate a greater tolerance for diversity, especially among the young, where ethnic, cultural, and religious differences or sexual orientation are no longer seen as threatening in sharp contrast to the attitudes of older generations.

The question as to whether horror films (or programs on TV) can cause nightmares (infiltrating our actual dreams in other words) has not been well studied. But, as Margaret Talbot points out in an article on nightmares for *The New Yorker*, movies do have an influence on “our sense of what nightmares generally look and feel like. . . from the surreal dreamscape that Salvador Dali designed for Alfred Hitchcock’s ‘Spell-bound’ to the twisted fantasies of David Lynch.” She goes on to say, “Such cinematic sequences succeed better than most nightmare studies do in re-creating what it feels like to be transfixed by frightening images that are screened in the projection room of one’s mind.” The relationship can work in reverse, too: “if

filmmakers draw on nightmares, their films, in turn, sometimes give us bad dreams.” In a study published in 2000, children who had nightmares frequently cited a program they had seen on TV. Some studies have tracked the types of nightmares people have experienced over the last century “and found that dreams of the bogeyman were common in the twenties; dreams of ghosts, devils, and witches reigned in the fifties and sixties, and those of movie villains predominated in the nineties.” Both Freddy Krueger of the *Friday the 13th* series of movies and the evil Voldemort from the Harry Potter novels and movies have made regular appearances in the nightmares of children interviewed for a study conducted by the Dream and Nightmare Laboratory at Sacre-Coeur Hospital in Montreal, but whether they have any lasting or negative influence is unknown (Talbot 2009).

Nightmares are by no means confined to horror films. Apocalyptic scenarios are also commonly found in science fiction films. Although 2008 may have been a banner year for vampire flicks, it was also the year that saw the remake of *The Day the Earth Stood Still*, which was originally released in 1951. But the remake was a dud, whereas the earlier version was powerfully evocative. The social dream that the 1951 film expressed has been superseded by other more resonant dreams in the intervening years. The original version was simultaneously reassuring and terrifying – reassuring because it seemed to offer a possible resolution to the conflict between the USA and the USSR that had the potential of blowing humanity to smithereens and terrifying because it suggested that we needed extraterrestrial intervention to keep us from doing so. Godzilla represented a similar social dream. The Japanese monster made his initial appearance in 1954 in the first of dozens of films and remakes. A fearsome prehistoric creature, Godzilla is the result of a mutation caused by radiation from the atomic bombs dropped on Hiroshima and Nagasaki. He can even deliver a powerful thermonuclear death ray from his mouth.

In dreams, we often envision and “try out” future scenarios. They are a way of exploring best and worst case possibilities. Science fiction films have a similar role to play when they offer visions or versions of future societies, more often than not dystopian ones. *Rollerball* (1975), for instance, is a film reminiscent both in theme and content of 1984 and *Brave New*

World in that it presents an alternative world order; it is set in 2018 where the world is controlled by six corporations. The authorities promote a game called Rollerball which is intended to allow the population to let out its aggressions. The fear of technology run amok, a variation of the Frankenstein myth, is also a recurrent social dream, one that has probably never been more dramatically illustrated than by the malevolent computer Hal in Kubrick's *2001: A Space Odyssey* (1968) (Rieber 1997, p. 127).

Logan's Run (1976) plays upon America's obsession with youth and beauty; the inhabitants of a high-tech Edenic cocoon (established in the aftermath of some worldwide catastrophe, possibly nuclear war) enjoy a hedonistic existence until they reach the age of thirty at which point they are exterminated in an elaborate ritual. Old age is not only stigmatized, it is abolished. The *Handmaid's Tale* (1990), based on Margaret Atwood's novel, offers another dystopian vision set in the near future, but in this case the world has been devastated by pollution as well as war with the result that 99% of the female population has been rendered sterile and the surviving population has fallen under the rule of barren misogynistic couples who use ritualized violence to impose their will. The handmaids of the title are concubines who are recruited to serve them. A similar social dream – inspired by the fear that humans will be reduced to eking out a living in a despoiled environment – manifests itself in *Children of Men* (2006) in which all women have apparently become sterile and the human race is poised on the brink of disappearing forever until one African immigrant turns up pregnant. The gnawing fear that humans will drive themselves to the brink by their own negligence and greed finds grim expression in the 1973 *Soylent Green* in which overpopulation is to blame for depleting the planet's resources, resulting in widespread impoverishment and such a scarcity of food that fruit and vegetables become rare and highly prized. The storyline hinges on the mysterious green wafers that the majority of people rely on for sustenance. The wafers turn out to be made out of humans: here the tools of mass production are marshaled in service of cannibalism. The persistence of the dystopian social dream can also be seen in the 2009 film *The Road* (based on a novel by Cormic McCarthy) which recounts the odyssey of a father and his son to survive

in a world that has been laid waste by some catastrophe. What kind of catastrophe – whether a nuclear war or environmental disaster – is never specified. It probably does not matter: the message is that as much as you may fear impending catastrophe, maybe you would do better to worry about what comes afterward. An ancient calendar – in this case the Mayan – also provided the inspiration for another 2009 disaster film *2012*, which left audiences a mere 3 years to prepare for the world's end.

Impending catastrophe has often served as a catalyst for filmmakers to produce some of the most powerful social dreams on celluloid. Take, for example, the German films that appeared after the cataclysm of the First World War. The national trauma “led to the haunted film, preoccupied with masochism, sadism and death,” writes Manvell. These films also reduced the role of the individual, no doubt reflecting the sense of powerlessness that people felt after defeat. “The Cabinet of Doctor Caligari was of this kind; the medieval, the Gothic, the corpse-laden, dream-laden world of legend and fantasy gave the designer rather than the actor his chance” (Manvell 1955, p. 44). In his groundbreaking study of German expressionist films *From Caligari to Hitler*, Siegfried Kracauer declared, “It is my contention that through an analysis of the German films deep psychological dispositions predominant in Germany from 1918 to 1933 can be exposed – dispositions which influenced the course of events during that time and which will have to be redeemed with in the post-Hitler era” (Kracauer 1947, p. 154).

The Cabinet of Caligari (1919) is a horror story which plays on the delusions of its narrator Francis who relates his investigation of the seemingly unhinged Dr. Caligari. The story is told through a series of flashbacks. In Francis' account, Caligari is the orchestrator of a traveling act featuring his somnambulist slave Cesare. He promises that Cesare will answer any question. When Francis' friend Alan asks him how long he will have to live, the slave tells him he will die by dawn – as he does. It turns out that Caligari and Cesare have been implicated in several murders in the German countryside. Eventually Cesare is killed and Caligari – revealed as the director of an insane asylum – is unmasked as a pathological murderer. But we learn that what we have been shown is not what happened; Francis is an unreliable narrator; indeed, he is a patient

and Dr. Caligari is no madman but the physician who is trying to cure him. Here we see an exemplary example of a social dream – and a precognitive one at that, as Kracauer has pointed out, since it would not be long before Germany itself became a virtual insane asylum whose insane director, far from treating delusions, propagated them.

(*The Cabinet of Dr. Caligari* was one of a string of pioneering expressionist films released by the UFA Film AG under the Weimer government. The company began in 1917. It boasted such seminal directors as Fritz Lang and F.W. Murnau. Aside from *Caligari*, its fame rests on such films as *Dr. Mabuse* (1922), *Metropolis* (1927), and *The Blue Angel* (1930) starring the incomparable Marlene Dietrich in her first talkie. By the end of the 1920s, however, the studio had come under the control of an industrialist sympathetic to the Nazis (UFA became a propaganda machine, churning out anti-Semitic films that helped pave the way for Hitler's rise to power in 1932).

One further example may be cited to indicate the cultural reality of the fictional world. In motion pictures, Wernher von Braun, the German engineer who was largely responsible for the early work on rocketry and space travel, has indicated that his interest in these matters was directly precipitated by the seeing of Fritz Lang's movie on space travel *Frau im Mond* (1928). Von Braun was the person largely responsible for the development of the V-2, about 1,000 of which were fired against London subsequent to their becoming operational in September of 1944. Wernher von Braun's testimony about the effect of the film on him leaves little doubt, but that had he not seen the film it is not likely that his interest in rocketry would have been awakened. Certainly, the film by Lang, or rather which was indicated by the film, has to be considered as part of the "cause" of the destruction wreaked by the V-2 bombing of London.

Film Versions of Psychologists

Dr. Caligari is only one of a long line of cinematic shrinks. Psychiatrists have been appearing as characters in film for almost as long as film has been around as a popular medium. How they have been portrayed over the years says a great deal about how the society of the day regarded (or disregarded) them. (The first film about psychoanalysis – G.W. Pabst's 1926 *Secrets of*

a Soul – was written by Karl Abraham, an associate of Freud's, and used a variety of superimpositions and distortions of images to hint at the confusion in the protagonist's mind.) A Maryland psychiatrist named Irving Schneider has come up with a classification system of celluloid psychiatrists based on three types: Dr. Dippy, Dr. Evil, and Dr. Wonderful. Schneider begins his study with the 1906 film *Dr. Dippy's Sanitarium* in which four patients chase an attendant out of a sanitarium. The harried patients eventually return to the hospital where they are soothed by the eponymous Dr. Dippy who eschews drugs in favor of pies. Dr. Dippy obviously is the buffoon, an innocuously comic character and an easy mark. A psychiatrist of a distinctly different sort emerges in D.W. Griffith's 1908 *The Criminal Hypnotist* in which an evil doctor puts a woman under a trance so that he can steal her father's money, a plot thwarted a "mind specialist" – the heroic kind of psychiatrist Schneider categorizes as Dr. Wonderful. Caligari is, of course, Dr. Evil. His successors include the homicidal psychiatrist in Alfred Hitchcock's *Spellbound* (1945), the staff of the asylum (especially Nurse Ratched) in *One Flew Over the Cuckoo's Nest* (1962), and the transvestite psychiatrist played by Michael Caine in *Dressed to Kill* (1980). *Spellbound* represents a shift toward a more sophisticated (if still sensationalized) portrayal of the profession. Its famous dream sequences were designed by Salvador Dalí, the dean of surrealists. The titles serve as a kind of tutorial for viewers. "Our story deals with psychoanalysis," the prefatory titles declare, which is described as "the method by which modern science treats the emotional problems of the sane. The analyst seeks only to induce the patient to talk about his hidden problems, to open the locked doors of his mind. Once the complexes that have been disturbing the patient are uncovered and interpreted, the illness and confusion disappear. . . and the devils of unreason are driven from the human soul" (Bower 1987, p. 188).

Dr. Wonderful shows up as the compassionate Dr. Berger in *Ordinary People* (1980). Of the 200 or so films Schneider surveyed, he found a greater number of Dr. Dippy's (35%), followed by Dr. Wonderful's (22%), with Dr. Evil trailing behind (15%). Schneider admitted, though, that had he included exploitation and horror films Dr. Evil would have racked up a greater tally (Bower 1987, p. 189). Here we can see the power

of the “emotion pictures” that Munsterberg wrote about. The capacity to project emotions is, of course, not limited to film (or any other medium). As a phenomenon, it is often (too often) seen in politics and represents what Psychology Professor Paul Bloom calls “emotional contagion” where people feed off of and influence the emotions of others. This happens frequently in darkened theaters. It also happened at Nazi rallies at Nuremberg.

Schneider is not alone in his attempt to categorize psychiatrists on screen. Krin Gabbard (a literature professor) and Glen O. Gabbard (a psychoanalyst) have also investigated the subject in their book *Psychiatry and the Cinema* (University of Chicago Press 1999). Elaborating on Schneider’s scheme, they divide psychiatric films into three historical periods. The first period extends from the Dr. Dippy’s of the one-reelers of the early 1900s to the escaped lunatics of the mid-1960s. For the most part, the authors contend, the profession was seldom treated seriously. Dr. Wonderful’s of this period, they write, “were little more than glorified guidance counselors” who helped achieve “a consoling resolution” to the plot (Bower 1987, p. 189). This period was followed by what they call the “Golden Age of psychiatry in the cinema,” beginning with *The Three Faces of Eve* (1957) and culminating in 1962 with several films, most significantly *David and Lisa*, which is considered one of the most realistic depictions of psychiatry. The third period, beginning in 1963, is a much darker one in which negative portrayals of shrinks predominate. They are “often associated with society’s false values and shown to be inept or malevolent” – a sharp break from the 1950s “fantasy of social harmony and better living through psychiatry” (an idealized conception to which psychiatry itself contributed). Undoubtedly, the anti-institutional, antiauthority fervor of the 1960s fueled the trend which, the Gabbards say, began to ebb only with the release of *Ordinary People*. The Gabbards reserve a special place in their universe of celluloid psychiatrists for the works of Woody Allen and Paul Mazursky, both of whom, while treating the profession with humor, nonetheless depict psychiatrists as generally humane and occasionally the source of valuable advice.

They argue that the depiction of the stereotype can be “double-edged in which “good” and “bad” psychiatrists are paired together. They also introduce another

type – the “faceless” psychiatrist who has “few, if any, identifying traits,” citing as examples the neutral psychiatrist of *Fear Strikes Out* (1957) about the baseball player Jim Piersall and the offscreen psychiatrist in *Diary of a Mad Housewife* (1970). If the portrayal of many male psychiatrists in films is less than flattering, female psychiatrists generally come off even worse. Beginning in the 1940s, the Gabbards maintain, female psychiatrists are either seen as corrupt or as “inadequate as women” and susceptible to seduction by their male patients (in a reversal of the classic transference).

The ambivalence of filmmakers toward psychiatrists is hardly surprising. Their audiences felt similarly conflicted. “Awe at their perceived ability to unscramble the mysterious workings of the mind is mixed with contempt for their limitations and disappointment with their failure to solve complex problems,” notes Bruce Bower in his 1987 Science article. Psychotherapists are perceived as superior on the one hand but also envied and feared on the other, which prompts people (and filmmakers) to ridicule them and try to “put them in their place” (Bower 1987, p. 189).

Psychiatrists offer only one example of the kinds of stereotypes that filmmakers have exploited, promoted, and foisted on their audiences. The same interchange of cultural-psychological factors that gave us Dr. Dippy, Dr. Evil, and Dr. Wonderful also found expression in a system of social archetypes, stereotypes, and role models who epitomized those standards of beauty, dress, and status. And there was no more powerful medium to dramatize these archetypes and stereotypes than the film. An elaborate production base was established in California to generate films that functioned as a means to show people social norms and customs, how they were to behave, and what things were desirable to buy and own – in general films showed forms of life to which audiences, sitting in dark, palatial theaters, must aspire. Each film becomes a lesson in how people were to define and understand themselves. Here the cultural dream machine is providing the dreams (in advertising as well as in the biological sense) for the audiences.

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Dallenbach, Karl M.

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Karl M. Dallenbach was an American experimental psychologist and editor of *The American Journal of Psychology* for almost 50 years. He was a student of Edward Bradford Titchener, receiving his Ph.D. degree in 1913, and was a member of the faculties of departments of psychology at Oregon State University, Ohio State University, Cornell University, and The University of Texas at Austin.

Basic Biographical Information

Dallenbach was born in Champaign, Illinois, on October 20, 1887, and died on December 23, 1971 (Dallenbach 1967; Boring 1958; Evans 1972; Evans 2006). He received his BA at the University of Illinois where he took classes in psychology from E. B. Titchener's student, John Wallace Baird. After graduating from the University of Illinois Dallenbach received a fellowship to the University of Pittsburg in psychology, receiving there an MA degree in 1910. He had plans for a medical degree but when he received the Sage Fellowship in Psychology to Cornell University to study under E. B. Titchener for the Ph.D. he changed his plans and went to Cornell in 1911. Dallenbach also took a minor in educational psychology from Guy M. Whipple. In the summer of 1912, Dallenbach went to Germany and spent the summer in the Bonn laboratory of Oswald Kuelpe, returning in the Fall to complete his dissertation. His doctoral dissertation was with Titchener and it was published as "The Measurement of Attention" (Dallenbach 1913). After gaining his Ph.D. Dallenbach married his college sweetheart, Ethel Douglas. He held positions at Oregon State

University and Ohio State University but was called back to Cornell by Titchener as an assistant professor in 1916. After World War I broke out, Dallenbach went into the Army and served in the Psychological Testing Corps. After the war he returned to Cornell and stayed on the faculty there until 1948, excepting during World War II when he went back into the Army to direct the Psychological Testing Corps.

Major Contributions

Dallenbach's primary research interest after returning to Cornell was in attention which, following Titchener's lead, treated attention as an attribute of sensory experience. His research demonstrated a clear distinction between that approach and that of attention as a cognitive process (Dallenbach 1920; Gill and Dallenbach 1926; Glanville and Dallenbach 1929). Unfortunately, attention as attributive clearness came to a dead end with the demise of Titchener's structuralism and introspective psychology.

Research on the psychology of touch proved to be more fruitful. His research on the experience of heat was particularly important (Burnett and Dallenbach 1927). For research on temperature sensations he invented a temperature stimulator for delivering punctate stimuli, a device that could maintain a calibrated, constant temperature rather than requiring the device to be reheated after every application (Dallenbach 1923). Another device, his heat grid, produced a burning experience when laid across the skin. It was made up of two tubes running closely together. One carried warm water and the other carried cold water. The heat grid became a standard demonstration piece in psychological laboratories (Burnett and Dallenbach 1927).

The first of Dallenbach's classic experiments on the role of interference versus trace decay in forgetting was published in 1924 (Jenkins and Dallenbach 1924). He found that activity after learning reduced retention

of the information significantly more than lack of activity over the same period of time. In 1946 he followed up the experiment with a similar one on the cockroach which demonstrated the same thing (Minami and Dallenbach 1946).

Perhaps Dallenbach's most significant studies had to do with localization of objects in space by the blind (Supa et al. 1944; Worchel and Dallenbach 1947; Cotzin and Dallenbach 1950; Ammons et al. 1953). The prevailing view since the time of Diderot (1749/1916, pp. 68–141) had been that the blind sense objects by sensations of pressure localized on their faces. Dallenbach's experiments demonstrated that the real basis for localization or objects in space was due to the auditory sensations of reflected sound produced by the footsteps of the blind person (Griffin 1958, pp. 303–309).

The American Journal of Psychology

Dallenbach believed his greatest contribution to psychology was through his ownership and editorship of the *American Journal of Psychology* (Dallenbach 1967). In 1921, thinking he was negotiating for a group of Cornell professors, including E. B. Titchener, Dallenbach arranged for the purchase of the *American Journal of Psychology*, then solely owned by G. Stanley Hall (Evans and Cohen 1987, pp. 339–353). Dallenbach negotiated a price and paid out of his own money, the good faith deposit pending the sale. On returning to Cornell, Dallenbach found that neither Titchener nor the other Cornell faculty had money to actually carry through on the purchase. By gaining a loan from his father, Dallenbach was able to carry through on the purchase. He became the business manager for the *American Journal of Psychology* and Titchener became the sole editor. There was no written agreement between the two men which proved to be problematic. Only 3 years later, in 1924, Titchener wanted the AJP given to Cornell or to some nonprofit group. Since Dallenbach had a large financial investment in the AJP he had to refuse to give it away. Titchener resigned and helped found the *Journal of General Psychology* as a competitor. This led to great stress between Dallenbach and Titchener until Titchener's sudden death from a brain tumor in 1927.

Dallenbach always looked at the ownership of the AJP as being a stewardship and never profited from it. He worked with a board of editors, including Margaret

Washburn, Madison Bentley, and Edwin G. Boring in the early years. The board changed over the years but Dallenbach, along with his editorial assistant Margaret McGrade, continued to do all the copy editing. In 1968, Dallenbach contributed the American Journal of Psychology with a sizable endowment to his *Alma Mater*, the University of Illinois where it still resides.

The University of Texas

Dallenbach left Cornell in 1948 for the University of Texas as distinguished professor of psychology. There he arranged to have the university construct a state-of-the-art building for the Department of Psychology and he designed the new laboratory (Dallenbach 1953). He chaired the Department of Psychology for 10 years while continuing to teach, work with graduate students, and edit the *American Journal of Psychology*. He was allowed to continue after the normal retirement age, primarily teaching the history of psychology and once in a while, classical psychophysics. One of his last experimental studies was one involving a study on single-trial learning in humans and the production of a stochastic mathematical model for the process (Evans and Dallenbach 1965).

He retired from academic life in 1968 at the age of 81.

See Also

- ▶ [Structuralism](#)
- ▶ [Titchener, Edward Bradford](#)

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Danziger, Kurt

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Basic Biographical Information

Kurt Danziger’s innovative contributions to the history of psychology have received widespread international recognition. He was born in Germany in 1926 and emigrated to South Africa at the age of 11. After receiving degrees in Chemistry and Psychology from the

University of Cape Town, he continued his studies at the newly established Institute of Experimental Psychology at the University of Oxford in England. His work there involved standard 1940s psychology experiments using laboratory rats (e.g., Danziger 1953). On completing his doctorate, he joined the University of Melbourne in Australia where he did research in developmental psychology, studying children’s understanding of social relationships (e.g., Danziger 1957).

Major Accomplishments/Contributions

In 1954, Danziger moved back to South Africa where social psychology soon became his main area of research. Following a 2-year stay as Visiting Professor at Gadjah Mada University in Jogjakarta, Indonesia, Danziger returned to South Africa as Head of Psychology at the University of Cape Town. There, he conducted some groundbreaking studies inspired by the sociology of knowledge (e.g., Danziger 1963). This research is still cited and was continued by others for many years (e.g., Du Preez and Collins 1985; Finchilescu and Dawes 1999). Danziger’s time in Cape Town and his eventual departure from South Africa were marked by his opposition to the apartheid policies which were being enforced with increasing violence and brutality. This active opposition, both within and outside the academy, eventually led to threats and reprisals on the part of what was becoming a repressive police state. He left South Africa for Canada in 1965 and was prohibited from returning until the collapse of the old system after 1990.

Danziger took up an appointment as Professor of Psychology at York University, Toronto, where he continued to work in social psychology. His publications from this time include a textbook, *Socialization* (Danziger 1971) and a monograph, *Interpersonal Communication* (Danziger 1976), both of which were translated into several languages.

Danziger had a longstanding interest in the history of psychology and began intensive study of primary sources in the early 1970s. He became particularly interested in Wilhelm Wundt’s work. Around the time of psychology’s “centennial,” marking the establishment of Wundt’s laboratory in 1879, Danziger published a number of chapters and articles related to

this topic (e.g., Danziger 1979). However, during the 1980s, he became increasingly interested in the history of psychological research methods (e.g., Danziger 1985). This interest culminated in what is probably Danziger's best-known book, *Constructing the Subject: Historical Origins of Psychological Research* (Danziger 1990). Danziger was also interested in the history of psychological concepts and categories, and in a later book, *Naming the Mind: How Psychology Found Its Language* (Danziger 1997), he traced the historical origins of modern psychological concepts like "behavior," "intelligence," "attitude," "personality," and "motivation." He has continued this line of work in his most recent book, *Marking the Mind: A History of Memory* (Danziger 2008) with a detailed study of one of the oldest psychological concepts in existence.

Danziger has always been critical of historical accounts that celebrated currently fashionable disciplinary trends. He regards insights derived from work in the philosophy, history, and sociology of science as the indispensable foundation for a more critical approach to the history of psychology. In spite of this, he is committed to working from within psychology, largely because of the institutional separation that exists between the various fields which study science and science itself (Danziger 1994). It was this commitment that led him to play a central role in establishing the graduate program in history and theory of psychology at York University.

A symposium on Danziger's work was held at the annual meeting of the Canadian Psychological Association in 1995. The papers from this symposium were included, together with others, in a special issue of the *History and Philosophy of Psychology Bulletin* titled, "Tribute to Kurt Danziger" (Dzinas 1995). In 2000, the European Society for the History of the Human Sciences devoted a two-part symposium to Danziger's work in which nine papers were presented by scholars from Europe, North America, and South Africa. These papers formed the basis of an edited collection, *Rediscovering the history of psychology: Essays inspired by the work of Kurt Danziger* (Brock et al. 2004). Also noteworthy is an interview with Danziger, which appeared in the journal, *History of Psychology* (Brock 2006). More recently, he has published an autobiography (Danziger 2009) and there is now a website devoted to his work (www.kurtdanziger.com).

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Darley, Frederic L.

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Frederic Darley had a distinguished career in several areas of communicative disorders. After receiving his Ph.D. in speech pathology and audiology from the

University of Iowa, he was honored by the departmental faculty by being given a faculty position and the opportunity to participate in its ongoing research programs. Later in his career he opted to head the speech pathology services of the Mayo Clinic in Rochester, Minnesota where he contributed his theoretical and clinical background to the treatment of patients with speech and language disorders. His contributions to the field of human communication and its disorders were twofold. First, Darley implemented the study and design of speech and language norms for the purpose of providing quantitative measure of the developmental delay of children with speech and language disorders. In this regard, Darley provided the impetus for the use of rigorous assessment procedures in the diagnosis and treatment of speech and language disorders. Today, the effect of Darley's innovative approach can be seen by the recognition of the clinical importance of speech and language norms in the testing and evaluation of patients. Second, Darley contributed to the clinical disorder of aphasia and associated disorders by reporting clinical findings and summarizing the diagnostic and treatment procedures in his well-recognized book *Aphasia*.

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Dearborn, Walter F.

DAVID C. DEVONIS

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Basic Biographical Information

Born: July 19, 1878; Died: June 21, 1955

Dearborn was born in Marblehead, MA. He attended Wesleyan University in Connecticut, graduating with a B.A. in 1900 and attending as a graduate student in 1900–1901. He taught for a time in Connecticut schools and received an M.A. from Wesleyan in 1903. He then went to Columbia for his Ph.D. work under the direction of W. S. Woodworth and J. McK. Cattell. Dearborn was one of several researchers,

including C. H. Judd who also had Wesleyan connections, inducted into the study of eye movements by the technical advances in their measurement and photographic recording pioneered by Dodge and Erdmann between 1896 and 1898. Dearborn, in his 1905 thesis, *The Psychology of Reading: An Experimental Study of the Reading Pauses and Movements of the Eye*, wrote that he was “indebted to Professor Dodge for whatever knowledge I may have secured of the technique and methods of the experiments” (Dearborn 1906, p. 150).

Major Accomplishments/Contributions

Dearborn was one of the first to provide precise measurements of eye fixations during reading utilizing a variety of materials and type styles. He began his academic career at the University of Wisconsin between 1905 and 1909, and then moved to the University of Chicago. By apportioning study in Germany over several years between 1904 and 1911, he also obtained his M.D. from the University of Munich in 1913. In 1912, he started a 35-year career at Harvard. There he continued his work on reading which he expanded into a general theoretical consideration of reading disability. His most well-known student was Leonard Carmichael (Ph.D. 1924) who, though he became more well known for his researches on the development of complex behaviors in utero, also published a study of mirror writing in a monograph with Carmichael and Elizabeth Lord in 1925 on reading disabilities (Lord et al. 1925). Carmichael continued his association with Dearborn and they coauthored a book on fatigue and reading in 1947 (Carmichael and Dearborn 1947). Dearborn saw his studies of reading disability in the context of the importance of assessing individual differences, both in reading performance and generally: he was one of the contributors to Walter Miles's *Festschrift* for Raymond Dodge, a comprehensive contemporary survey of individual difference research (Dearborn 1936). Dearborn was also the founder in 1922 and director for over a dozen years after that of the Harvard Growth Study, a longitudinal study correlating physical and mental growth. Mental growth was charted through the use of intelligence tests Dearborn devised. Though it produced more raw data than conclusions at the time (Modell 2001), the Harvard Growth Study did eventually serve as a source of data for studies of the

adult lifespan, much like the Harvard Grant Study of college men which began soon afterward. Through the 1930s Dearborn continued to publish on dyslexia and reading difficulties (e.g., Dearborn 1931; Dearborn 1932). He retired from Harvard in 1947 and joined the faculty of Lesley College in Massachusetts: one of its laboratory schools was named after him. Dearborn also became a respected expert on the teaching of reading, like Miles Tinker and others who became well known in as consultants on the teaching of reading due to their expertise in its underlying psychology and physiology. His last published work was a textbook of some influence in that field (Anderson and Dearborn 1952). Recent evaluation of Dearborn's work suggests that he inaugurated or anticipated several methods in current reading instruction (Zimmer 2007).

See Also

- ▶ Carmichael, Leonard
- ▶ Dodge, Raymond
- ▶ Miles, Walter R.

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Delabarre, E. B.

DAVID C. DEVONIS

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Basic Biographical Information

Born: September 25, 1863; Died: March 16, 1945

Edmund Burke Delabarre first studied psychology with Charles Edward Garman (1850–1907) at Amherst, graduating in 1883, and then over the next several years studied with William James at Harvard between 1888 and 1890 (contributing a short reminiscence of this time to the *Psychological Review's* commemoration of 50 years of the American Psychological Association in 1943), with Binet at the Sorbonne, and with Münsterberg at Freiburg, with whom he took his Ph.D. in 1891 with a thesis on sensations of movement.

Major Accomplishments/Contributions

He returned to America and founded Brown laboratory, twelfth in the US (Mitchell 1993). In 1896, he replaced Muensterberg at Harvard as director of the Psychological Laboratory for one year. He continued as director of the Brown Department and was succeeded by Leonard Carmichael. Delabarre's psychological interests and publications at the beginning of his career were consonant with those typical of the second generation of US psychologists. He was adept at building measuring instruments and employed these in the study of the relation of movement and consciousness, an extension of ideomotor theories current in his era and a foreshadowing of realist and behaviorist theories emphasizing movement.

He was comfortable in the community of eclectic philosopher-psychologists of his day: he is fairly represented, in terms of his immediate intellectual environment and community of influence, in the commemorative volume for Charles Garman by his students, *Studies in Philosophy and Psychology* (Garman et al. 1906) which contained, along with a chapter by Delabarre on the influence of surrounding objects on the direction of lines, contributions by Arthur Henry Pierce, Charles Edward Garman, F. J. E. Woodbridge, and R. S. Woodworth. While at the Harvard Laboratory,

he published several collaborative papers on the force of reaction movements, involuntary movements made to pleasant and unpleasant stimuli, and the effects of studying for examinations on the nervous condition of female students. He wrote on the plaster-cast method of fixing apparatus to the eye to record eye movements and reviewed Laura Steffens' early work on motor set, with Müller at Göttingen, in 1901 in the *Psychological Review*. Between 1911 and 1913, he contributed reviews to the *Psychological Bulletin* of theories of the will and its connection to motor consciousness, including those of Ach, Bergson, Wentscher, G. V. N. Dearborn (a former Harvard student), Kohnstamm, Pillsbury, and E. C. Rowe. However, most of Delabarre's work remained in unpublished manuscripts due to his intense perfectionism. On the other hand, he was, perhaps more than most psychologists, distinguished by his extensive amateur interests in things that did not appear specifically psychological, although in his synoptic view of the subject they were. On these, in distinction to his psychological work, he published freely. He was a member of the Brown-Harvard expedition to Labrador in 1900 with the geologist Reginald A. Daley and published about it on his return (Delabarre 1902), and also contributed a chapter on the flora of Labrador to Wilfred Thomason Grenfell's *Labrador, The Country and the People* (1909). After purchasing a summer home at Assonet Neck near Fall River in southeastern Massachusetts, he became fascinated with the inscriptions on Dighton Rock on the Taunton River, which had been known since at least 1680 for its multiple inscriptions and graffiti. Delabarre took great pains to photograph the rock, which is difficult to access and submerged most of the time, and concluded after years of study that the apparent writings on it were the work of the Portuguese explorer Miguel Cortereal, who, while searching for his lost brother Gaspar, traveled to the area and carved them in 1511, claiming to be "by the will of God leader of the Indians." Delabarre's efforts were well received by the Portuguese community in the area and he eventually received a decoration from the Portuguese government for his endeavors (Brennan 1975). His most well-known contribution to psychology is his experimental research, undertaken on himself, on the psychological effects of ingesting Cannabis Indica (or, in his terms, "Haschisch"). This forms part of a long trend of

psychological interest in the subject of substance-influenced consciousness stretching back to Benjamin Blood and William James and forward through the experiments on consciousness and LSD conducted by Timothy Leary at Harvard in the 1960s and their current vicissitudes. Like Dighton Rock, most of this work, conducted for more than thirty years, is submerged in Delabarre's unpublished manuscripts. John Poplestone, first director of the Archives of American Psychology, published a resume of Delabarre's 1931 summary of his experiments, which refract the texture of late nineteenth and early twentieth century theories of psychology including motor consciousness and rhythm through the lens of drugs: a noteworthy example of the value of a historical archive to the scientific record in this area (Delabarre and Poplestone 1974).

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Delboeuf, Joseph-Rémi-Leopold

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Basic Biographical Information

Joseph-Rémi-Leopold Delboeuf was born on October 1, 1831, in Liège, a large French-speaking industrial town

in Belgium, and died on August 13, 1896, in Bonn, Germany. Although he contributed toward many areas in science, his contemporaries considered him to be, first and foremost, a psychologist. For example, in discussing the latest views on the extent to which a person might be consciously aware of events intrinsic to his own active muscular movements, William James said that “no less a Psychologist than Prof. Delboeuf” indicated that the “muscular sense” should be considered as helping us to estimate spatial distances (James 1950/1890, Vol II, p. 189). During his career, Delboeuf participated in three of the most vociferous controversies in the history of psychology. First, there was the debate on whether sensations could be measured (this question is at the heart of Fechner’s psychophysics). Second, there was the debate as to whether and how Darwin’s theory of evolution could be integrated into experimental psychology. And, third, there was the debate as to the value of studies of hypnotism for our understanding of human psychopathology; this debate played a crucial role in Freud’s early career.

Delboeuf obtained a doctorate in philosophy and in physical and mathematical science from the University of Liège, then carried out postdoctoral research at the University of Bonn. In 1863, at the age of 32, he was appointed to the Chair of Philosophy at the University of Gand (Ghent, in Flemish), also in Belgium, some 70 miles west of Liège. Only 3 years later, he returned to the University of Liège, where he held the Chair in Philology. All his psychological writings were in French, and were published in the major French and Belgian scientific journals of his day.

Major Contributions

Both his first and final psychological publications were on optical illusions (Delboeuf 1865a, 1865b, 1892). Titchener (1905a) devoted considerable space in his teaching text on experimental psychology to this topic, partly because it was “fashionable” in the sense that numerous scientists competed to explain well-known illusions, such as the Müller-Lyer illusion, in as few words as they could; Delboeuf’s views on optical illusions were prominently discussed by Titchener, and have been summarized by Nicolas (1995a). Nicolas (1995b) has also summarized some early views on memory put forward by Delboeuf.

In 1865, Delboeuf began his psychophysical research, inspired by his reading of Wundt (1863) and of Fechner (1860/1964). His experimental findings were not published until 1873, but were disseminated to the English-speaking world by such authoritative figures as William James (1842–1910) and Edward B. Titchener (1867–1927). Basically, Delboeuf (1873) succeeded in actually constructing a rotatable disk on which was painted a set of eight concentric rings. Each ring was painted a shade of gray in such a way that inspection of the whole display in normal daylight showed the circles as differing from each other by equal-appearing steps of grayness from black at the center to white at the periphery. When revolved, the different levels of grayness on the wheel seemed to merge smoothly, from black to white, from the center to the periphery. It should be noted that illuminating the wheel (viewed in daylight) by bringing a candle close to it did not lead to an apparent preservation of equal-appearing levels of contrast between adjacent rings; brightening or dimming the whole by judiciously placed candles distorted the apparent evenness of the transition from black to white of the eight rings on the wheel.

But the most impressive theoretical achievement associated with Delboeuf’s disk was the fact that he had *calculated*, from first principles, the degree of grayness with which each ring ought to be painted if they were to appear equal-stepped in grayness levels from the center to the periphery. If we may plunge from here directly to 100 years further on, it was found that, in measuring the goodness-of-fit of each of Delboeuf’s eight painted graynesses to the grayness that would be predicted by each of three famous psychophysical laws relating sensation intensity to stimulus intensity, Delboeuf’s own law (to be given in a moment) yielded the best fit, with Fechner’s law and Stevens’s law tied for second and third places (Murray 1993, p. 136). Fechner’s law had asserted that sensation strength was a logarithmic function of stimulus strength. Stevens’s law had asserted that sensation strength was a power function of stimulus strength. Delboeuf’s law was that sensation strength was a logarithmic function of stimulus strength, where, however, the latter was measured by the degree by which the strength of the “external” stimulus exceeded the strength of the stimulation arising from a resting-level of physiological activity caused by spontaneous receptor activity, fatigue, and other

internal forces. More on the historical background of these psychophysical laws, including the role played by Helmholtz, will be found in Murray (1993), Norwich (1993), Nicolas et al. (1997), and Laming (1997). Stevens's power law had actually been anticipated in a review of Delboeuf's monograph that been written by his eminent Belgian colleague, Joseph Plateau (1801–1883); Plateau's review has been translated by Laming and Laming (1996).

Delboeuf's psychophysical contributions also included a quiet paving-of-the way toward an interpretation of the meaning of the expression "sensation strength" that would not get a firm foothold in psychophysical theory until well into the twentieth century. Fechner's aim had been to define a "scale" of sensation strength in which an increase in strength from one step on the scale to the next step would constitute an increase of one "unit" of sensation strength; this unit was assumed to be constant in subjective size no matter what the location of that first step on the scale. Fechner himself chose the "unit" to be the "just noticeable difference" between two sensations, but was soundly contested on this matter by Plateau and others. On Delboeuf's disk, the subjective grayness-strength, d_1 , of one ring was contended to differ from the subjective grayness-strength, d_2 , of an adjacent ring by an amount equal to the difference between the subjective grayness-strength of d_2 and that of the next ring, d_3 . But everyday English language usage allows us to say that the subjective "contrast" between d_1 and d_2 is therefore equal to the subjective "contrast" between d_2 and d_3 . Between 1873 (the year Delboeuf published his memoir about the disk) and 1905 (the year of Titchener's groundbreaking textbook on experimental psychology), the opinion slowly took root, influenced in part by a monograph by Delboeuf (1883) on psychophysical laws in general, that what psychophysicists are measuring is the "sense distance" between two stimuli, rather than the number of "units" of sensation strength by which the two stimuli are presumed to differ (Titchener 1905b). A monograph by Laming (1997) has lent strong support to this relativistic approach to psychophysical measurement; he failed to find evidence that "sensation strength" referred to a unidimensional variable that could be easily isolated in the way that one can isolate the variables of "length" and/or "duration," in the course of experimentation in physics.

It is only recently that Delboeuf's contributions to the dissemination of the theory of evolution have been acknowledged. In the course of the development of his theory of genome phenotyping, the microbiologist Donald Forsdyke (2001, p. 54) discovered that Delboeuf (1877) was able to prove, using probability theory, that if an anomalous or isolated phenotype were to be expressed by chance (e.g., a single antelope might have unusually shaped horns for its species), then that phenotype could probably be passed on to subsequent generations (rather than "die out"). Another forgotten contribution by Delboeuf to evolutionary theory was his assertion that, in the evolution of individual organs, it was the sensory receptors that most readily provided evidence of selective adaptations to new environments and were, therefore, the organs most likely to demonstrate the validity of Darwin's theory of evolution by natural selection (Delboeuf 1876). In particular, the evolution of sensitivity serves to mediate the acquisition of memory representations that can facilitate the development of the cognitive skill of comparison-making. The evolution of sensitivity also serves to maintain an instinct of self-preservation.

It was toward the end of his life that Delboeuf found himself more or less obliged to consider the importance for psychological theory of hypnotism and related phenomena. Binet and Féré (1887/1891) had written a short (and still useful) history of how hypnotism had gradually become scientifically acceptable after its rocky start in the near-quackery of Mesmer's "animal magnetism" theories. By 1886, when Delboeuf was 55, studies of hypnotism and its use in psychotherapy were concentrated in Paris, at the Salpêtrière hospital, ruled over by the eminent neurologist Jean-Martin Charcot (1835–1893), and at the town of Nancy, in eastern France, where family doctors H. Bernheim (1840–1919) and A. A. Liébault (1823–1904) were exploring hypnotic phenomena. Delboeuf visited both Paris and Nancy, and compared the various autobiographical accounts by Charcot and Bernheim, as well as accounts of the achievements of a stage hypnotist named Donato, concerning their methods of inducing a hypnotic state. In several short volumes, Delboeuf (1886, 1890) reported that the plethora of opinions on the optimal methods of hypnotic induction reflected the influences of the hypnotizer's preconceptions upon his interpretation of the patient's behavior

during hypnosis; the influences of the behavior of the first subject successfully hypnotized upon the subsequent choice of method to be used by the hypnotist with later patients; the multifarious influences of teachers upon their pupils; and biases set up by theories so amorphous that it was possible to explain any form of behavior induced under trance by reference to “suggestion,” to “unconscious” layers of personality, or even to the influence of magnets held near the head of the patient (it is hard to believe nowadays that even Binet himself subscribed to the opinion that magnets could induce hypnotic states; see Binet & Féré 1887/1891). Into these debates Delboeuf brought the steadying hand of a scientific skeptic, work for which he has only recently been given well-deserved credit (Duyckaerts 1992; Macmillan 1991/1996). Delboeuf’s contributions to the literature on hypnotism are referred to in various places in Ellenberger’s magisterial book on the history of dynamic psychiatry (Ellenberger 1970).

See Also

- ▶ [Evolutionary Psychology](#)
- ▶ [Hypnosis](#)
- ▶ [Mesmer, Franz Anton](#)
- ▶ [Perception](#)
- ▶ [Titchener, Edward Bradford](#)

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Denmark, Florence L.

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Basic Biographical Information

Florence Harriet Levin was born on January 28, 1931, in Philadelphia, Pennsylvania. She described her mother as the driving force behind her accomplishments (Denmark 1988, p. 281). Her father, an attorney, supported Denmark's achievements. After graduating Phi Beta Kappa from the College for Women of the University of Pennsylvania in 1952, she married Stanley Denmark in 1953 and continued her graduate training at the University of Pennsylvania, earning an A.M. in psychology (1954) and a Ph.D. in social psychology (1958). After graduate school, Denmark lived in New York City, where she had three children, Valerie (1959), and twins, Pamela and Richard (1960), while holding an adjunct teaching position at Queens College of the City University of New York (CUNY) and working part-time in the college's counseling center. She divorced Stanley Denmark, and in 1973 married her second husband, Robert Wesner, a publisher with Aldine Publishing Company, who was also divorced with three children: Kathleen, Michael, and Wendy. He became an important source of encouragement and support throughout her career.

Major Accomplishments/Contributions

Florence L. Denmark is an internationally recognized scholar, researcher, mentor, and leader. She received her Ph.D. from the University of Pennsylvania in social

psychology and has six honorary degrees. As of this writing, Denmark is the Robert Scott Pace Distinguished Research Professor of Psychology at Pace University in New York.

Denmark's full-time academic career began in 1964, as an instructor at CUNY's Hunter College. For the next 26 years, Denmark remained at Hunter, becoming an assistant professor in 1967, an associate professor in 1970 (with an appointment to CUNY's Graduate Center faculty), and professor in 1974. She chaired Hunter's Department of Academic Skills (1968–1970) and served as the first director of the SEEK (Search for Education, Elevation, and Knowledge) program (1968–1970), created to help high school graduates from poverty areas to attend college. In 1972, as an associate professor, she became Executive Officer of the psychology doctoral program at CUNY's Graduate Center, a post she held until 1979. In 1984, she was named Thomas Hunter Professor in the Social Sciences. She later headed the doctoral program in personality and social psychology at the Graduate Center (1986–1987). In 1988, Denmark became the first Robert Scott Pace Distinguished Professor of Psychology at Pace University, an endowed chair, and also became chair of the Pace Department of Psychology.

Florence L. Denmark's career has had a significant impact on psychology through scholarly and professional contributions in research, education, teaching, and mentoring, and through her professional leadership and advocacy. Denmark's scholarship and professional leadership have played pioneering roles in establishing the psychology of women as a recognized and legitimate scholarly field, stimulating new research and curriculum change. Denmark taught the first ever doctoral course in the psychology of women in 1970. A charter member of the Association for Women in Psychology (AWP), founded in 1969, she helped found and develop APA's Division 35 (Psychology of Women) in 1973, serving as its third president from 1975 to 1976.

Denmark's numerous leadership positions include the presidency of the American Psychological Association (APA), three APA divisions (1-General, 35-Psychology of Women, 52-International Psychology), the International Council of Psychologists (ICP), Psi Chi, and the Eastern Psychological Association.

Denmark has also served as the main NGO representative to the United Nations for both the APA and the International Council of Psychologists. She also chaired the New York NGO Committee on Ageing and serves on the Executive Committee of the NGO Committee on Mental Health and the NGO Committee on the Families.

A prolific writer, her body of work includes more than 26 books and monographs, 109 journal articles and book chapters, and dozens of other works. Denmark's extensive publications and most significant research have emphasized women's leadership and leadership styles, the interaction of status and gender, ageing women in cross-cultural perspective, and the history of women in psychology. In addition, her work on the advances, growth indicators, and contributions of the field of the psychology of women, has validated and legitimized the field as well as individuals working in it.

Denmark's many awards include election to fellow status of the Association for Psychological Science, the APA, and 14 APA divisions. She is also a fellow of the Society for Experimental Social Psychology (SESP) and a Fellow of the New York Academy of Sciences. She has received numerous national and international awards for her contributions to psychology. She received the 2004 American Psychological Foundation Gold Medal for Lifetime Achievement in the Public Interest. In 2005, she received the Ernest R. Hilgard Award for her Career Contribution to General Psychology. She was the recipient in 2007 of the Raymond Fowler Award for Outstanding Service to APA. Also in 2007, Denmark was elected to the National Academies of Practice as a distinguished scholar member. She received the Elder Award at the APA National Multicultural Conference in 2009 (Paludi and Russo 1990).

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Dessoir, Max

DAVID C. DEVONIS

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Basic Biographical Information

Born: 1867; Died: 1947

Dessoir was born in Berlin, and though he suffered some early privation, his Gymnasium education brought him into contact with persons destined for eminence in German academic and commercial life, among them Walther Rathenau. He matriculated at the University of Berlin and obtained his Ph.D. with Wilhelm Dilthey in 1889, and also earned an M.D. from Würzburg in 1892. He joined the faculty of the University of Berlin where he remained for the rest of his career.

Major Accomplishments/Contributions

Dessoir's primary psychological interests were in hypnotism and states of consciousness. His theory of double consciousness found a hearing among those psychologists in the early twentieth century who were concerned with unusual mental states such as somnambulism and automatism, for instance Boris Sidis and Morton Prince (Sidis 1915). However, Dessoir, in this as in virtually every area in which he was active, played a supporting rather than a leading role. Dessoir, by virtue of his position at the University of Berlin, was a member of Germany's academic elite, but among the Mandarins of academic culture (Ringer 1969) he had peripheral status, overshadowed in philosophy and psychology by others of greater renown. He had his greatest influence as a teacher: Gordon Allport remembered him favorably and Dessoir also was the dissertation advisor for Abraham Joshua Heschel, one of his last students, who became a leading Jewish theologian in America.

Dessoir had an interest in magical and occult phenomena dating back to his teens. By the time he was 20, he had already formed an association with German Theosophists and in 1889 was a founding member, with Albert Baron von Schrenk-Notzing and Albert Moll, of the Gesellschaft für Experimentelle-Psychologie

which was devoted to the empirical study of occult phenomena (Bauer 2004). Also in 1889 Dessoir, in an article in the journal *Sphinx*, coined the term “parapsychology” which became the term of choice to denote the experimental wing of occultism. Dessoir continued to publish books on occult phenomena, for the most part limiting himself to reportage rather than to advocacy, and often was an acute critic. Dessoir was very active in aesthetics and founded the journal *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft* which he edited until 1937. His exposition of his aesthetic theory, *Ästhetik und Allgemeine Kunstwissenschaft* (Dessoir 1906) was a standard German source for philosophers. Regarding its influence on psychology, it appears it was minimal in English-speaking circles. For example, Herbert Langfeld did not cite either Dessoir’s book or journal in his book *The Aesthetic Attitude* in 1920, the most comprehensive American psychological work on aesthetics at that time, even though he had studied at Berlin. Likewise, Dessoir’s history of psychology, focused on the classical roots of the subject, found less favor in a community that sought its roots in science rather than philosophy. Translated into English in 1912, it was quickly superseded by Boring’s and Gardner Murphy’s 1929 works. However, Boring recommended Dessoir’s history after G. S. Brett’s as a history of classic philosophic sources in psychology, and credited Dessoir for a useful review of the history of the concept of specific nerve energies in 1892. Also, Dessoir’s 1888 bibliography on hypnotism was an important early contribution to scholarship in that area. As psychology in Germany became more applied, Dessoir became further marginalized, but apparently kept up with the times: one of the students he recommended to the Wehrmacht’s growing psychological staff, the philologist Gotthilf Flik, was accepted (Geuter 1992). Dessoir had the curious distinction of being selected to visit the Eastern Front in 1915 under the aegis of Field Marshal Hindenburg and the General Staff of the German Army to observe and interview troops in action. His report on his tour, *Kriegspsychologische Betrachtungen* (Dessoir 1916), is one of the few psychological studies of war conducted in the field during combat. However, this did not make his career any easier at the end of his life. In 1899, Dessoir married the famous singer Susanne Triepel, who had a long career in Germany, and whose Christian background

played an important role in Dessoir’s career after 1933. Dessoir terminated his relation with the University of Berlin in March 1934 and though he remained in Berlin, his distant Jewish heritage rendered him less and less welcome in the academic community and eventually he was subjected to a publication ban, partly due to a dispute with Nazi philosophers. His marriage and connections shielded him from physical annihilation, but, isolated and in limbo, he had to watch as the German academic community was decimated during the war and as his library and papers were destroyed in the bombing of Berlin in 1943. His memoirs, published as *Buch der Erinnerung* (1946), contain particularly poignant descriptions of various suicides that occurred in Dessoir’s circle during the early 1940s: Dessoir himself attended, with his wife, the last Christmas gathering at the home of the tragic Lutheran theologian and writer Jochen Klepper.

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Deutsch, Helene

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Basic Biographical Information

Born: 1884; Died: 1982

Helene Deutsch, a student and patient of Sigmund Freud, was a key figure in the establishment of the first psychoanalytic training institute, and a pioneer author on women and sexuality. Rebellious and often uneasy, Deutsch drew upon personal experiences and insights to develop her theories, which were quite divergent from Freud's. She fled the Nazis in 1934, and spent the second half of her life in the USA, where she taught and authored a number of influential articles and books.

Helene Rosenbach was born on October 9, 1884, in the town of Przemysl, in Polish Galicia, at the time part of the Austro-Hungarian Empire. After graduation from the local school, she refused to accept the traditional role of the idle life of a debutante, and demanded the opportunity for further education. While still in school, Helene met Herman Lieberman, a prominent socialist leader, with children, and significantly older than Helene. Inspired and supported by Lieberman, Helene became very active in the socialist movement, organizing the first working women group and leading them to a strike in a shirt factory in town. In 1907, Helene became one of only seven female students to enter the University of Vienna Medical School. Not long after, she decided to specialize in psychiatry.

Helene eventually left Lieberman to finish her degree in Munich, and aborted the child she was expecting with him. In Munich, she met her future husband, Felix Deutsch. The same age as Helene, Felix was a Zionist and a fellow student in internal medicine. They married in the spring of 1912.

Upon the completion of Helene's medical degree, the couple returned to Vienna. Although interested in psychoanalysis, Helene decided to stay with a more traditional approach to psychiatry. She took on a few internships in mental hospitals, the most significant of which was at the Wagner-Jauregg's Clinic for Psychiatry and Nervous Diseases, the largest in Austria, where she stayed until 1918. She also sought admission into the Vienna Psychoanalytical Society's Wednesday evening meetings, which was granted to her in 1918.

Meanwhile, Deutsch was experiencing a recurrent personal drama. She was convinced that many spontaneous abortions, including hers, were due to psychogenic factors. The Deutsches' only child, Martin, was born in January 1917. Helene was haunted by anxiety and constant guilt that she was not devoting enough

time and energy to her son because of her work. It was because of the poor relationship with her son, as well as her strong interest in psychoanalysis, that she became a patient of Freud in August 1918.

Major Accomplishments/Contributions

Helene attended the Hague Congress in September 1920, presenting her first paper as an analyst. She was deeply intrigued by Karl Abraham's writings on the female castration complex, and in early 1923, she left for Berlin to start analysis with Abraham and continue her training.

The next period in Helene's life became her most productive. She published her first book *Psychoanalysis of the Sexual Functions of Women* (1925). In it, she depicted the stages of female sexual development – infantile sexuality, puberty, sexual intercourse, pregnancy, childbirth, menopause – as coming full circle from mothering (a woman's own mother) to mothering. She was also a key figure in the founding of the Vienna Psychoanalytic Training Institute, which she headed with Freud's support for the next 10 years. Deutsch remained the Institute's most prominent teacher. By the time she fled from Vienna in 1934, Helene had left a significant body of work, including clinical papers, a psychohistory of George Sand (1928), and her second book *Psychoanalysis of the Neurosis* (1930), which became a standard teaching text.

Due to escalating anti-Semitism in Europe, as well as for personal reasons, the Deutsches moved to Boston, despite Freud's initial disapproval. Helene established a successful practice, taught at the Boston Psychoanalytic Society-Institute, and held a position at Stanley Cobb's psychiatric clinic at the Massachusetts General Hospital.

Helene Deutsch's most famous work *The Psychology of Women* was published in two volumes – *Youth and Motherhood*, in 1944 and 1945, respectively. After long years of work on topics as diverse as phobias, obsessions, depression, narcissism, "as if" personality, masochism, lesbianism, and anorexia, Helene Deutsch retired in 1963, influenced by her husband's deteriorating health. A major figure in the study of psychosomatics, Felix Deutsch died in 1964. Not succumbing to grief, Helene continued to work and published two more books – *Neuroses and Character Types* (1965) and *Selected Problems of Adolescence* (1967).

Deutsch's voluminous and novel work was received at the time with not only admiration, but also quite some antagonism as well. As a response to the 1950s "stay home and raise kids" propaganda for women, in which Deutsch's work was cited, feminists harshly criticized Helene for her ideas. In fact, her theories support the ideal of a passive and submissive woman only on a superficial reading. Many feminists failed to recognize the deeper implications of her work. Most relevant is her main deviance from Freud's theorizing – the suggestion that it is in fact the mother who remains of utmost importance throughout a woman's life.

In 1973, she wrote an autobiography dedicated to her late husband called *Confrontations with Myself: An Epilogue*. The book is entirely written in psychoanalytical terms, and for Deutsch represented a natural supplement to her main work *The Psychology of Women*, since so many of her advances in psychoanalysis were based on personal experiences and introspection. Helene Deutsch died on March 29, 1982, at the age of 97.

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Deutsch, Morton

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Basic Biographical Information

Morton Deutsch was born prematurely on February 4th 1920 to Charles and Ida Deustch in Bronx, New York. He was the youngest son in this middle-class Jewish family. His parents had immigrated to America from Poland. Deutsch skipped several grades in both elementary and high school, graduating at fifteen and entering the City

College of New York in Fall of 1935. He was initially premed, wanting to become a psychiatrist; however, he switched his major to psychology. After graduating from City College, he earned his Masters at the University of Pennsylvania, graduating in 1940. He then stated a rotating clinical internship at Letchworth Village, Warwick and Rockland State hospital, all in New York (Deutsch 1999; Frydenberg 2005).

After the bombing of Pearl Harbor, Morton Deutsch enlisted in the Air Force in January of 1942. Initially assigned to the psychological unit, he performed psychological assessments of aviation. Deutsch then trained as a navigator and flew combat missions eventually earning the Distinguish Flying Cross. After the war, Deutsch headed off to MIT to earn his PhD under Kurt Lewin. While at MIT, Deutsch met Lydia Shapiro whom he married in June of 1947 and had two sons, Nick and Tony (Deutsch 1999; Frydenberg 2005).

Major Accomplishments/Contributions

After graduating in 1948, Deutsch joined the Research Center for Human Rights at The New School. When the center moved to New York University, he joined the faculty, teaching there from 1949 to 1956. During 1952 – 1954, Morton Deutsch was a member of the Society for the Psychological Study of Social Issues Committee on Civil Rights. His work on interracial housing was an important part of the research used in the historic Brown vs. the Board of Education. In 1954, Morton started training as a psychoanalyst. He would work as a practicing psychoanalyst for nearly 30 years. After working briefly at Bell Telephone Laboratories, Deutsch accepted a position with Columbia University's Teachers College where he would teach, influencing many future psychologists, until beyond his retirement in 1990. In 1982, Deutsch was named the E.L. Thorndike Professor of Psychology and Education (Deutsch 1999; Frydenberg 2005).

In 1986, Deutsch founded the International Center for Cooperation and Conflict Resolution at Teachers College. The center was focused on cooperative learning and conflict resolution in schools. Deutsch and his team were awarded a contract with the New York City Board of Education to train high school staff in conflict resolution. The ICCCR continues to do conflict resolution training in schools as well as in the United Nations (Frydenberg 2005).

Morton Deutsch is considered to be one of the foremost scholars of conflict resolution and one of the founders of conflict resolution theory. In 2005, Columbia University's Teachers College established the annual Morton Deutsch Awards for Social Justice to honor a distinguished scholar-practitioner and an exemplary student paper on social justice. Additionally, courses on conflict resolution and mediation have become a part of the curriculum (Frydenberg 2005).

Deutsch has been recognized for lifetime achievement by numerous associations including the American Psychological Association (APA) which awarded him both the APA Distinguished Scientific Contribution Award and the Distinguished Research Scientist Award. He has also received the Kurt Lewin Memorial Award, the G.W. Allport Prize, and the Carl Hovland Memorial Award. Deutsch has also been President of the Society for the Psychological Study of Social Issues, the International Society of Political Psychology, and several divisions of the APA. Now in his 1990s, Deutsch is still involved with the ICCCR and continues to write and think about conflict resolution in a post-9/11 world (Frydenberg 2005).

See Also

- ▶ [Lewin, Kurt](#)
- ▶ [Social Psychology](#)

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Dewey, John

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Basic Biographical Information

John Dewey was an American philosopher, psychological and educational theorist, and public intellectual. He was born in Burlington, Vermont, on October 20, 1859,

and died in New York City on June 1, 1952. After receiving an A. B. from the University of Vermont, he taught high school for 2 years and then attended graduate school at Johns Hopkins University. He took courses from G. Stanley Hall, but his main interest was in German idealist philosophy. He subsequently wrote on Leibniz, Kant, Hegel, and Herbart, and retained a holistic perspective even after he abandoned idealism for experiential naturalism. Dewey was hired at the University of Michigan in 1884 and began teaching the basic psychology course. In 1887, he published *Psychology*, one of the first American textbooks on the subject.

Dewey became professor and chair of philosophy at the University of Minnesota in 1888 and returned to the University of Michigan as chair in 1889. He became chair at the University of Chicago in a philosophy department that included pedagogy and psychology. Among Dewey's colleagues were James Tufts, with whom he wrote on ethics, George Herbert Mead, with whom he shared an interest in social psychology, and James R. Angell, who became chair of the newly founded psychology department when Dewey left the University of Chicago in 1904. The department came to operate the university laboratory school and started a psychology laboratory, where the graduate student John B. Watson worked.

Major Accomplishments/Contributions

Dewey's influential 1897 paper, "The Concept of the Reflex Arc in Psychology," was a preemptive strike against reductionistic behaviorism. He advocated the concept of a circuit or coordination, later developed into a recursive feedback unit by George Miller. Dewey was recognized as a founder of functional psychology, whose early spokesperson was Angell. Dewey also became a founder, with Charles Pierce and William James, of pragmatism, a philosophy consistent with an evolutionary, scientific perspective.

Dewey was elected to leadership positions in psychology, philosophy, and pedagogy. He served as the eighth President of the American Psychological Association during 1899–1900. Dewey's (1900/1976) presidential address, "Psychology and Social Practice," remains a respected statement of psychology as an integrated science and profession. After Dewey moved to Columbia University in 1904, his direct involvement

in psychology declined, but he addressed APA on “The Need for Social Psychology” in 1917. Because Dewey had produced theories rather than positive facts, he had come to be viewed as one of philosophers that psychology had left behind.

Dewey’s (1922/1983) *Human Nature and Conduct: An Introduction to Social Psychology* provides the best overview of his mature psychology. It is more of a foundational text in personality than social psychology and offers a functionalist alternative to Freud’s psychodynamics. In it and his 1910 book for teachers, *How We Think*, he presented his theory of deliberation as mental simulation. Imagining possible actions and outcomes gives humans an adaptive advantage and moral responsibility for the future they help create. Dewey’s theory of inquiry as active reconstruction of knowledge was to influence Jean Piaget, Lev Vygotsky, and other constructivists. In his 1922 book, Dewey also presented his view of psychology as applied ethics, involving scientific knowledge about means-ends connections and development of interventions to change habits and character. His views influenced the personality theories and psychotherapies of Carl Rogers and George Kelley.

Later in life, Dewey increasingly became a public intellectual, honored on the cover of *Time* in 1928. He contributed regularly to *The New Republic*, supported progressive causes such as the depression-era People’s Lobby and the Committee for Cultural Freedom, which sought to keep religion out of public schools. He also was involved in founding the American Association for University Professors and the American Civil Liberties Union. Dewey was respected internationally for his educational theory and visited schools, lectured, and served as a consultant in Japan, China, Turkey, Mexico, and the Soviet Union. Despite his leftist position, he disavowed Stalinism and chaired the Commission in Mexico City investigating the assassination of Leon Trotsky.

There was renewed interest in Dewey’s ideas about progressive education and humanistic ethics in the 1960s and 1970s (for which televised fundamentalist preachers rail at him). A comprehensive biography of Dewey was published by Dykhuizen (1973). Likewise, his pragmatic philosophy, eclipsed by analytic philosophy in America, has been revived by Richard Rorty and others. Dewey’s role in the history of psychology has also received more attention (Barone 1996; Dalton 2002). His complete works have been published in

37 volumes by Southern Illinois University Press, and Southern Illinois University at Carbondale is the home of The Center for Dewey Studies. There are Dewey societies worldwide and Dewey international seminars in 1959 and 2009 commemorated the 100th and 150th anniversaries of his birth.

See Also

- ▶ Angell, James Rowland
- ▶ Hall, G. Stanley
- ▶ Mead, G. H.
- ▶ Rogers, Carl R.
- ▶ Watson, John Broadus

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Dodge, Raymond

DAVID C. DEVONIS

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Basic Biographical Information

Born: February 20, 1871; Died: April 8, 1942

Dodge attended Williams College (AB 1893) where he developed a deep interest in philosophical questions. He next went to Germany and, unlike most Americans who sought out either Wundt, Stumpf, or Müller, followed a recommendation of an American mentor and studied with Benno Erdmann at Halle. Erdmann came to the conclusion that Dodge, for various reasons, did not have the requisite skills to

become a distinguished philosopher. However, fortunately for psychology, Erdmann had other interests including the psychology of reading. He set Dodge, who had natural mechanical ability, the task of constructing apparatus to capture the process of eye movements during reading. Together Dodge and Erdmann developed an improved tachistoscope for isolating words in text, publishing the results of their studies in 1898 under the title *Psychologische Untersuchungen über das Lesen*, which incorporated the insight that, in reading, perception occurs only during fixations, not between them. Dodge continued to develop apparatus to measure eye movements, including a novel camera utilizing a falling photographic plate on which the eye movements were captured by a corneal reflection. This led to Dodge's most important scientific achievement: the exact measurement of saccadic eye movement (Dodge 1903). Thereafter, Dodge, over the next 30 years, studied all facets of eye movements and continued to construct sophisticated instrumentation which was essential to the development of eye tracking (Vicary 1999; Wade and Tatler 2005). Beyond this, Dodge developed, early in his career (e.g., Dodge 1902) a functional account of perception as a comprehensive set of relations between the eye, the organism, and the environment which anticipated later cognitive approaches to perception. Dodge, on his return to America, served briefly at Ursinus College in Pennsylvania and then moved to Wesleyan University in Connecticut, succeeding C. Hubbard Judd, who founded the laboratory there. Dodge was associated with Wesleyan for 26 years. There he was an effective teacher and mentor, and from that base he formed a wide network of contacts among the leaders of American experimental psychology. By 1903 he was counted, in Cattell's *American Men of Science*, as among the top 50 psychologists in the United States.

Major Achievements/Contributions

Dodge's scientific interests were broad and, beyond his pioneering work on vision during reading, on saccadic eye movements, and on compensatory eye movements and nystagmus, he also wrote on the philosophic and scientific underpinnings of the idea of human variability, whose sources he believed to lie in physiological processes ultimately occurring at the neural level (Dodge 1924; Dodge 1931). Dodge also collaborated with Francis

Gano Benedict on a series of studies of the psychological effects of alcohol (Dodge and Benedict 1915). While involved in this project Dodge had to absent himself from Wesleyan for a year between 1913 and 1914: his replacement, Walter Miles, became a close friend and emulated Dodge's precision and breadth of view. Dodge also was interested in the relation of psychology and psychopathology and contributed not only an early study of visual correlates of mental disease (Diefendorf and Dodge 1908) but also collaborated with the psychiatrist Eugen Kahn in an examination of the human craving for superiority (Dodge and Kahn 1931). Dodge, at heart a philosopher, wrote extensively on a comprehensive theory of psychology toward the end of his career. Mind, Dodge held, was the result of two incompatible elements, the external world of stimuli and the reactive, biological organism, engaged in a constant reciprocal reactive process which in his view never reached equilibrium during life. Analysis and synthesis are likewise incompatible but yet necessary for each other: as Dodge put it, "We know no wholes without parts – no parts without configuration" (Dodge 1934, p. 99). The organizing principle of the reactive interchange and part-whole relations, Dodge maintained, lies outside of these systems at a level best described as cosmic. Dodge was modest and preferred to let his scientific achievements speak for themselves. Nonetheless, he played an important role in the higher levels of leadership of nascent psychological science, serving as APA President in 1916 and then, in 1924, moving to Yale University where he contributed substantially to the establishment and structuring of the Yale Institute of Human Relations. At the end of his career, he revealed, in his autobiography (Dodge 1930) and in the last chapter of *Conditions and Consequences of Human Variability* (Dodge 1931), social meliorist and spiritual elements of his personality and thought which were ultimately his motivations toward science.

See Also

- ▶ Erdmann, Benno
- ▶ Miles, Walter R.

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Donders, F. C.

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F. C. Donders (1818–1889). Used by permission from the Digital Library, Royal Netherlands Academy of Arts and Sciences

Basic Biographical Information

The work of Dutch physiologist Franciscus Cornelius Donders was of great significance to early experimental psychology. Born in Tilburg, the Netherlands, on May 27, 1818, to a modest working-class family and identified early as a bright, energetic student, endearing to his teachers, he entered the University of Utrecht at the age of 17 for the study of medicine. At the same time, he became a student at the military hospital. He was awarded a medical degree in 1840 and became a military surgeon and health officer, working on hospital wards, conducting autopsies, and contributing papers to medical journals. His reputation as a brilliant medical officer landed him a position at the Military Medical School in Utrecht to lecture on physiology, anatomy, and histology (Bowman 1969).

In 1847, recognized for his outstanding abilities, Donders was named Professor Extraordinary at the University of Utrecht, which gave him the opportunity to select his own subjects for lecture and engage intensively in physiological research, particularly ophthalmology (Bowman 1969). In May 1888, on attaining his 70th year, he was obliged, by the rules of the University of Utrecht, to retire. He died in Utrecht on March 24, 1889.

Major Accomplishments/Contributions

By the mid-1850s, Donders was deeply immersed in various aspects of physiological research, notably optics and color sense, but also investigations of muscle sense and the physiology of vocalizations, areas of study that occupied him for more than 20 years. In 1862, he became the chair of the Department of Physiology at Utrecht and intensified his efforts with laboratory research with the collaboration of able students.

Europe of the mid-nineteenth century saw an acceleration of interest into what were fundamentally psychological topics, such as sensation, movement, judgment, and perception, conducted by physiologists like Donders and others, such as Hermann von Helmholtz, Gustav Fechner, and A. Hirsch (van Strien 1997). All this occurred more than 10 years before Wilhelm Wundt opened the first psychological laboratory at Leipzig University in Germany in 1879.

Donders' thinking was critically influenced by the new evolutionary theory of Charles Darwin and the laws of nature that governed human activity. He developed a close professional relationship with

Darwin, enthused by his 1859 *Origin of Species*, which led him to see the relationship between his work and the certain laws of the harmony in human life. Donders was particularly taken with the laws he termed *habit*, *exercise*, and *inheritance* (Bowman 1969), which he viewed from the perspective of the physiologist, as opposed to the naturalist. He firmly grasped how all life is governed by the continuous operation of organization, adaptation, and renovation (Bowman 1969).

It was in the middle years of the 1860s that the attention of Donders and his students turned to the laboratory investigation of the measurement of activity known as reaction time (RT). The good physiologist could rightly propose that mental action, like physical action, not only occurred in the context of time, but that it also could be measured by the new instruments at their disposal. For this purpose, the noematachograph and phonautograph were designed by Donders to determine the duration of mental activity (van Strien 1997).

Donders and his students measured RT in various stimulus and response aspects of experiments and found that the RT could be lengthened as the requirements of the task were made more complex for the subject. For example, “simple RT” was the time it took a subject to respond to a single stimulus, such as a flash of light. However, RT was lengthened when the subject had to choose between two or more stimuli, each with a different response. Donders called this the “complex RT.” He inferred from this situation that RT increased because additional mental operations were involved to make a correct response. The way to measure the length of time of the mental operations was one of Donders’ most important contributions to psychological theory of his time. This was the method of subtraction: complex RT minus simple RT yielded the duration of mental activity involved in the complex task. Donders named his theory based on the subtractive method “mental chronometry.”

Donders presented the first experimental results of mental chronometry at the 1865 meeting of the Dutch Royal Academy of Sciences in Amsterdam and published his results that same year in a Dutch journal (Koster 1969). The measurements were carried out with the assistance of his graduate students at Utrecht, notably Johan Jacob de Jaager, who subsequently was awarded his doctoral degree on the basis of his work conducted in Donders’ laboratory (Brozek and Sibinga 1970). Three years later, a major publication on the

laboratory work appeared in Dutch, French, and the more accessible German (Koster 1969). This summarized the large amount of measurements collected over the years and provided the theoretical and methodological bases for his mental chronometry (Koster 1969; Brozek and Sibinga 1970).

Later researchers credited Donders for his important experimental work and established the RT experiment as a cornerstone of laboratory research in sensory psychology in Europe and America (Boring 1950). The theory Donders proposed, however, as well as RT theories proposed by Wilhelm Wundt and others, came under criticism toward the end of the nineteenth century for their inherent theoretical and methodological flaws. For example, Donders proposed that as many as 12 separate and distinct mental activities intervened between a stimulus and a response, and Wundt proposed at least seven (Boring 1950; Brozek and Sibinga 1970). Unfortunately, as with all theories based on propositions of intervening mental activity for a reaction, there was no way to independently verify the proposed processes or measure them empirically. Methodologically, too, RT experiments were not free from considerable variation from subject to subject and from one day to the next for an individual subject. Such variation presented the problem of the validity and reliability of a “true” RT for any subject, especially as it may be used in comparison to other subjects. Nevertheless, the work of Donders stands as a noble attempt to understand human choice and decision making, because of the central importance of reaction time to learning, memory, attention, perception, and many other aspects of human activity (Koster 1969).

See Also

► [Wundt, Wilhelm](#)

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Downey, J. E.

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Basic Biographical Information

Born: July 13, 1875; Died: October 11, 1932

June Downey was the daughter of Evangeline and Col. Stephen Downey, a territorial delegate to the US Congress who was instrumental in the establishment of the University of Wyoming, from which she graduated in 1895 with a degree in Greek and Latin. Aesthetic and literary interests took her to the University of Chicago where, after publishing her first psychological article on group emotional impressions of piano music in the *American Journal of Psychology* in 1897, she obtained her A.M. in 1898 and returned to Wyoming to teach English and Philosophy (Hogan and Thompson 2003). She was drawn steadily toward experimental psychology, attending Cornell University for a summer session in 1901 and eventually, after publishing a volume of poems, *The Heavenly Dykes* (Downey 1904), returned to Chicago. There, sponsored by James Rowland Angell, she completed a thesis on control processes in handwriting for her Ph.D. in 1907. She then returned to Wyoming and, though she continued to maintain an interest in literature which resulted not only in further literary creations as well as several monographs on the psychology of poetry and the creative process, committed herself completely to a career in experimental psychology. In 1915, she became the head of a combined Department of Philosophy and Psychology: one of her undergraduate students from that time, John E. Anderson, became an eminent developmental psychologist and APA President in 1943.

Major Accomplishments/Contributions

Her experimental career consisted mainly in working out the relations of handwriting to two very typical period research subjects: motor behavior and individual differences. This culminated in her monograph *Graphology and the Psychology of Handwriting* (Downey 1919) and her creation, in the same year, of a test of personality based on handwriting, the Downey

Individual Will-Temperament Test. This test, later expanded into both individual and group versions (Downey 1922; Downey 1923), involved simple writing tasks (for instance, writing the phrase “United States of America”) under varying conditions. The trace evidence and timings of the process then were analyzed into several components which, Downey claimed, would reveal personality differences, especially as they related to processes of internal control (i.e., the will). These components were: speed of movement, freedom from load, flexibility, speed of decision, motor impulsion, self-confidence, noncompliance, finality of judgment, motor inhibition, interest in detail, coordination of impulses, and volitional preservation. Decision scores were calculated based on proofreading tasks involving searching and underlining materials in text. Self-confidence was based on emphatic double underlining, while “finality of judgment” was scored as a function of time taken in reconsideration of decisions. The Will-Temperament Test in both its original individual and later group versions was attractive in its simplicity but was criticized for its unreliability, which Downey acknowledged and which she was endeavoring to correct when she died. Her collaborator Richard Uhrbrock, at Wyoming for a short time in the 1920s, continued work both on the validation of the Will-Temperament Test and on other handwriting-related interests of Downey’s, including laterality of function, for a long time afterward. Downey wrote a book on basic psychology for schoolchildren, *The Kingdom of the Mind* (Downey 1927), which drew a favorable review from the British public health specialist G. A. Auden, W. H. Auden’s father. Her *Creative Imagination: Studies in the Psychology of Literature* (Downey 1929) is a good record of some little-known data relating to the measurement of aesthetic responses. One of her last contributions, to the first volume of the journal *Character and Personality* in 1932, was an inadvertently autobiographical comparison of her personal knowledge of her siblings – she was one of 10 children – and parents and their performances, estimated and actual, on a variety of personality measures (Downey 1932). All in all, her work was overshadowed by the many other competing approaches to personality that appeared during her later career and it has for the most part not survived, but her work should be of interest to those interested in psychological thinking which blended aesthetic as well as scientific interests.

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Dreikurs, Rudolph

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Basic Biography

Rudolph Dreikurs, an American psychiatrist and educator, was born in Vienna, Austria, on February 8, 1897. He completed his medical training at the University of Vienna in 1923 and began his medical career in Austria, before immigrating to the United States in 1937. Five years later, during World War II, Dreikurs began a 30-year career at the Chicago Medical School as

a professor of psychiatry. He also lectured in psychiatry at Loyola College from 1957 onward, and was a visiting professor at several other American universities as well as at colleges in Brazil and Israel.

Dreikurs was a student of the Austrian-born social psychologist Alfred Adler, who also immigrated to the United States in the 1930s; the two became close professional colleagues. Adler based his theories of individual psychology on the premise that people as social beings are primarily motivated by the need to be part of a social context and accepted by others. For both Adler and Dreikurs, the key to improving individual behavior and social relationships was encouragement. If it is supposed that individuals are in control of their actions, then positive support ought to be the most effective strategy for helping people make appropriate decisions about how to conduct themselves. By the time of Adler's death in 1939, Dreikurs was a leader in Adlerian circles. He continued to promote and expand Adler's work in individual psychology through lectures in colleges, prisons, and healthcare settings.

Rudolf Dreikurs founded the Society of Individual Psychology of Rio de Janeiro in 1937, was a founding member of the American Psychological Society in 1952 and the International Association of Individual Psychology in 1954, and served as the editor of the *American Journal of Individual Psychology* from 1952 to 1956. As Viktor Frankl put it, "What Adler achieved and accomplished was no less than a Copernican switch." But just as Copernicus needed Galileo to convey the meaning and significance of his revolutionary discovery to the world, so Adler needed Dreikurs to carry out the same function.

In 1943, Dreikurs married Sadie Ellis Garland (1900–1996), an art therapist. The two worked together on Dreikurs's writing and teaching, as well as traveling together to open psychiatric clinics and conduct hospital-training programs. In her own work, Sadie "Tee" Dreikurs began to apply Adlerian principles to the practice of art therapy.

In 1952, Dreikurs founded the Alfred Adler Institute in Chicago, now called the Adler School of Professional Psychology. As part of the organization's mission, Adlerian training programs were established across the United States and Canada. At the Adler School, Sadie "Tee" Dreikurs created one of the first

art therapy training programs in the country, and her student, Judy Sutherland, became the director of the Adler School's Master of Arts in Counseling Psychology: Art Therapy program, which has become one of the school's most successful endeavors.

The Adler School curricula continue to apply Adler's theories and methods to developing social responsibility and solving social problems, including those of marginalized and underserved populations. In Chicago, Dreikurs also established the first Adlerian Child Guidance Center, where he trained counselors from many countries; these professionals have continued his work by creating Adlerian-Dreikursian Family Centers around the world. After Dreikurs died on May 25, 1972, the Adler School's Rudolf and Sadie "Tee" Dreikurs Psychological Services Center was established in 1973 to deliver comprehensive mental health services to the Chicago community through its clinics, and off-site in prisons, businesses, schools, and other settings.

Accomplishments

Among the 30-plus books and articles that Dreikurs published, the most famous were *Children: The Challenge* written with Vicki Soltz and first published in 1964, and *Parents' Guide to Child Discipline*, written with Loren Grey and first published in 1968. As a psychiatrist, educator, and theorist, Dreikurs primarily focused on the behavior of preadolescents. He strongly believed that children (as well as adults) choose how to behave in a given social situation based on their personal interpretation of that situation. Because such interpretation is subjective, it is readily influenced by biases or mistaken information, leading children to make inappropriate behavioral choices. Misbehavior, therefore, can be characterized as a child's mistaken assumptions about how to meet the needs for belonging, significance, and acceptance in a social setting. Dreikurs believed that, when children feel socially isolated or insignificant, they resort to behavior driven by four mistaken goals: attention, power, revenge, and avoidance. The misbehavior – attention-seeking in nature – begins when children do not receive the attention they need, regardless of whether their conduct is bad or good. When such children feel ignored, they look to gain power or take control by defying authority. If children lose a power

struggle, they seek revenge, and when revenge fails to bring about the desired outcome, they begin to feel inadequate and give up.

Dreikurs developed effective techniques for teachers and parents to respond to a child's behavior when it becomes subverted toward mistaken goals. First, adults identify the mistaken goal(s) by noting their own response to the misbehavior and observing the child. For example, attention-seeking children tend to annoy parents and teachers, while children vying for control leave adults feeling abused or embarrassed; revenge-seeking children tend to make others feel hurt; and children who give up and avoid the situation leave others feeling ineffective. The adult then explains the mistaken goal(s) to the child, because giving the child the chance to understand, assess, and adjust his or her conduct is effective, whereas discipline is not.

When children's misbehavior is aimed at the mistaken goal of control, Dreikurs recommended that adults avoid power struggles. Dreikurs also recommended thwarting a child's revenge-seeking behavior by setting up a situation in which the child could demonstrate his or her abilities and experience a sense of belonging and significance. Furthermore, he suggested that a child who presents a sense of inadequacy should be encouraged and supported for even the smallest effort.

Dreikurs understood that if children are made to feel like valuable contributors to the family – and to the classroom as an extension of the family – they will behave appropriately and cooperate without the need for discipline. Teachers and parents can shape social environments to foster good behavior, providing children through positive settings with the feeling of belonging that they need and the opportunity to display their knowledge and skills. Children then realize that contributing to the good of the group also contributes to their feelings of significance and acceptance. In the classroom, Dreikurs refers to this as “democratic teaching.”

Dreikurs did not believe in discipline, punishment, reinforcement, or praise. Rather, he felt that encouraging children unconditionally was the most effective way to prevent the feelings of discouragement from which misbehavior emerges and to provide children, as social beings, with the approval they seek regardless of their level of success. Dreikurs also considered that logical

and natural consequences are the most effective way for children to experience the effects of their behavioral choices. Logical consequences are reasonable requirements that follow a particular behavior and require children to correct what they did wrong. Thus, students who do not finish their work during class must finish the assignment for homework. Natural consequences are set in motion by the misbehavior itself. For instance, students who are not prepared to give an assigned oral report when the teacher calls on them suffer sufficient embarrassment without the need for further discipline or punishment.

As a close colleague of Alfred Adler, Dreikurs continued Adler's work on individual psychology by developing a practical methodology for evaluating misbehavior in preadolescents and using encouragement to foster appropriate behavior in the family and the classroom. Adlerian parent education aims to give children the skills and tools they need to approach life constructively and positively, as well as the means to avoid traps and manage the difficulties that life presents. The approach supports parents by providing them with practical tools to understand and manage children's behavior.

Dreikurs also built on Adler's work by developing strategies and techniques for applying the theory of individual psychology to counseling, psychotherapy, family education, and classroom settings. He is perhaps best known for simplifying Adler's theories so that parents and educators could use them in school and at home.

See Also

► [Adler, Alfred](#)

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Dunlap, Knight

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Basic Biographical Information

Born: November 21, 1875; Died: August 14, 1949

Dunlap was a native Californian, born in Diamond Spring, El Dorado County, in placer country. His undergraduate education he gained at Berkeley: There he was inspired to a career in psychology by a person whose eclecticism Dunlap carried forward, George M. Stratton. After completing his graduate work at Harvard with Münsterberg in 1903, Dunlap – whose earliest publications were in philosophy – taught at California until 1906 and then moved to Johns Hopkins University, where he lasted through the time of James Mark Baldwin and John B. Watson until 1936, when he moved to the University of California at Los Angeles. There he chaired the Department until his retirement in 1946.

Major Accomplishments/Contributions

He played a visible and central role in the development of psychology as an academic and professional discipline: he was President of the American Psychological Association in 1922, contributed to the efforts of Howard C. Warren and others on terminological standardization, and established the *Journal of Comparative Psychology*, as well as devising an important modification to chronoscope design incorporating a synchronous electric motor instead of a spring (Perera 1999). Kate Gordon Moore, who held the chairpersonship at UCLA between the death of Shepard Ivory Franz in 1933 and Dunlap's appointment in 1936, reiterated. In her obituary of Dunlap (Moore 1949), his programmatic statement of his theoretical activity in psychology. This included attacking introspection, replacement of introspection with response and reaction (while accepting consciousness as a necessary correlate), attacking images and treating ideas as real objects, adoption of peripheralism rather than brain theory, elimination of "instinct" as a psychological concept, and revision of concepts of heredity. This gives more structure and direction to what was a ceaseless shifting

activity across all of these areas of psychology, in many of which Dunlap was a part of a larger chorus (for instance, in emphasizing response and motor-based theories of consciousness over old-fashioned introspection or in arguing against the instinct concept). What really distinguished Dunlap from his contemporaries who strove to establish a scientific psychology was his drive toward iconoclasm which led him into some blind alleys but also to several formulations that sometimes approximated or anticipated later more successful ones. In learning theory, for instance, he advanced a view that emphasized the importance of pattern recognition which presaged later views of perceptual learning (Dunlap 1926b). In the same field, his counterintuitive theory of negative practice contained the germ of other later formulations. Negative practice, as Dunlap described it (Dunlap 1942) involved performing an action that was to be removed from the repertoire in the same fashion and under the same conditions as it would ordinarily be performed, while substituting different thoughts and motivational content. This implication of consciousness in the learning process probably had some influence on later theories of learning emphasizing cognition or expectation, especially when translated into more conventional S-R terminology, for instance by Dunlap's student O. Hobart Mowrer. Dunlap had a complex relation with eugenics: he came close to the hereditarian fire but didn't get burned. On the one hand he published a theory relating personal beauty to racial betterment (Dunlap 1920b), delivering his first remarks on this at Lynchburg, Virginia at the beginning of the sterilization era, and carried forward the racial vocabulary of his time in his social psychology (Dunlap 1926a). On the other, he is credited (Zenderland 1998) for laying to rest the one-sided hereditarianism typified by Goddard's Kallikaks (Dunlap 1940) and was ahead of his time in considering the effects that population increases might have on social behavior. Bluff and mercurial and apparently as independent and contrarian a person as much of his written output suggests, he was ever ready with suggestions for anyone about everything from making coffee to women's skirt lengths (Dunlap 1928) to the role of athletics in academic life (Dunlap 1929b) to driving etiquette: his diary of his trip to Europe and the Levant in 1929 is worth reading not only for its insights into the fine texture of

a psychologist's life but also his character (Dunlap 1929a). At Hopkins, he took on the Quixotic task, as chair of a faculty task force in 1934, of trying to eliminate football (he succeeded in removing the admission charge to games.) Dunlap campaigned strenuously – remarkably he didn't include it in his programmatic statement – against “mysticism” in psychology (e.g., Dunlap 1920a). Yet he published, with Robert Gill, an editor at Williams and Wilkins publishers in Baltimore, *The Dramatic Personality of Jesus* (Dunlap and Gill 1933), a takeoff on the highly successful characterization of Jesus as salesman by Bruce Barton from 1925, *The Man Nobody Knows*. Dunlap later wrote a long treatise on the psychology of religion which incorporated his views on survival of bodily death (Dunlap 1946). One additional irony can be noted in the relation between Dunlap and Evelyn Hooker, a colleague at UCLA. Dunlap considered homosexuality a bad habit ripe for modification (Dunlap 1932). Yet it was Dunlap who accepted Hooker as a graduate student at Hopkins in 1930 when she had been rejected at Yale because of her gender. And, while he felt he could not appoint another woman to the UCLA faculty in 1939 as he already had three, he found her a position as a research assistant and an extension instructor which led to her long career there and ultimately to her pioneering work that made homosexuality a legitimate subject for scientific study and contributed substantially to its social acceptance.

See Also

► [Watson, John Broadus](#)

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Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered

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Dynamic theories of personality generally posit the reality of the unconscious, and are considered dynamic because they involve some explanation of how psychic energy is transformed as it passes back and forth between the waking rational everyday state of consciousness and the unconscious within the interior life of the individual (Taylor 2009). Laboratory experimentalists acknowledge only the reality of the rational waking state. This is the point where a person's inward reality interfaces with external material reality through pleasurable and painful attachment of the senses to objects or other people in the outer world. Historically, for the reductionists into operational definitions and

measurement, science is based on the rational ordering of sense data alone, excluding emotion and intuition in their methods, the product of which is then overgeneralized to all of reality. Consequently, scientific psychology has always been in crisis about phenomena that cannot be directly measured. To avoid this problem, experimentalists simply claim that there is no such thing as an unconscious. Behaviorists from Pavlov around 1900 to Watson commencing in 1913, followed by Skinner in 1938, all took this position. Investigators in the 1920s around John Sears, Saul Rosenzweig, and David Shakow, and then later figures such as John Dollard and Neal Miller, tried to launch various enterprises to measure psychoanalytic concepts. But they were the exception rather than the rule in the academy. Behaviorism, which had declared itself a reductionistic and positivistic science, had decreed that whatever it was, if could not be measured, it was not science. Freud was to remain to this day unscientific in the minds of such experimental purists.

Meanwhile, the clinical tradition was erroneously called applied psychology by the experimentalists who believed that only they represented pure science, dating from G. Stanley Hall's introduction of the term "applied" in the *American Journal of Psychology* in 1888. This view was further cemented by the experimentalists' claim that Lightner Witmer, a student of Wilhelm Wundt and James McKeen Cattell, was the Father of Clinical Psychology, by which Witmer only meant school psychology, as he had openly attacked James and the Emmanuel Movement for their psychodynamic fantasies (O'Donnell 1979). In reality, however, the clinical tradition in American psychology had its genesis in the French tradition of bedside teaching, which evolved into the French Experimental Psychology of the Subconscious (Taylor 2000a). This was the investigation of the interior life using hypnosis, suggestion, and dissociation theory as a way to understand fugue states, somnambulism, double consciousness, hysteria, and multiple personality.

Dissociation and Multiple Personality Along Charcot's Axis

Charcot rehabilitated hypnosis before the French Academy of Sciences in 1881, which ushered in an unprecedented era of depth psychology (Ellenberger 1970). He demonstrated that using suggestion on subjects

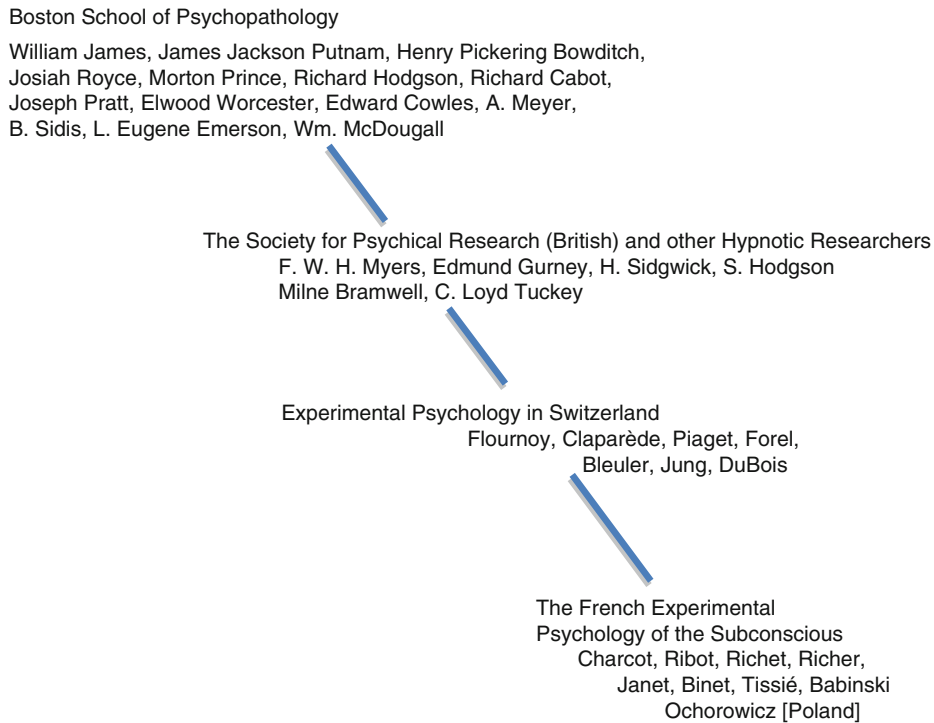
while entranced and by the implanting of post-hypnotic suggestion, he was able to induce the symptoms of hysteria such as paralysis, syncope, and choking in normal subjects. Meanwhile, in hysterics, while entranced, he could suggest the same symptoms away, though they would return on coming to. His disciple, Pierre Janet, would soon develop this into the psychogenic hypothesis – that both physical and psychological symptoms emanated from an idea buried in the subconscious. Psychogenesis could explain traumatic experiences that could not be assimilated into the waking life of the person that for various reasons were cast into the subconscious as dissociated phenomena. There, they would operate according to laws of their own, attracting other unassimilated experiences and appropriating their memory in the form of psychic energy, causing generalized states of anxiety. When this energy reached a critical mass, it could burst forth into the field of waking consciousness as a physical symptom or even appear in the form of an apparently independent personality.

Originally, Charcot claimed that hypnosis had identifiable physical stages of lethargy, catalepsy, and somnambulism, and that hypersuggestibility was an extreme symptom of psychopathology that ceased upon recovery. Hippolyte Bernheim, a young physician at the Nancy School of Medicine, objected, however, and maintained instead that these claims about the identifiable physical stages of hypnosis were not true and that suggestibility was not a pathological phenomenon but an extension of normal suggestion. Further, it was Burnheim who developed the idea that psychogenesis could be applied to the diagnosis and treatment of what came to be known as the ambulatory psychoneuroses in his work *Suggestive Therapeutics* (1880). As Henri Ellenberger (1970) has stated, the continued rift between the Salpetriere and the Nancy schools brought the issues of dynamic psychology to international attention, attracting psychopathologists in the USA, psychical researchers from England, experimental psychologists from Switzerland, and a raft of investigators from Europe, Scandanavia, the Netherlands, Russia, Italy, and Poland, including Josef Breuer and Sigmund Freud in Vienna.

It became an era of hysteria and multiple personality that was dominated by the dissociation model of

consciousness. Dissociation theory was the standard explanation in dynamic psychology that explained everything from the forgetting of memories from moment to moment to full blown cases of fugue, somnambulism, and multiple personality. The general tenor of these scientific investigations led to the conclusion that we do not live perpetually in just one state of consciousness – the normal everyday waking state – but that personality is actually made up of plurality of states of consciousness. F.W.H. Myers, eminent psychical researcher in England, even posited that these interior states arrange themselves in a spectrum ranging from the psychopathic, at the dissolutive end, to the transcendent, at the higher, evolutive end, with waking consciousness occurring somewhere in the middle, its function being the biological survival of the physical organism in the external material environment. This evolutionary development permits the person to experience all these other states, each of which, William James said, has its own field of application and adaptation.

Further, the era was dominated by the emergence of a cross-cultural comparative psychology of subconscious states. Insofar as the physiological psychologists of the previous era made their scientific advances by experimenting on the nervous system of the frog, and the behaviorists followed after 1913 with their experiments on the white rat, the most renowned of the dissociation theorists each focused on a single case study that was either a case of multiple personality or a medium. The case provided by William James was that of the clairvoyant Mrs. Lenora Piper; the case presented by Morton Prince was that of Sally Beachamp, an example of multiple personality; the case presented by Boris Sidis was that of Rev. Thomas Hannah, who had experienced a succession of fugue states leading to complete loss of memory as to his personal identity. The case presented by Theodore Flournoy in Geneva was that of the psychic Helene Smith. For F.W.H. Myers in England, it was the medium Stainton Moses and also the case of Lucy Goodrich-Freer. The case presented by the young psychiatrist Carl Jung in Zurich was that of the medium Helene Preiswerk; and from Pierre Janet in Paris, there was the case of Leonie, a hypersuggestible hysteric, among others (Fig. 1).



Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 1 Charcot's Axis: A loose-knit consortium of French, Swiss, English, and American psychotherapeutic investigators (1882–1920)

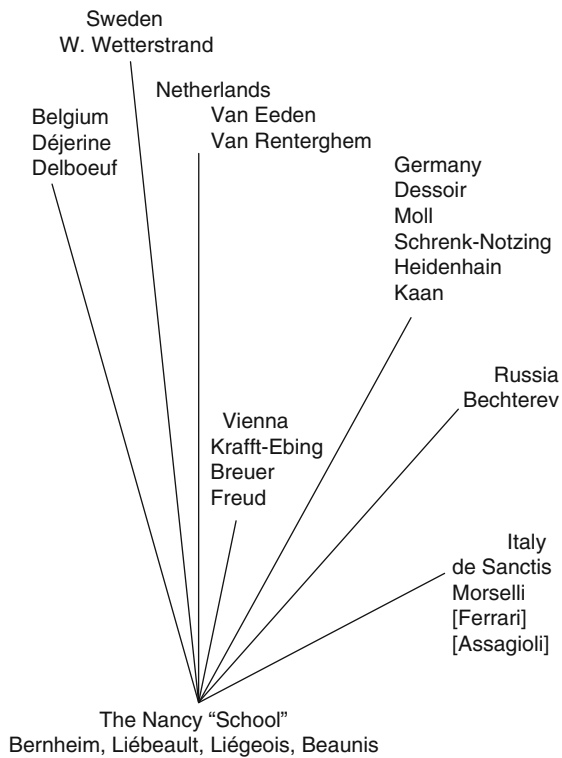
Charcot's School

Emphasizing Charcot's view, the biologist Alfred Binet soon became Charcot's primary exponent for the idea that physiological symptoms of such disorders as hysteria had their origin not in a lesion in the brain but in an idea held in the subconscious. The energy accrued by "the buried idea" then often erupted into waking consciousness, expressed indirectly and symbolically as a physical or mental symptom. Through hypnosis one could then alter or banish the buried idea, which would have an effect on alleviating a symptom that appeared in waking consciousness. It was left to Charcot's pupil Pierre Janet to decide the activity of the buried idea, which had split off from waking rational consciousness to float around in the subconscious acting according to laws of its own (Janet 1899). The more energy that accrued to the primary image, the more energetic power built up into what became known as a subconscious complex, out of which symptoms might arise (Janet 1894). This was psychogenesis.

The Bernheim School

Following the earlier teaching of the country physician A.A. Liebeault, whose *Sleep and Analogous States* had awakened the attention of even William James back in 1868 (James 1868), as we have said, Bernheim took the position that the hypersuggestibility of the hysteric state was not a distinct pathological condition unto itself. Rather, it was an extension of normal suggestibility. Ellenberger (1970) notes that Charcot and Bernheim argued back and forth in a public debate that elevated dynamic psychotherapy to international attention. This drew adherents to both sides and further served to spread these new ideas widely among professionals, although, in the end, history suggests that the so-called Bernheim school more or less gained the upper hand in the argument and after 1889 Charcot's view began to fade. With it, reputations such as that of Alfred Binet, who had so ardently defended Charcot, followed.

Figure 2 is an overly simplistic rendering of the debate between Charcot and Bernheim, as it was taken up in Europe and elsewhere. The main point to



Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 2 The Bernheim "school" of psychotherapy in Europe (1885–1899)

note is that there was more of an organized consortium of ideas around Charcot and Janet along the so-called French-Swiss-English-American psychotherapeutic axis than there was among European, Nordic, and Russian investigators such that, according to Ellenberger (1978), Janet probably found his greatest following in Boston. There certainly was communication going on between the investigators in Europe and elsewhere, but it does not appear as organized as what we have called the Axis of Charcot.

The Axis of Charcot had several defining characteristics depending on which theorist spoke to different aspects of the psychogenic hypothesis and what their own theoretical persuasion was regarding the nature and scope of consciousness. In general, several ideas prevailed. The first and most common was that all psychological phenomena were interpreted according to the model of dissociated states, from the common case of forgetting what you had for lunch on Tuesday of last week to the full blown identification.

A second characteristic, articulated most clearly by William James (1890) in his article "The Hidden Self," published in *Scribner's Magazine* and later developed into his metaphysical position of noetic pluralism, was that the basis of personality was that of a plurality of selves, not just one (Fig. 2).

Rationalist conceptions of the person are of necessity monistic, however, because the rationalist sees only from the vantage point of the single state in which they find themselves. Big science is a case in point. Big science defines itself by the rational ordering of sense data alone, and anything deviating from it is considered not science. In this case, the scientist is limited to experience in that one state only without knowledge and experience of other states. For the scientist, such states just do not exist. This turns out to be an extremely important point that William James made 100 years ago, when he said that experimental psychology was nothing more than a colossal elaboration of the ego, and as I point out here, the situation has remained fixed for almost a century. This situation was not the case within the context of the early dynamic theories of personality, which appear to have had conceptualizations that are just now entering the psychological lexicon around resilience, spirituality, mindfulness in psychotherapy, the mind/body effect, and, in the case of Existential-Humanistic and Transpersonal psychology, transcendent states of consciousness.

A third characteristic of the era, originally put forward by F.W.H. Myers and the British psychical researchers, was the idea that consciousness did not refer to waking rational consciousness alone, but also encompassed a spectrum of interior states ranging from the psychopathic to the transcendent, with waking consciousness being somewhere in the middle, its primary function being the survival of the physical organism in the external environment so that the person could experience these other state of consciousness, which somewhere had their own field of application and adaptation. The lower order condition enveloped dissolutive states, such as those seen in true personality disintegration, while the higher states above waking rational consciousness were evolutive in nature, expressed as states of higher and superior intelligence, representing the direction human evolution was heading for in the future. In this vein, psychic abilities would

naturally appear as guides of signposts along the way as a benchmark of progress toward higher states of spiritual self-realization.

Not everyone agreed with this model. Pierre Janet in France and Morton Prince in the USA did not posit any growth-oriented dimension in their own dynamic theories of personality. But William James clearly made that commitment in his 1896 Lowell lectures on *Exceptional Mental States* (Taylor 2010). In his chapter on “Multiple Personality,” he demonstrated that some of the cases of dual personality revealed the emergence of a superior person, who took on the primary identity for the rest of that individual’s life.

In any event, the dissociation model and its attendant sequelae persisted into the twentieth century, but were eventually displaced by dynamic models of the unconscious around the theories of psychoanalysis.

Freud and the Freudians

The late nineteenth century can be defined as the era of multiple personality against a backdrop of multiple states of consciousness, largely dominated by the so-called French Experimental Psychology of the Subconscious. Freud, who had already been introduced to hypnosis by Breuer and to “the talking cure” by Breuer’s patient Anna O., travelled to both Paris and to Nancy for a brief period and translated several of the volumes of Charcot and also Bernheim into German, thus appropriating all that was contained in the French theories, which he applied to his own purposes. Freud had broken with Breuer after publishing their “Preliminary Communication on the Nature of Hysterical Phenomena” in the *Neurologische Centralblatt* in 1893 and their coauthored book *Studies on Hysteria* in 1895. After Breuer, Freud took up a correspondence with Wilhelm Fleiss, an eye, ear, nose, and throat specialist, discussing cases and numerous theoretical points, such as the inherent bisexuality of all human beings and the erectile nature of nasal tissue. But Freud’s father died in 1896 and he descended into what Ellenberger called a period of creative illness, in which he struggled to define his own identity. He continued to write about the anxiety neuroses, only indirectly alluding to the French point of view. These were the years of some deep self-reflection and what he called his quiet isolation. Then in 1899, he emerged with a new method of free association, which he called

for the first time psychoanalysis. At the same time, he produced the *Interpretation of Dreams* (Freud 1900), the germ of his later full blown theory of personality. In that work, he presented a dynamic model of the unconscious, based upon the idea that dreams were a doorway into the unconscious, and their symbolism revealed that dream imagery was based on wish fulfillment, usually traced back to some sexually related episode from one’s childhood, mixed with immediate memories of the present day. He also introduced there his theory of the Oedipus Complex, where a young son of age 5 or 6, recognizing his own identity, wants to displace the father from the parents’ bed and become one with the mother. The father reasserts his position as the dominant figure in the relationship to the mother and ousts the boy from the marital bed by threatening to castrate him. The boy flees in abject fear but comes to accept that arrangement. The farther is then free to take the boy and introduce him to the world of the masculine. In this way, the proper psychosexual relations are established for the boy over the rest of his life, and he is free to go out and find a mate who is like his beloved mother. It was a monumental self-analysis on Freud’s part, based on an investigation of his own dreams.

Forming a Wednesday evening study group of devoted young Jewish followers, Freud closed out his correspondence with Fleiss and, in the context of presenting cases in this group, which later became known as the Vienna Psychoanalytic Society, he continued to see patients and to publish more books, first *The Psychopathology of Everyday Life* (1901), then *Jokes and Their Relation to the Unconscious* (1905), and then *Three Essays on the Theory of Sexuality* (1905). In these works, he elaborated on the dynamic principles of the unconscious as he interpreted that term, and also enumerated his theory of the psychosexual stages of development in young children – oral, anal, phallic, a latency period, and genital – as well as writing on the perversions. He invited such figures as Alfred Adler to join his group in 1903, and did likewise with Jung, after Jung first wrote to him in 1906 and paid a visit, accompanied by Ludwig Binswanger, to Vienna in 1907 (McGuire 1988).

Jung quickly became Freud’s heir apparent to the psychoanalytic throne, principally because he was a Swiss Protestant and a not a Viennese Jew as Freud’s

immediate disciples were. Jung's ascent, Freud did not attempt to hide, proved to the world that psychoanalysis was not just a Jewish science. But all was not right in Freud's circle, as defectors began to leave the fold, largely on theoretical grounds. First there was Wilhelm Stekel, then there was Adler, and then, by 1913, Jung himself. In 1914, Freud published *A History of the Psychoanalytic Movement*, writing Stekel, Adler, and Jung out of the picture. At the same time, behind the scenes to his disciples Freud began to convince them that Jung was an anti-Semite.

After 1914, Freud began to produce what he called his papers on metapsychology, meaning his speculations regarding the significance of psychoanalysis for understanding culture at large. His most important reformulation at this time was that, in addition to Eros as the basis personality and the sublimation of the sex instinct into the building of civilization, because of the carnage of World War I, he now posited the existence of Thanatos, the death instinct. This was quite disconcerting to his followers, as they had built their own formulations around the primacy of sexuality, now having to rewrite their understanding to more accurately reflect the new formulations of The Master. The important point was that up until then, Freud's formulations had been drawn directly from case studies, while these papers were metapsychological precisely because they were speculations not based on case histories. *Beyond the Pleasure Principle* (1920), *The Ego and the Id* (1923), *Civilization and Its Discontents* (1930), and *Moses and Monotheism* (1937) were such productions.

Though unscientific in a clinical sense, they created an international focus on Freud's writings to the point where psychoanalysis came to dominate public perceptions of psychology and psychiatry and for some 50 years it came to dominate the definition of clinical teaching in the helping professions, at least until the community psychiatry movement and the separate advent of psychedelics in the 1960s.

During the 1920s, Freud continued to elaborate on his model of personality in terms of the id, the ego, and the superego, while his emphasis had been more on the id in the early part of his career. He now began to pay more attention to the development and adaptation of the ego. His daughter Anna assisted him in this regard, as she began to write extensively on child

psychoanalysis and to also elaborate on her father's theory of defense mechanisms (Freud 1936). This was also a period that marked the founding of the various psychoanalytic institutes in Berlin, London, Budapest, and elsewhere, each one vying for the title of which was the most dedicated to preserving the purity of Freud's teachings. The New York Psychoanalytic Institute had been founded in 1913, but the Boston and Chicago institutes were not organized until the early 1930s. Each was created as an independent entity free from the controls of the local medical schools and universities. The institutes served to preserve the teachings and set the professional standards for training analysts, and they functioned under the aegis of national and international organizations that had all been launched central to Freud. At the same time three separate tributaries began to flow restructuring psychoanalysis as Freud aged and finally passed from the scene in 1939.

The Object Relations School

Freud fled Vienna for London when the Nazis arrested his daughter Anna in 1938, but then released her. He only lived a year longer, but Anna Freud succeeded him as an important carrier of the direct lineage. She was joined in this regard by Ernest Jones, Freud's later biographer and owner of Sigmund Freud's publishing business, and also James and Alex Strachy, who produced the Standard Edition of Freud's Collected Works in English. Marie Bonaparte, who had introduced psychoanalysis into France, was their constant visitor. At the same time, Anna Freud had to compete with Melanie Kline (1932), who had already established her own psychoanalytic school in England and attracted numerous followers. Around her constellated such figures as D.W. Winnicott (1958), R.D. Laing (1960), Wilfred Bion (1952), Masud Khan (1974), and John Bowlby (1969), who were influential in developing what came to be known as object relations theory. The focus was no longer on the id, but on the ego's extension to objects – the mother's breast, the favorite childhood toy, significant individuals toward whom the baby “cathected.” While it developed mainly in England, the British psychoanalytic scene was further complicated by such events as Jung's lectures to the Tavistock Clinic in 1935, which tended to produce hybrid kinds of psychoanalysis thereafter (Jung 1968).

The Psychoanalytic Ego Psychologists

The expansion of psychoanalysis beyond Freud's original writings produced a greater emphasis on the person in terms of both ego functioning in the external material world as well as social relationships. For Freud, the sexual instincts focused on the pleasure principle, while the ego instincts focused on the reality principle, a formulation Freud beached early in his writings but did not really develop until the late 1920s, in which he delineated a more robust ego carrying out the executive functions and able to control instead of merely reacting to the impulses of the id. Out of his writings during this period, psychoanalytic ego-psychology developed. Freud's chief interpreters in this regard were, of course, Anna Freud, but also Heinz Hartmann, whose formulations presented a psychoanalytic picture of the normal personality and characterized ways to apply the method in clinical as well as educational settings (Hartmann 1958); David Rapaport, Hungarian psychoanalyst who was director of research at the Menninger Foundation before moving on to the Austin Riggs Center (Rapaport 1951); Ernst Kris, Austrian psychoanalyst and art historian (Kris 1952); and Rudolph Loewenstein, Polish and French-American psychoanalyst influential in the International Psychoanalytic Association (1982). Most eminent among the ego-psychologists, however, was Erik Erikson (Erikson 1968), who extended psychoanalytic thinking out into culture and who had a particularly daunting influence on cultural anthropologists such as Ruth Benedict, Margaret Mead, and others.

The Post-modern Freudians

Post-modernism is inextricably bound up with modern definitions of human science and the method of hermeneutics, traditionally understood as originally a form of Biblical interpretation from the nineteenth century, which evolved as a more secular philosophy through writers such as William Dilthey and the then existential phenomenologists, but which has in our own time also become associated with European and Marxist social movements, particularly from the Frankfurt School (Messer et al. 1988)). Politically, the voices of the Frankfurt School were generally critical of the Western rational tradition and the control of institutions of culture by the bourgeois mentality and its

ruling elites, defined by the radical feminists as controlled mainly by men. Lately, it has come to be a vehicle for the proliferation of an ideology that fuses race, class, and gender, limited to a radical feminist interpretation of Freud. Personality is most often defined in this line of thinking, not by internal psychodynamics, but by external social forces.

Martin Heidegger, Jurgen Habermas, Jacques Lacan, Jacques Derrida, Simone de Beauvoir, Herbert Marcuse, and Michele Foucault are but a few names who became some of the most important voices of post-modernism emanating from the tradition of European social criticism, some of whom wrote specifically on depth psychology as a fulcrum for social revolution. The extent to which post-modernism has penetrated into traditional psychology can be seen in such works as Messer, Sass, and Woolfolk (1988).

Possibly the most influential post-modernist was Herbert Marcuse, German-Jewish socialist, philosopher, and social critic, called "The Father of the New Left," who fused Marx and Freud in his widely read text, *Eros and Civilization* (1955). Drawing heavily on Freud's *Civilization and Its Discontents*, Marcuse reviewed the struggle of the id, which represents the pleasure principle, to continually express itself in the face of repression demanded by the reality principle in order for civilization to progress. It is the battle between freedom and restraint, where freedom must be sacrificed in the name of the common good, a process that defines the person in modern society, each in an individual way. While a certain amount of sublimation is necessary, there is such an overabundance of it demanded of the person in the modern industrial age that mental psychopathology is the result, particularly with regard to gratification of the sexual impulses. Using Marxian social theory, Marcuse describes a Utopian society of the future in which civilization is allowed to progress while also promoting Eros, the sexual liberation of individuals and therefore of society, which would also transform the relation between men and women. While links between psychoanalysis and Marxism formed back in the 1920s, Marcuse's ideas had particular appeal to a segment of the counterculture revolutionaries of the 1960s, especially among the radical feminists. In this way depth psychology became a tool for the advancement of political ideology.

Another influential example of the post-modern criticism of psychology from the standpoint of Freudian psychoanalysis has been the controversial work of Jacques Lacan, French physician, psychoanalyst, linguist, and leader of the “Back to Freud” movement. Born in Paris in 1901 and raised in a Catholic environment, Lacan came to question the value of his religion by the time he attended a Jesuit college. He entered medical school at age 26 and also became interested in Hegel’s phenomenology and the existential phenomenology of Karl Jaspers and Martin Heidegger. He was also influenced by Rudolph Loewenstein, who later became one of the prime movers of psychoanalytic ego-psychology with Ernst Kris and David Rapaport. Lacan undertook a lengthy didactic analysis with Loewenstein, which likely accounts for the overemphasis on the ego in Lacan’s theories.

Lacan’s early contribution to the psychoanalytic literature outlined what he called the mirror phase in Freud’s theory of the psychosexual development of the child. The “mirror phase” was that moment when the child, from somewhere around 6 months onward, first recognizes that he or she is an independent entity from other human beings, whereas before, the child was an undifferentiated organism dependent on the mother. From then on, the person must contend with the socialization imposed upon the individual, which Lacan interprets more broadly than Freud, implying that the free expression of the instincts of the id must give way to socialization by the growing ego in light of pressure from the superego. Lacan interpreted this process as one of castration for both males and females, and as such was the inevitable outcome of resolving the Oedipus phase of psychosexual development.

Though he was a member of the International Psychoanalytic Association, and the prestigious *Société Psychoanalytique de Paris*, the more orthodox psychoanalysts largely ignored him, though his reputation grew in French circles particularly among the surrealists. Among his acquaintances were Andre Breton, Salvador Dali, and Pablo Picasso, thus reinforcing his subscription to a neo-Romantic view of psychopathology. He was a member of various psychoanalytic study groups, while he carried on his own weekly seminars at the teaching hospital where he first received his medical training. These seminars went on for over 60 years and became the platform from which he tested his

theoretical ideas. Here he declared that psychoanalysts needed to return to Freud’s original texts and undertake a more refined examination of the language of psychoanalysis, particularly with regard to symptomatology. All healing, he said, takes place in conversation with The Other. Within the person, this is a conversation between the person and his or her own unconscious. In therapy, it was the discourse between patient and therapist, and in the world at large it is the basis for the successful interaction of the individual with the society.

Though his ideas eventually had a profound influence on modern French culture, the majority of his career was spent in open disagreement with his more traditional psychoanalytic colleagues, finally to the point that he was dismissed from their various societies, his response to which was to form societies of his own. He advocated, for instance, deviating from the standard psychoanalytic hour of 55 min, arguing instead for however much time was needed in any particular session. He also maintained that penis envy was not just a female’s reaction to what she lacked as compared to the boy, lending supremacy of the boy and not the girl in Freud’s theories. Lacan widened the concept to include the larger domain of the phallus, that the original overidentification with the mother was more than just the boy’s desire for sexual gratification with the most loved one, but the masculine impulse writ large on the resolution of the Oedipus conflict and the establishment of the primal law according to the father, which was then enshrined in the sublimated products that define all of society. As a result, Lacan’s ideas came to appeal to the radical left, again particularly among the feminists. *Ecrits* (1966), a collection of his weekly seminars and conference presentations over the years, became his main works, only parts of which have been translated into English. A text particularly germane to the language of depth psychology has been Lacan’s *The Language of the Self: The Function of Language in Psychoanalysis*, originally published in 1966 (Lacan 1968).

The Neo-Freudians

Less orthodox than the purists who followed Freud’s writings exclusively, but certainly of tremendous historical influence, were the Neo-Freudians around Harry Stack Sullivan (1953), Clara Thompson (1950),

Karen Horney (1937; 1942), and Erich Fromm (1941; 1956). Their domain was primarily in the USA, where they analyzed each others' cases together in local speakeasys, and wrote books that became the first popular best sellers in the psychoanalytic literature. Sullivan worked primarily with schizophrenics, particularly adolescent boys, while his main lines of connection to psychoanalysis were through Clara Thompson, whom he sent abroad to be analyzed by Sandor Ferenczi. Horney had been associated with the Berlin Psychoanalytic Institute under Franz Alexander and involved in an amorous relationship with Erick Fromm, whom she invited to follow her when she immigrated to the USA. She became a primary spokesperson for a completely new psychoanalytic view of women quite different from Freud's original conceptions of penis envy and the Electra Complex, and for such liberties was eventually pushed out of traditional psychoanalytic circles. Undaunted, she started her own institute. Eventually, such lights as Rollo May were drawn into their neo-Freudian circle. Meanwhile, Fromm became a major interpreter of why mass population so easily falls under the sway of authoritarian personalities, which he captured in such best-selling works as *Escape from Freedom* (1941). His psychoanalytic interpretation of human relationships, *The Art of Loving* (1956), also another best seller, was on the bookshelf of nearly every modern American teenage girl whether she had read it or not (Fig. 3).

Horney's books, such as *The Neurotic Personality of Our Time* and *Self Analysis*, drew wide attention, as did Rollo May's *The Meaning of Anxiety*.

While psychoanalysis came to control clinical teaching in psychology and psychiatry for over a quarter of a century in the USA and contributed to major developments in psychosomatic medicine from the 1930s onward, by the 1960s it had played itself out as a major force due to the advent of the community psychiatry movement, the widespread use of psychedelics among artists and savants in the counterculture, and the explosive development of the pharmaceutical treatment of mental illness. Finally, in the 1980s, a class action suit was brought by Ph.D. psychologists against the psychoanalytic institutes that were controlled exclusively by physicians. The psychologists won the right to enter the training programs, and so they founded their own institutes, where psychoanalysis

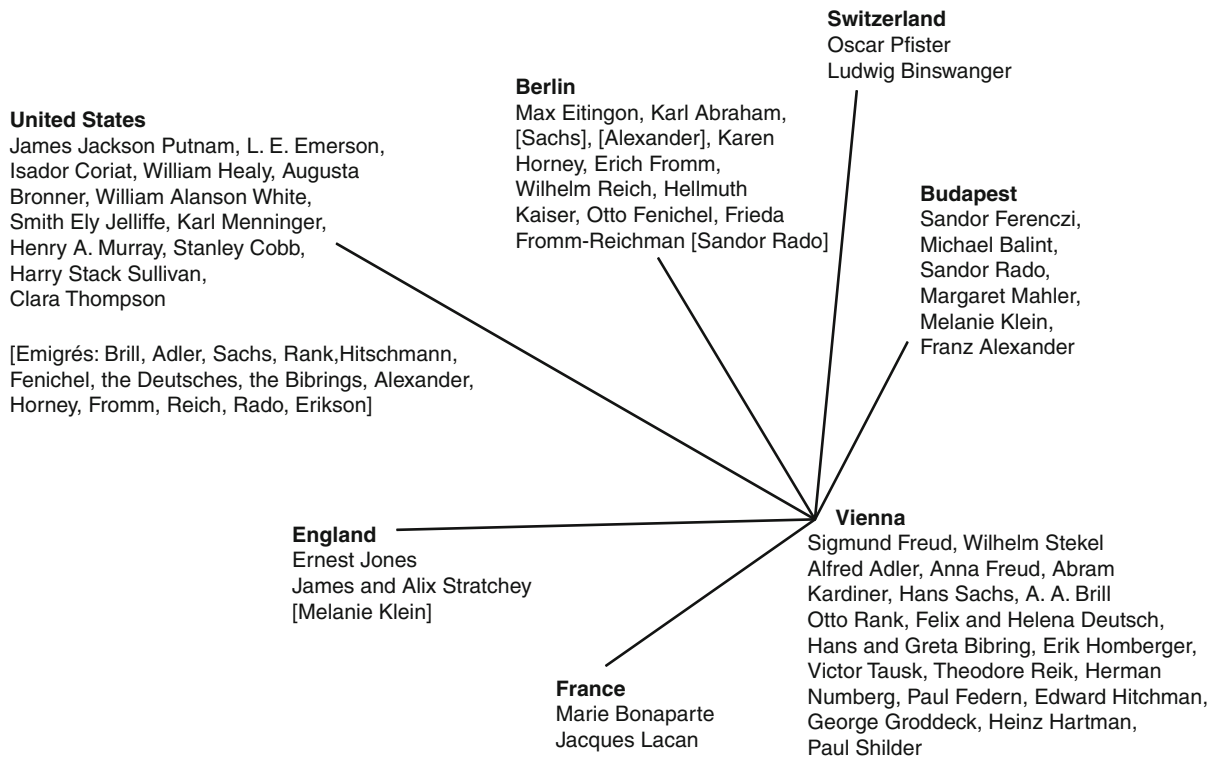
continues to proliferate today but with greatly diminished cultural influence. The core of the Freudian empire had been set by 1939, in any case (see Fig. 4).

Adler's *Menschenkenntnis*

Alfred Adler (1870–1937), Viennese physician and founder of Individual Psychology, proclaimed loudly to Abraham Maslow in 1934 that he had never been a student of Freud's. Jung said the same thing, but the *Encyclopedia Britannica*, Ernest Jones, and most of the Freudians who followed Freud have continued to say otherwise. There is no doubt, however, that Adler's Individual Psychology is nothing like Freud's psychoanalysis or Jung's complex psychology. For himself, Adler focused on *menschenkenntnis*, the intuitive, practical understanding of human beings in their natural and social context, and the ways in which the individual developed with regard to social feeling (*gemeinschaftsgefühl*). As a result, his theories had a completely different life of their own than any of the other depth psychologies.

Adler was born outside Vienna in 1870, the second child in a family of six children. He seems to have been closer to his father, a grain merchant, than to his mother. He also had an antagonistic relationship with his only older brother. Early schooling was unremarkable. His training in medical school taught him to pay attention to the patient as a whole, and that the emotional disposition of the physician had also to be taken into account. He joined the student socialist movement and became an advocate for reforms. In this circle, he met his future wife. Here he also absorbed a certain amount of Marxist philosophy that influenced his later work on the influence of environmental and economic factors on personality. He became interested in the common man. He received the MD in 1895, was married in 1897, and his first child arrived in 1898. The same year, his first book appeared, *Health Manual for the Tailoring Trade*. In 1902, he also began publishing in a newly launched medical journal, in which he was the main contributor.

He began his medical practice in a lower-middle-class section of Vienna, next to a well-known amusement park. There, he served a mixed clientele of professionals, waiters, acrobats, and artists, and there he first began to understand the weaknesses of apparently strong people – that their strengths often grew out



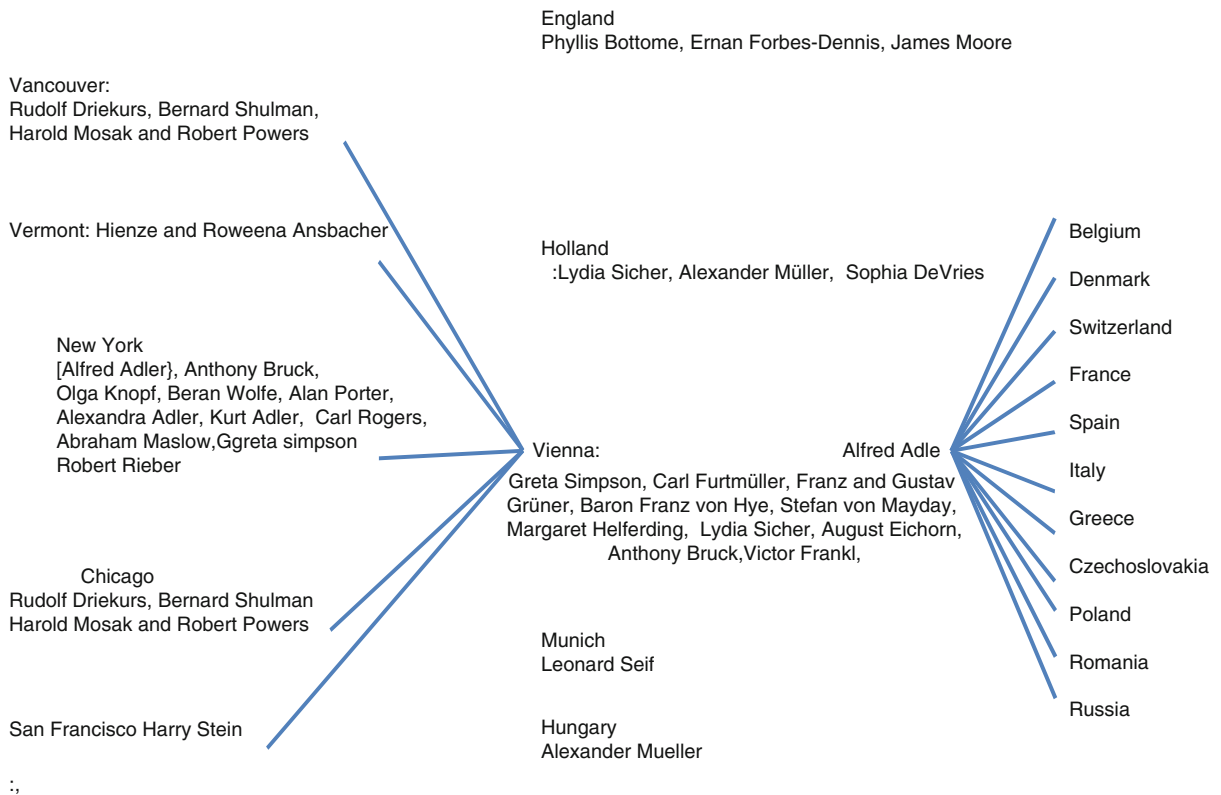
Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 3 The Freudian empire: 1913–1939

of their compensation for their inferiorities. He became particularly adroit at both diagnosis and treatment. He also studied his own children and developed theories of education and child guidance.

Adler first encountered Freud in 1902 by reading his work, which had immediately engendered opposition from the established medical community. Without having actually met the author, Adler defended Freud's right to a fair hearing in print on two occasions, one of which was a response to *The Interpretation of Dreams*. Adler also adapted Freud's methods to his own independent ends, as he would do throughout the course of their relationship. He had already been reading Charcot and Janet when he heard Freud lecture for the first time in 1899. In 1901, Freud invited him to discuss his ideas before his Wednesday evening circle. Adler joined in 1902, but never saw himself as an acolyte or disciple. Freud nonetheless maneuvered things to make him stay, which he did for 9 years. Adler not only began to advocate for psychoanalysis, a term that meant something much more general at that time than today, he

also published several works on the subject. But these works were a continuation of his own ideas. In a break with the ethnic identification of psychoanalysis with Judaism, for instance, he converted to Protestantism in 1904, demonstrating ideological commitments beyond the Freudian circle. By then, in his writings he had already established the idea of organ inferiority, the ideas of the pampered child, self-confidence and courage, and a complete theory of education.

In 1907, Adler published an influential monograph, *Studie über Minderwertigkeit von Organen*, translated into English as *Studies of Organ Inferiority* (1917). In it, he put forth the idea that all mental inferiority stems from organ inferiority, which the individual deals with either through denial or compensation. Freud thought it an important contribution to psychoanalysis and hence began the idea of the inferiority complex, attributed to Freud, but originated by Adler. Despite the fact that Adler was 14 years younger than Freud, each absorbed much from the other, which Adler's followers later meticulously tried to catalog. Adler proposed



Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 4 Adler and his world: 1910–1939+

a separate aggressive drive, for instance, which Freud rejected at the time, but later embraced after Adler had left the fold. Adler first defined the inferiority complex, which later authors attributed to Freud, and so on. The list is long. He was one of the original four who first constituted Freud's circle and was a member of the inner group until 1911.

At the same time, working on his own ideas, Adler turned out to be mainly a listener, which annoyed the Jewish analysts following Freud, and he often took contentious positions toward what was being discussed, so he was not popular to begin with. Thus, he could not identify with their general feelings of persecution, either as Jews or psychoanalysts. It was always Freud who was the bridge builder. Adler thought the drives to be very important, but he did not assign sexuality the valence that Freud did.

In 1927, *Menschenkenntnis* appeared, translated into English as *Understanding Human Nature*. It was a major summary of his dynamic theory, in that it was

not so much a preconceived theory as an intuitive characterization of personality, which could be reached by anyone putting any thought into the subject. The character of the individual in normal adult life, he said there, is already laid down within the first 4 years and changes very little from that time. The study of children is therefore recommended as the place to start in understanding human nature. If you want to change the behavior patterns in maturity, then start with those laid down in earliest childhood. From there we are led to pedagogy and the wider field of education if we want to understand the science of human nature.

Adler believed that empathy comes through having lived through psychic crises, not from reading books. What one should look for was the unique core of the person, the soul. From the very beginning, Adler made use of the soul as a referent to the individual. From this we see that the psychic organ is always goal oriented. It demonstrates purposiveness teleology. Life is

a preparation always for some future situation. In this way the soul is always associated with movement.

The soul that cannot withstand the pressures of survival on its own necessarily joins the herd for increased protection. This leads to the communal life because man, unlike other animals, cannot exist by himself in nature. Weak animals never live in solitude. Instead, one is surrounded by layers of protection, from help during childbirth, to protection in the first few days of life, to avoiding the vagaries that beset the survival of children in the early years. Inferiority and insecurity are thus built into the individual's constitution. Desire, will, understanding, and speech have all grown up to assist the person who is inferior in nature to adapt to the communal life. Legal codes, totems and taboos, education, and laws all then become necessary in regulating this relationship. Adaptation to the community is the most important function of the individual soul.

Every type has a meaning only when we understand its relationship to its environment. The soul is born in early childhood in those situations whose function is to make normal life possible. The different types of individuals begin in this early period. The goal is maximum satisfaction of the instincts with the least possible friction. Similarly, reflections of the environment are to be found in the behavior of every child. Creative education can always come out of striving to accommodate one's inferiorities. It begins with organ inferiority and proceeds to psychological, and then sociological weaknesses.

The sense organs are the first to show these tendencies to adaptation. Usually a child overemphasizes one or the other of them and through compensation develops a repertoire of identifiable traits to his or her personality. Sense organs lead to perceptions and to the creation of memory and imagination.

Fantasy is yet another creative activity of the soul, always concerned with the future. The striving for power often plays a dominant role. This also implies a goal, usually one involving social recognition and significance. It is well developed in the weak that use it to deprecate reality and elevate themselves to a fictional level in their own imagination.

Thus the main outlines of his theory were laid out. The unique expression of the soul begins to flourish in the recognition of organ inferiority, which generalizes

to psychological and sociological adjustments and the paramount importance of social striving.

Adler's influence as a physician who had his own unique theory of personality and educator of young children was considerable. Adlerian schools sprang up all over Europe, England, and the Netherlands while he lived in Vienna. His disciples, such as Lydia Sichar, Leonard Seif, Alexander Müller, Sophie DeVries, who remain to this day largely unknown pioneered in his methods and spread his teachings, which were more about the development of human nature as a whole rather than specifically focused all the time on the treatment of psychopathology. In the USA, his most ardent followers became Heinz and Rowena Ansbacher. His children, who became credentialed analysts in their own right, also participated in founding various Adlerian centers in the USA, particularly in New York and Chicago.

Adler's approach also had a large influence on the early founders of Existential and Humanistic psychology. Victor Frankl who was actually not a Freudian but an Adlerian, was inspired to develop logotherapy after his exposure to Adler's ideas and the terrible effects of his own concentration camp experiences. Rollo May, rather than exposure to Freud, took a seminar with Adler in Vienna at a particularly important period of self-formation in his life and only read Freud's works later under the influence of Paul Tillich. Maslow was a constant visitor to Adler's salons in New York City once Adler had moved there. Adler's ideas, much like Rank's, had an intuitive side to them that made such theorists sometimes sound almost existential in tone. In any case, their influence is consistently underrated by historians of psychology.

Jung's Complex Psychology

Carl Gustav Jung, Swiss psychiatrist who spent almost his entire career in Freud's shadow but who really came from a radically different tradition (Taylor 1996), was still possibly the second best well-known promulgator of a dynamic theory of personality in the Western world. He was born into a relatively well off family where the father was an ordained Protestant minister who was appointed by the Church to minister to the patients of a local insane asylum, so his library was full of books on theology and psychiatry. Jung's mother was from a well-to-do Swiss family and was a woman who

believed she had the gift of second sight. Indeed, the trait seemed to run through many of the women on her side of the family. She knew all about the world's religions and used to recite stories about them as Carl Jung grew up. Intelligent and well educated enough, he struggled personally with a range of philosophical conundrums that characterized the age – What was the relation of science to religion? Was there a God and if so what was his relation to the church? And what about ideas in the life of the mind that seemed to be foundational to getting along in the world, but could be easily overpowered by strange visions and dreams that periodically overwhelmed him? What was this alternative inner world? It seemed to divide him from himself, so that there were two Jungs, the one within, which he came to call the Spirit of the Depths, and the one without, which he called the Spirit of the Times, each vying for supremacy. He kept a record of these inner events, as they would subsequently shape the course of his own life work.

From then on, he lived as two distinct personalities. One was drawn to science and reason, while the other was deeply grounded in the emotional, the intuitive, the archaic, and the mythological. He thought there might be some way to unite the two, but he was not sure how. For his medical dissertation, he took up the scientific study of occult phenomena from a psychological point of view. Later, his *Red Book* (Jung 2009), constructed between 1913 and 1928, was a chronicle of a man who had lost his soul and who had set out to find it again, hidden somewhere in the realms of the heavens and the hells within. He was successful, and the text of that journey, *The Red Book* (Jung 2009), became the blueprint for the psychology that constituted his life work from then on. Out of it would come his central formulations of the archetypes, inherited brain stem structures that were mythopoetic and visionary in nature, and the collective unconscious, a substrate common to all human beings that linked the psyche of the individual to the primordial history of human consciousness.

But before all that, he attended medical school at the University of Zurich, specializing in psychiatry, and then became an assistant physician under Eugen Bleuler at the Bürgholzli Asylum. There he worked with psychotic patients, and among other accomplishments devised the association test, a psychophysiological

measure of a patient's unconscious complexes. For this, he established a budding international reputation and was introduced to American psychological and psychiatric audiences in 1905 to wide attention. Eventually, after publishing his psychiatric researches and a book on *The Psychology of Dementia Praecox* in 1907, Jung established a relationship with Sigmund Freud for a 13 year period in which Jung believed he was working as a younger collaborator, while Freud took Jung as his junior disciple. Their relationship was complicated as both switched roles often in a kind of *folie a deux*, soaring to the heights in which Jung was announced as Freud's heir apparent to the psychoanalytic throne, and then coming down for a crashing finale, in which Freud dismissed Jung for contradicting The Master in print on the basic nature of psychic energy. Freud could tolerate any kind of heretical debate in private among his followers, but publication of *Wandlungen und Symbole der Libido* (1911) in Freud's own psychoanalytic literature was just too much. Freud subsequently wrote Jung out of the history of the psychoanalytic movement, and circulated the idea among his followers that Jung was an anti-Semite.

Jung's response was to retreat within his own interior life in which he entered into a state of creative isolation for 6 years, during which he experienced dreams and visions that he privately recorded and which formed the blueprint for the entire system of his later psychology. He was a man who had lost his soul during the years with Freud, and in these tumultuous times that followed he struggled to find it again within his interior life. His success was reflected in the unique psychology he articulated, founded on narrative methods of comparative symbolism.

He employed dream interpretation in order to initiate a dialogue between consciousness and the unconscious within the person, the end product of which was individuation by means of the transcendent function – the coming to selfhood, where the ego cedes control of personality to the Self, which then is able to mature under the direction of emerging spiritual values. He also developed the technique of active imagination – the intentional evocation of trance images in the waking state – and employed such devices as the Oriental mandala and other artistic productions, believing that “often the hands know how to solve a riddle with which the intellect struggles in vain.”

Throughout, he continued to analyze his students and his patients and to write prolifically on the subject of personal transformation in world cultures. His quest after composing *The Red Book* was to link the primitive psyche to the psyche of modern men and women, which he felt he accomplished with his extensive studies on alchemical symbolism, the motifs of which he set out to chronicle in the world's religions and the mythologies unique to each culture.

Jung's Circle

Jung drew around himself a significant group of individuals who wrote about his ideas, many of whom became practicing analysts themselves, demonstrating his platform was radically different from that of Freud.

Aniela Jaffé (1903–1991) was Jung's longtime private secretary, who cowrote *Memories, Dreams, Reflections* (1963), Jung's alleged autobiography. From a German-Jewish family, she fled the Nazis in 1933 before she could complete her doctorate in psychology from the University of Hamburg. She immigrated to Switzerland, where she underwent an analysis with Liliame Frey and then Jung himself. She was first secretary of the Jung Institute when it opened in 1948, and she became Jung's private secretary in 1955 until his death in 1961. She carried on an active analytic practice, although not formally credentialed, edited several works of Jung's with others, wrote *The Myth of Meaning* (1970), and with C. G. Jung wrote *Word and Image* (1979).

Jolande Jacobi (1890–1973) of Hungarian-Jewish descent met Jung in the early 1920s when he came to one of her salons, held in her apartment, which was a meeting place for writers and artists in the early 1920s. Beginning in 1934, she studied psychology under Charlotte and Karl Bühler at the University of Vienna, where she eventually received her degree, commuting to Zurich in order to be analyzed by Jung. She was instrumental in the founding of the Jung Institute in Zurich and endowing a foundation that collected paintings from many analysts from around the world. She was a prodigious writer of articles and books, among them *The Psychology of C. G. Jung* (1942) and *Complex/Archetype/Symbol* (1959), and was one of the coauthors of *Man and His Symbols* (1964) with Jung.

Barbara Hannah (1891–1986) was born in Brighton, England. Her father was a bishop in the

Anglican Church. She was in different ways, according to Kirsch, sometimes as close to Jung as Jolande Jacobi. She was reserved and aloof, described as the archetypal English spinster, reminding one sometimes of the witch in *Hansel and Gretel*. Even she declared that Jung had softened her aggressive masculine impulses, says Kirsch. She went to Zurich to study with Jung after reading his essay "Women in Europe" (1927). Jung put her to work, which eventually turned into an analysis, and afterward she engaged in extensive writing and teaching. She wrote numerous books but is perhaps best known for her biography of Jung, a work lauded by some Jung scholars as still the best rendering of the maestro (Hannah 1976).

Franz Riklin (1909–1969) was a Swiss physician whose father was also a psychiatrist, while his mother was Jung's cousin. Riklin coauthored *Studies in Word Association* in 1904 with Jung, was analyzed by Jung, did his psychiatric training at the Bùrgholzli, and ran his own private analytic practice while he taught at the Jung Institute for 25 years. It was he who organized the *festschrift* on Jung's 80th birthday. He was also a leading figure in the founding of the International Association for Analytic Psychology.

Helton Goodwin "Peter" Baynes (1882–1943) was a British physician and an early analyst of Jung. He was Jung's assistant in Zurich and organized Jung's trip to Africa in 1925. He spent a year in Northern California in 1928, where he met Joseph Henderson and encouraged him into Jungian analysis. Before the *Collected Works*, Baynes translated various volumes of Jung's works into English, among them *Psychological Types* (1921a) and *Contributions to Analytical Psychology* (1928a), and in collaboration with his third wife, Cary Baynes, *Two Essays on Analytical Psychology* (1928). He also wrote two books of his own, *Mythology of the Soul* (1940) and *Germany Possessed* (1941). Cary Baynes, herself, also later translated the *I Ching* (1968) from German to English and was co-translator of Jung's *Modern Man in Search of a Soul* (1959b). In Kirsch's opinion (2000), Peter Baynes was known as an effective and dynamic interpreter of Jung's ideas.

Gerhard Adler (1904–1988), of German-Jewish origin, was analyzed by James Kirsch, Thomas Kirsch's father, in 1929 in Berlin, and from 1931 to 1934, by Jung. Adler earned the Ph.D. in psychology and afterward immigrated to England with his wife in 1935.

He was the author of *Studies in Analytical Psychology* (1948) and *The Living Symbol* (1961), a case study of a Jungian analysis. Adler was close with Jung for almost 30 years, coeditor with Aniela Jaffé of a two-volume set of Jung's published letters and member of the editorial board of Jung's *Collected Works*.

Michael Fordham (1905–1995) Kirsch (2000) dubbed one of the most creative first generation analysts after Jung and the undisputed leader of Analytical Psychology in England for over 50 years. He studied medicine and physiology at Cambridge University, was analyzed by H. G. Baynes, a family friend, and then went to Zurich, but was unable to arrange an analysis with Jung. He returned to England and resumed with Baynes, then, with Jung's permission, switched to Hilda Kirsch, Thomas Kirsch's mother, as her first analytic patient. When he developed an erotic transference toward her, she invited him to dinner to meet her husband, which immediately solved that problem. He was analyzed by her from 1936 to 1940, he said, to good effect, after which she abruptly had to terminate on immigrating to the USA in 1940.

Peter Baynes had used Fordham's analysis and artistic drawings in *Mythology of the Soul*, concluding erroneously there that he was a schizophrenic. As a child psychiatrist, Fordham was influenced by Melanie Kline. Jung, who did not see children in analysis himself, believed that one need only analyze the unconscious of the parent to cure the neuroses of the patient's child. Meanwhile, Fordham developed analytic theory around the nature of the child itself as a way to understand its psychic development in *The Life of Childhood* (1944). He was responsible for the mixing of Analytical Psychology with object relations theory in England, although he considered himself a Jungian to the end.

Carl Alfred Meier (1905–1995) was originally Jung's "crown prince." Born in 1905 in the same town where Emma Jung was from, Meier met Jung as a young boy. He graduated from the University of Zürich, interned at the Bùrgholzi, and then underwent an analysis with Jung in the late 1920s. He was secretary of the International Medical Society for Psychotherapy the last 6 months of Jung's tenure as president, trying to rescue psychotherapy from the Nazis. Kirsch thought he was the most important male figure around Jung, who was otherwise surrounded by women. He inherited Jung's

patients, succeeded him as professor at the Swiss Technical Institute in Zürich, and generally acted as his right-hand man for almost 30 years. Interested in the relation between quantum physics and Analytical Psychology, he was a close friend to Wolfgang Pauli and edited the Jung-Pauli correspondence. Meier wrote numerous books interpreting Jung's theories. They fell out with each other in 1957, however, and thereafter he withdrew from Analytical Psychology. He died in 1995.

There were numerous others. James and Hilde Kirsch founded the Analytical Psychology Club in Los Angeles. Sir Laurens van der Post was a friend and biographer of Jung's. Joseph Wheelright and his wife, Jane, founded the Jung Institute in San Francisco and shaped its early training program. Ann Ulanov teaches at the Union Theological Seminary and writes on Jung in the context of Christian spirituality. Edwin Eidinger, a Yale MD, who trained at the New York Institute, was known for his book *Ego and Archetype: Individuation and the Religious Function of the Psyche* (1972). Christopher Whitmont trained in New York, but was also a homeopathic physician.

Similarly, June Singer has written on Jung and William Blake and was instrumental in the transpersonal interpretation of Jung. Jean Shinoda Bolen and Clarissa Pinkola Estés have both written best sellers from a Jungian perspective. Joseph Cambrey, Linda Carter, Claire Douglas, John Beebe, Andrew Samuels, Murray Stein, A. Guggenbuhl-Craig, and Hester Solomon have been contemporary key figures in the International Association of Analytical Psychology, the official credentialing body of Jungian analysts (Cambrey et al.).

At the same time, local organizations have flourished even though in the beginning they had no official status. Among them, Ruth Thacker Frye launched the C. G. Jung Educational Center in Houston, Texas, in 1958 with Jung's blessing and influenced Carolyn Fay and others to support it. It is now a fully fledged society and an accredited training program in Analytical Psychology, most recently guided by James Hollis.

Eisendrath's Three Schools

The Cambridge Companion to Jung, edited by Polly Young-Eisendrath and Terrance Dawson (1997), identifies three schools of contemporary Jungian thought: the lineage around the Jung Institute in Zurich,

a breakaway line led by Marie Louise von Franz, and then those who are the followers of James Hillman.

The Jung Institute of Zürich was first founded in 1948 around those who were closest to Jung. After Jung died in 1961 and this generation themselves aged and began passing from the scene, new, younger personalities began to emerge. James Hillman was one, and Adolf Guggenbuhl-Craig another. Hillman, who had become director of training, had a falling out with the institute over an affair he had carried on that involved the civil courts. Half wanted him to go and the other half wanted him to stay. Guggenbuhl Craig, who held the key position on the Curatorium, which oversaw the institute, put changes in place that were not popular, such as the inauguration of training courses in Jungian group therapy that many of the older analysts, such as Marie-Louise von Franz, believed deviated too much from the process of individuation in the person, which was Jung's primary focus. As a result, several of the older analysts left the institute to form their own separate training group.

Marie Louise von Franz (1915–1998) was German born and later became a Swiss citizen. She met Jung when she was 18 on a class trip. In exchange for analytic sessions, which she could not then afford, she translated Latin and Greek alchemical texts for Jung, which he needed at the time. She completed her Ph.D. in classical philology in 1943 and wrote thereafter on fairy tales. She was active in founding the Jung Institute and attracted a large following to her lectures and seminars over the years. While remaining close to Jung, she moved in with Barbara Hannah and they lived together for decades, devoted to Jung's cause. She became Jung's primary interpreter internationally and opposed divergences such as those of Michael Fordham. She founded her own independent Jungian Institute in Zürich in the 1980s. At the time of her death, Thomas Kirsch mentions that she was working on the texts of a Shiite alchemical mystic.

James Hillman (1926–), an American from New Jersey, went to Zürich to study with Jung and ended up earning a Ph.D. from the University of Zürich as well as becoming a credentialed analyst. According to Kirsch, he entered private practice in Zürich and became director of studies at the Jung Institute there. He resigned in 1969 over the affair previously mentioned, which had by then developed into an

international incident. Hillman remained in Zürich until 1978 and then immigrated to Dallas, Texas, where he taught at the University of Dallas, which had a doctoral program at the time in phenomenological psychology under Robert Sardello and Robert Romanyshyn. Later, he (Fig. 5) settled in Thompson, Connecticut, as an internationally noted author and lecturer, affiliated at a distance with Pacifica, a doctoral program in Santa Barbara, California, which is devoted to training graduate students in depth psychology.

He was the main motivating force behind Spring Publications and launched *Spring*, a journal devoted to Analytical Psychology, now published by Nancy Kater. His main focus after leaving analytic practice has been to elaborate on the diseases of cultural consciousness, by way of what he calls archetypal psychology, a “therapy of ideas” (Hillman 2004).

Psychoanalysis at Harvard

Standard histories of personality theory tend to focus on the experimental analysis of the person, which, after the post-1900 era of character and temperament, commenced in the 1920s with the measurement of traits within the context of behavior (Allport 1922). No more prime example can be found than the early work of Gordon Allport, then under the direct influence of his brother Floyd at Harvard, although once Allport came in contact with Henry A. Murray an amazing transformation began to happen with regard to Allport's previous interest in Gestalt psychology and Murray's newer focus on a dynamic psychology of the unconscious. At Harvard, Allport (1937) would represent the normal personality, while Murray the abnormal (Murray et al. 1936), and they saw each other's theories as complementing each other. By then, contrary to the standard biographies of him accepted by the American Psychological Association, Allport had moved away from large-scale nomothetic designs where one variable was measured across a large number of subjects, and instead embraced the idiographic approach—the in-depth case study of the single individual. Allport even mellowed with regard to his initial rejection of Freud and actually incorporated concepts from the Freudian unconscious into his own theories of the person. More than that, toward the end he flirted with Humanistic, the existential psychiatry of Victor Frankl, and even the psychology of Vedanta. As such,

UNITED STATES

Medil and Howard McCormick, Edith Rockefeller, Beatrice Hinkle, Ether Harding, Frederick Peterson, Kristine Mann, Constance Long, Eleanor Bertine, Frances Wickes, Christiana Morgan, Edward Whitmont, H. A. Murray, Joseph Wheelright, Jane Wheelwright, Joseph Henderson, Mary Mellon, June Singer, Keiffer Franz, Max Zeller

ZURICH [SWITZERLAND]

Carl Jung, Emma Jung, Fanny Bowditch Katz, C.A. Meier, Alphonse Maeder, Franz Ricklin, Maria Molzer, Toni Wolff, Carol Sawyer Baumann, Jane Cabot Reid, Jolanda Jacobi, Marie Louise von Franz, James Hillman, Ludwig Binswanger

ERANOS

Olga Fröbe-Kapiteyn, [Mircea Eliade, Roberto Assagioli, Henry Corbin]

AFRICA

Ruth Bailey

ENGLAND

Michael Fordham Barbara Hannah Victor White, Peter Baynes, Cary Baynes
Gerhard Adler, Laurens van der Post

GERMANY

Gustav Heyer, Wilhelm Haur, James and Hilda Kirsch, Tina Keller, Wolfgang Pauli

ASIA

D.T. Suzuki, W.Y. Evans-Wentz, Richard Wilhelm, Heinrich Zimmer

Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 5 Jung and his world after 1913

Allport, Murray, and others such as Gardner and Lois Murphy emerged as pioneers in the new approach to personality as well as social psychology. The Gestalt psychology of Kurt Lewin (1935) became as focus among them, as did topics in the psychology of religion. As for Murray, a detailed study of Herman Melville became his single case study for the reconstruction of his personological system, and the Thematic Apperception Test (Morgan and Murray 1938), coauthored with Christiana Morgan, the second best seller of anything Harvard University Press ever published (H.A. Murray, personal communication). Indeed, when Murray took over the Harvard Psychological Clinic on the death of Morton Prince in the 1930s, he created an environment in an otherwise experimentally oriented psychology department where, in his domain at least, Freudian and Jungian psychology flourished. Murray was deeply involved with Professor Stanley Cobb over in psychiatry at the Harvard Medical School introducing psychoanalysis into the curriculum in both psychology and psychiatry independent of decisions made in Vienna (White et al. 1984).

Collectively, these macro-personality theorists of the 1930s and 1940s would later become the godfathers and godmothers of the Humanistic movement in psychology, while their own students straddled the divide between normative trait theory of the mainstream and the counterculture psychotherapies of the 1950s and 1960s, where their own teachers had gone.

Humanistic, Existential, and Phenomenological Psychology

With regard to the Humanistic movement in psychology, two points are relevant to dynamic theories of the unconscious. First, when the Humanistic movement emerged around such figures as Abraham Maslow, Carl Rogers, and Rollo May in the late 1950s, it represented many different interests across numerous disciplines that all rushed to one point, creating numerous conceptual problems concerning what Humanistic psychology actually was and what it was about. In general, one could say that it inherited the personality theorists' march toward a science of the whole person, while over time the movement evolved in its own right into a person-centered science. Second,

Humanistic psychology was not merely a reaction against behaviorism and psychoanalysis so much as it was a critique of reductionistic positivism in experimental science using the methods of phenomenology. This underlying agenda, however, was never allowed to fully develop, once the Humanistic movement was embraced by the Human Potential Movement, where it fractionated into meditation and altered states of consciousness, group dynamics and bodywork, and radical political psychology after 1969.

The histories of traditional personality theory will often mention Maslow and Rogers as variants of more mainstream empirical developments but often omit to associate the two of them with Humanistic psychology. If Humanistic psychology is considered, what is usually revealed is the complete lack of understanding of the inner history of the movement on the part of the historians. In my analysis, the progression begins with William James, whose functional psychology championed the integration of mind and body that promoted a humanism informed by the transcendent experience. This legacy was inherited by the macro-personality theorists of the 1930s and 1940s, who also fostered the development of new expressions in psychology beyond even Maslow, Rogers, and May, such as that of Alan Watts and Aldous Huxley. Meanwhile, in the 1950s, Clark Moustakas, an existential psychologist at the Merrill Palmer Institute in Detroit, along with others, convened a gathering that included Carl Rogers, Abraham Maslow, and Rollo May. Their intent was to launch a new movement whose time had not quite come, although the papers from that conference were published in *The Self* (1956).

The significance of this event, however, was to broadcast the important historical link between the budding movement and the influence of the existential and phenomenological impulse on defining the rise of Humanistic psychology. Two years later, *Existence: A New Dimension in Psychology and Psychiatry* appeared, edited by Rollo May, Ernst Angel, and Henri Ellenberger (1958). It was the first major introduction of existential thought into American psychology, although it had been preceded by the English translation of Victor Frankl's *The Doctor and the Soul: An Introduction to Logotherapy* (1955) by 3 years.

That the leading lights of the Humanistic movement took this event seriously can be gauged by the fact

that a year later at the 59th annual meeting of the American Psychological Association, September 4, 1959, Abraham Maslow, Rollo May, and Herman Feifel were presenters at a symposium on Existential Psychology, and Carl Rogers and Gordon Allport were discussants. The event marked the dissemination of the existentialist impulse as central to the new definition of Humanistic psychology.

The symposium appeared in book form in 1961 as *Existential Psychology*, edited by Rollo May (1961). At that conference, a statement on the emergence onto the American scene of Existential psychology was given by Rollo May. The paper by Abraham Maslow was on the value of Existential psychology for American psychotherapists, while a discussion on the relevance of death in psychology was presented by Herman Feifel, and a chapter on the existential bases of psychotherapy was presented by Rollo May. Carl Rogers gave a delineation of the objective versus the existential view of psychology, and finally, a commentary on the papers was delivered by Gordon Allport. In the end, May had said of it "I believe that there is in this [existential] approach the demand for, and the guiding principles toward, a psychology that will be relevant to man's distinguishing characteristics as man" (May 1961, p. 48).

By 1961 a confluence of forces permitted Anthony Sutich and Abraham Maslow to launch the *Journal of Humanistic Psychology*, and a short time later the American Association for Humanistic Psychology was launched from their combined mailing lists to support the journal. James Bugental, the existential psychotherapist from Detroit, was elected its first president. Between the official launching of the journal and the association, Humanistic psychology was to represent a science of the person, promote human potential, study self-actualization, and foster an understanding of growth-oriented rather than deficiency-oriented motivation. By the end of the decade the movement had become international in scope, but it had also expanded out in all directions and significant problems of definition had emerged. Also in 1961, Michael Murphy and Richard Price cofounded the Esalen Institute, the premier growth center in the Human Potential Movement that was to become the model for a proliferation of other experiential programs across the USA. Their aim was self-actualization and the

expansion of consciousness but their primary focus became the cultivation of the body, the emotions, group work, and human relationships. This set up something of a tension between Humanistic psychology as an academic endeavor in which a person-centered science redefined the discipline as opposed to a counterculture movement outside the universities that appeared to be antiscientific, anti-intellectual, and almost entirely experiential. The experimental laboratory was abandoned in favor of the psychotherapeutic hour as the living laboratory of personality transformation until the psychotherapeutic hour itself became transformed with the radicalization of depth psychology. Therapy for the neuroses left the office and emerged as education for transcendence out in the world: Reichian body work, Gestalt therapy in the tradition of Fritz Perls, sex therapy, couples therapy, sensitivity training workshops, psychedelic drugs, psychotherapeutic massage, pure foods, martial arts such as tai chi and aikido, and also meditation and yoga. Such approaches sprang up in weekend hotel conferences on personal transformation and became the stock in trade of workshop leaders whose private practice expanded to the bursting point, especially with other therapists eager to work on themselves and also appropriate the newest training from whomever therapist knew more than they did.

The academics, theorists, and architects of the Humanistic movement, meanwhile, gathered in October of 1964 at Old Saybrook, Connecticut, for what was later called the First Old Saybrook Conference, cosponsored by the Association for Humanistic Psychology, Wesleyan University, and the Hazen Foundation (Taylor, Martinez, and Martin). Allport, Murray, the Murphys, and others such as David McClelland who argued for a science of the whole person met with May, Maslow, Rogers, Bugental, Sutich, and others, who championed psychology as a person-centered science and symbolically connected the generations, passing the torch to the new psychology. Deans and University Presidents were there, anticipating at that moment in the history of Western thought that the Humanistic movement would expand and take hold, answering the rift between C. P. Snow's Two Cultures, referring to science and the humanities. Henry A. Murray gave the keynote address, announcing the end of the Dark Ages in the history of American psychology (Taylor 2000).

Afterward, a spate of new books covered the landscape on the new Humanistic movement in psychology, most of them trade books, undergraduate and graduate programs in psychology sprang up around the USA fueled by the new movement, links were made to new experiments in progressive education, new definitions of the family began to evolve, people changed their sexuality going from men to women and women to men. The feminist movement cultivated relationships between women without men, growth groups proliferated, an entire generation began to experiment with consciousness expanding drugs supplied originally by the CIA. The result was that the lines between the academy and the counterculture began to blur more and more. Even Murray had lamented at the Old Saybrook Conference that the historical links between classical personality theory and Humanistic psychology did not show any direct descent but only a general one, in the sense that by the time of the conference, the humanistic psychologists had their philosophy already well formed. In fact, as history was soon to show, Maslow, Rogers, and others were about to leave the academy for more fruitful endeavors at that late point in their respective careers and within a decade would begin dying off, in any case.

As we have said, the Humanistic movement in general had by the end of the 1960s become more focused on the body, emotional development, and human relationships out in culture at large. No one was more aware of this than Anthony Sutich and Abraham Maslow. While attending a Humanistic Theology Conference at Esalen together, both had several disturbing experiences. In one instance, while conversing with a group of catholic priests, Sutich inquired about their personal experiences with mystical states of higher consciousness. The priests were perplexed and admitted that none of them had ever had such experiences. There was also the famous encounter with Fritz Perls, promulgator of Gestalt Therapy, and his minions. Perls moved into Esalen on his own and took the place over as if it were his own for some seven years. At one point he and some of his followers broke into one of the workshops that Maslow and Sutich were attending, dropped down and slithered across the floor, and attached himself to the speaker's leg, talking in baby talk. The meeting ended in chaos. The effect on Maslow and Sutich when they left was a resolve to leave

Humanistic psychology to its own devices and found a new movement, specifically devoted to the exploration and cultivation of human spirituality. As a result, in 1969, they launched the *Journal of Transpersonal Psychology*, and the Association for Transpersonal Psychology, which occurred a few years later. It was at this point that Humanistic psychology as an umbrella term that harbored under its wings existential and phenomenological psychology, biofeedback and the new psychophysiology, Transpersonal psychology, feminist psychology, Asian psychology, and the seeds of multiculturalism and human science broke up. When that happened Transpersonal was more self-consciously embraced by the Human Potential Movement, though in reality it remained the offspring of its proper parents, the Humanistic psychologists. Those who identified with Humanistic psychology proper went on to found Division 32 in the American Psychological Association, now called the Society for Humanistic Psychology, and to publish their own journal, *The Humanistic Psychologist*. At the same time, the Association for Humanistic Psychology continued its annual meetings as a professional organization. Eventually, however, its main publication, *The Journal of Humanistic Psychology*, spun off as an independent peer-reviewed publication, unaffiliated with any university setting.

At the same time these developments were taking place, the phenomenological psychologist Amedeo Giorgi published *Psychology as a Human Science* in 1970, one of the first clear statements that the Humanistic psychologists had something important to say, not just about psychoanalysis or behaviorism, but about a fundamental change in the way psychology as a science was being conducted in the West. From the phenomenologists' perspective, Giorgi went a step further than merely criticizing contemporary reductionistic positivism as the underlying foundation of present-day experimental psychology. He took a more prescriptive position, offering a new epistemology for the way experimental science ought to be conducted, namely, as a phenomenological, human science rather than a reductionistic and positivistic one. His solution to the problem of unity in psychological science was for psychology to become more descriptive and phenomenological, which would automatically take the relation between experimenter and subject and client and therapists and make them equal.

In this regard, Giorgi continued to expand his work, becoming well known in European circles, but generally ignored by the experimental psychologists in the USA. His work was, however, embraced by Humanistic psychology, not only as a pure phenomenological psychology of its own, but also as kin to the Existential-Phenomenological psychologies that had been flourishing under the banner of the Humanistic movement since the 1950s (Fig. 6).

Meanwhile, other expressions of a phenomenological critique of reductionistic science generating entirely new conceptions of the person also appeared. Clark Moustakas articulated his own understanding of phenomenological research methods for Humanistic psychology, as did Adrian van Kaam, whose *Existential Foundations of Humanistic Psychology* had a significant influence on bringing Christian ministers and pastoral counselors into both psychotherapy and research into the domain of Humanistic psychology. Irvin Child at Yale followed with his thoughtful work *Humanistic Psychology and the Research Tradition: Their Several Virtues*. The historical anomaly remains the same, however. Just as the epistemological critique of reductionistic positivism was getting underway, the most far-reaching contribution of Humanistic psychology to the research tradition, its platform disappeared when the Humanistic movement was absorbed almost completely into the Human Potential Movement. It remains to this day as a legacy to be actualized.

During this period, while he is remembered for his therapeutic and research innovations, Rogers also set forth his own conception of a dynamic theory of personality. It can be found in Sigmund Koch's monumental six-volume work, *Psychology: A Study of a Science* (1958–1963), which was a reassessment of experimental psychology at mid-century commissioned by the American Psychological Association. In it, 87 of the world's premier scientific psychologists assessed the rules linking quantification to theory construction against what they had actually accomplished over a lifetime of their own individual work. The result was a correlation so low that it became a massive indictment of psychologists' agenda to establish psychology as a reductionistic and positivistic science. The work also became a landmark symbolizing the era of deregulation in academic psychology that followed, thus opening the door to the further

Philosophical lineage [19 th Century]			Existential Psychiatry [Mid-Twentieth Century]	Existential-Phenomenological Psychology [1958--onward]
[Existentialism]		Heidegger [Pupil of Husserl]	Binswanger	Snygg and Combs, Stern,
Kierkegaard		Jaspers	Boss	[Giorgi,]
		Sartre	Storch	Moustakas,
		de Bouvoir	Bally	Bugental,
	Bergson	Tillich	Kuhn	Van Kaam
Nietzsche		Berdeyev	Van den Berg	Becker
		Buber	Buytenjik	Van Dusen
			Ellenberger	Yalom,
				Greening,
[Phenomenology]				Arons,
Hegel	James	Koffka [experimental Gestalt psychology; Pupil of Husserl]	Merleau Ponty	May,
	Brentano		Minkowski	Schneider
	Stumpf		Ey	Krug
			Zutt et al.	Mendelowitz
			Straus	Shabahangi
			Schneider	
			Gebstettel	
			Conrad	
			Wiggins	
			Schwartz	

Adapted from: Villeneuve, A. (1965). *Psychiatric Quarterly*, 39, p. 96.

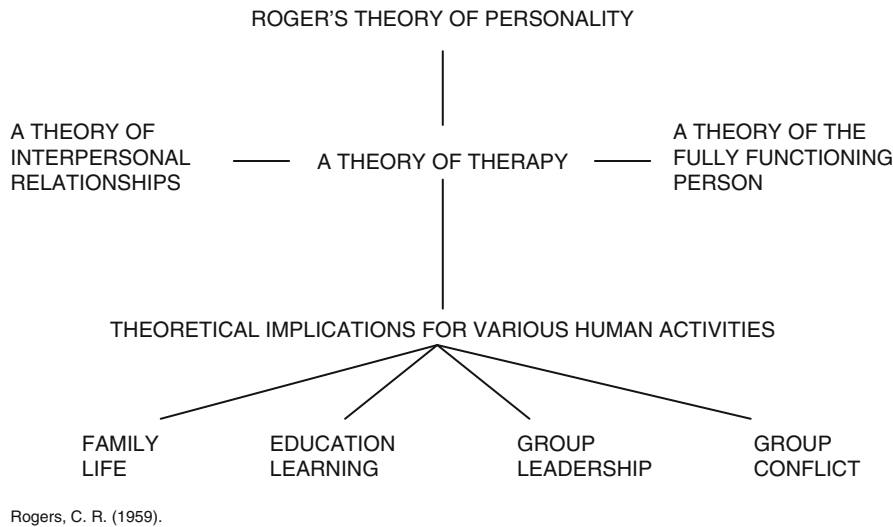
Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 6 The diffusion of existentialism and phenomenology as continental philosophies and their amalgamation as existential-phenomenological psychology under the umbrella of humanistic psychology in the USA

development of Humanistic psychology as a potential new leading movement that would reshape the discipline.

One of the more important comprehensive summaries solicited by Sigmund Koch for his massive reevaluation of the presuppositions of scientific psychology at mid-century was that presented by Carl Rogers (1959). Rogers's piece was entitled "A Theory of Therapy, Personality, and Interpersonal Relationships, as Developed in the Client-Centered Framework." Rogers found the original assignment quite forced, as he had never expressed his project in terms of dependent, independent, and intervening variables, so he presented instead the organic evolution of his work. He did, however, have a healthy respect for quantifiable studies, but the difference was that these were not primary; they were secondary to understanding the mystery of the person. They were ways to check one's self, to corroborate, to confirm or deny certain hypotheses, but these were not the purpose of the work. The purpose of the work was the person. It was the

person who was at the center of his scientific theory, not justification for psychology as a science.

Rogers's primary distinction was to show that the basic data of a scientific psychology could be generated out of the psychotherapeutic hour, not the laboratory. Its focus was the inward ordering of experience, not the measurement of behavior; his approach was scientific even if the first steps were crude and only suggestive. His science was dynamic and not static. Establishing the methods of the laboratory as the only legitimate standard for psychology produced a sterile pseudoscience "of no particular importance." Nor was advanced theoretical physics a correct model for psychology. He was certain psychology was nowhere near this same status. Every theory contains error and mistaken inference. The book is never finished and therefore never closed. Too many small caliber minds in psychology jump to accept a theory as the dogma of truth. While he was thinking of the behaviorists in this regard, he was also referring to the Freudians. Freud may have had some good ideas from an intuitive level, but they kept



Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 7 Roger's theory of personality

changing. His disciples, meanwhile, had already cast his theory in stone.

Only a complete theory will show us what God and man are, Rogers said, but this is probably unattainable, even if a lofty goal to strive for. At the same time, every theory cannot cover everything. More realistically, "every theory deserves the greatest respect in the area from which it was drawn from the facts and a decreasing degree of respect as it makes its predictions in areas more and more remote from its origins" (Rogers 1959, p. 191.). Finally, he believed that subjective experience was primary in every endeavor, including that of objective science. Operational definitions, experimental method, and mathematical proof are the best way of avoiding self-deception, but they are not the purpose of the research. They do not provide us with the final truth, only the individual perceptions of what appears to each person to be such knowledge.

He then presented his theoretical model. In the center, beginning with the experience of the person, was his theory of therapy. Branching off from it in all four directions were its important developments. The first was a theory of personality. The second was a (Fig. 7) theory of interpersonal relationships. The third was a theory of the fully functioning person, while the fourth involved the theoretical implications for various human activities, including family life, education and learning, group leadership, and the resolution of group conflict.

With regard to the theory of therapy and personality change, the basic conditions for therapy to take place are several. Two people first must be in contact. The client will normally be in a state of incongruence, feeling vulnerable and anxious. The therapist should feel congruent in the relationship and also feel unconditional positive regard toward the client; the therapist should feel an empathetic understanding of the client's internal frame of reference, and finally, that the client should perceive this regard and this empathy from the therapist.

Assagioli and Psychosynthesis

Meanwhile, in Italy, the Italian psychiatrist Roberto Assagioli had launched psychosynthesis, which was to become a central teaching of the counterculture psychotherapeutic movement and the Transpersonal psychology, an offshoot of the Humanistic tradition that emphasized meditation and altered states of consciousness. Psychosynthesis was one of the more important examples of a dynamic theory of personality to appear on the American scene in the early 1960s because of its association with Michael Murphy and Esalen Institute.

Assagioli spent his entire professional career in Florence, founding there the Institute for Psychosynthesis. Because of the nature of his system, which paralleled Jung's to a remarkable degree, and his ready access to Eranos, the retreat and conference center on

Lake Lugano on the Swiss-Italian border, where Jung delivered some of his most important papers, Assagioli himself was a frequent guest and presenter. By the 1960s, when Assagioli was in his late 1970s, psychosynthesis emerged as a significant counterculture psychotherapy in the Western hemisphere, because of interest in Assagioli's work by Michael Murphy, cofounder of Esalen Institute in Big Sur, California. Murphy, himself, was versed in the models of personality and consciousness of the nineteenth century, being one of the few authors who had thoroughly read and absorbed the subliminal psychology of F.W.H. Myers and brought those historical insights forward under the framework of Humanistic and Transpersonal psychology. Assagioli published a number of books on his system, but the one to highlight here is *Psychosynthesis: A Manual of Principles and Techniques* (1964), second in the Esalen series brought out by Viking Press.

Assagioli opened his text by noting the similarities and dissimilarities between psychosynthesis and existential psychotherapy, referencing Adrian van Kaam and echoing Maslow's 1959 paper at the APA symposium on "Remarks on existentialism and psychology." The method of starting from within, with the self and its presence, is the same. We find the same emphasis, Assagioli said, in Gordon Allport, Kurt Goldstein, Erich Fromm, Clark Moustakas, and Erik Erikson and in such personalists as Tournier and Baudoin. This self is in a constant state of becoming, where meaning is central to life. Ethical, noetic, and religious values are central, as in the work of Victor Frankl. Choice and responsibility follow. Anxiety and suffering are taken fully into account. The role of the future in creating a dynamic present makes them similar, as does the centrality of the person, which he compared to Allport's theory of the idiographic personality. Each one requires a new method.

The various theories are different in many ways, however. Psychosynthesis emphasizes the will much more than most existential therapies. Psychosynthesis also emphasizes more the experience of the pure self in the immediate moment independent of the content of consciousness. Psychosynthesis emphasizes the positive joyous and peak experiences, some of which Maslow had written about. As such, self-realization is actively induced in psychosynthesis. Loneliness is neither ultimate nor essential. It is a temporary condition. The

goal is the harmony of the sexes and one's connection to humanity. Following Pitrim Sorokin, Fromm, and others, Assagioli said, its emphasis is ultimately on love and its many forms. Psychosynthesis uses active techniques to direct psychological energies to actualize one's potential and to achieve higher states of consciousness. He believed the personality could be recreated along entirely new lines. The necessary techniques are defined by the uniqueness of each person. At the same time, however, psychosynthesis is neither a religion nor a philosophical system. It is a psychological framework for the actualization of the person, which may incorporate religious and philosophical concerns, but is not meant as a replacement for them. Rather, it is a "scientific psychodynamic" (Assagioli, 1976, p. 8). It is appropriate in the treatment of the neurosis, but its real purpose is the spiritual transformation of the person into their highest and best form. It does this by reclaiming the will for the ego in a way that no other psychology has yet proposed.

He then rehearsed the history of dynamic psychology, from Janet and Breuer and Freud, to the Neo-Freudians and to Jung, and beyond his theories to that of the existentialists such as Binswanger and Frankl. He linked psychosynthesis to developments in psychosomatic medicine, the psychology of religion, investigation of mystical states, the work of the parapsychologists, and non-Western epistemologies, especially Hindu psychology. He reviewed the links to Allport, Angyal, Goldstein, Maslow, Murphy, Perls, Proffoff, and Stern. Social psychology and anthropology were noted, citing Sullivan, Lewin, Murray, Allport, and Sorokin at Harvard, and the work of Margaret Mead. He also included the techniques of the waking dream of Robert Desoille and Jacob Moreno's psychodrama as well as the work of Ruth Munroe and Gardner Murphy.

Assagioli then made the attempt to depict his model of consciousness. He acknowledged the spectrum from the lower-order domain of psychopathology and the primitive and instinctual – the centrality of the waking consciousness, the domain in which the ego functions – but then posited a superconscious state in the individual, all of which was surrounded by the collective unconscious of humanity. The superconscious condition, like the lowest domain, remains unconscious, but is nevertheless the source of artistic, scientific, and

aesthetic creativity and the spring of heroic, humanitarian, and altruistic action.

The ego, in contrast, exists in a state of conditioning, being attached to external objects through the senses and beset by habits, attitudes, and compulsions from within. It remains at the mercy of circumstances as long as the individual does not recognize that there is an internal life beyond external control, that there is a higher as well as the lower domain within, and that the higher domain is actualized by training of the will. This, however, takes knowledge of one's own personality, control of its various elements, discovery of one's true self as a unifying center, and a means to accomplish that goal, which is psychosynthesis.

While the majority of psychologists who refer to the term self-actualization usually have only had exposure to the writings of Abraham Maslow on the subject, Assagioli, relying partly on Maslow, developed it in more elaborate and refined detail, including its vicissitudes. Writing on the relationship of self-actualization to psychopathology, he presented the idea that much of what we consider psychopathic may be the result of thwarted spiritual growth. He enumerated four critical stages: crises preceding spiritual awakening, crises caused by spiritual awakening, reactions to spiritual awakening, and phases in the process of transmutation (p. 6) (Fig. 8). He recommended a twofold competence for practitioners, one that they be trained professionals, but also, two, that they be experienced travelers along the path of self-realization. Though rarely found in formal programs leading to clinical licensure, the need for such types may be even greater than before.

Classical Asian Conceptions of Personality and Consciousness

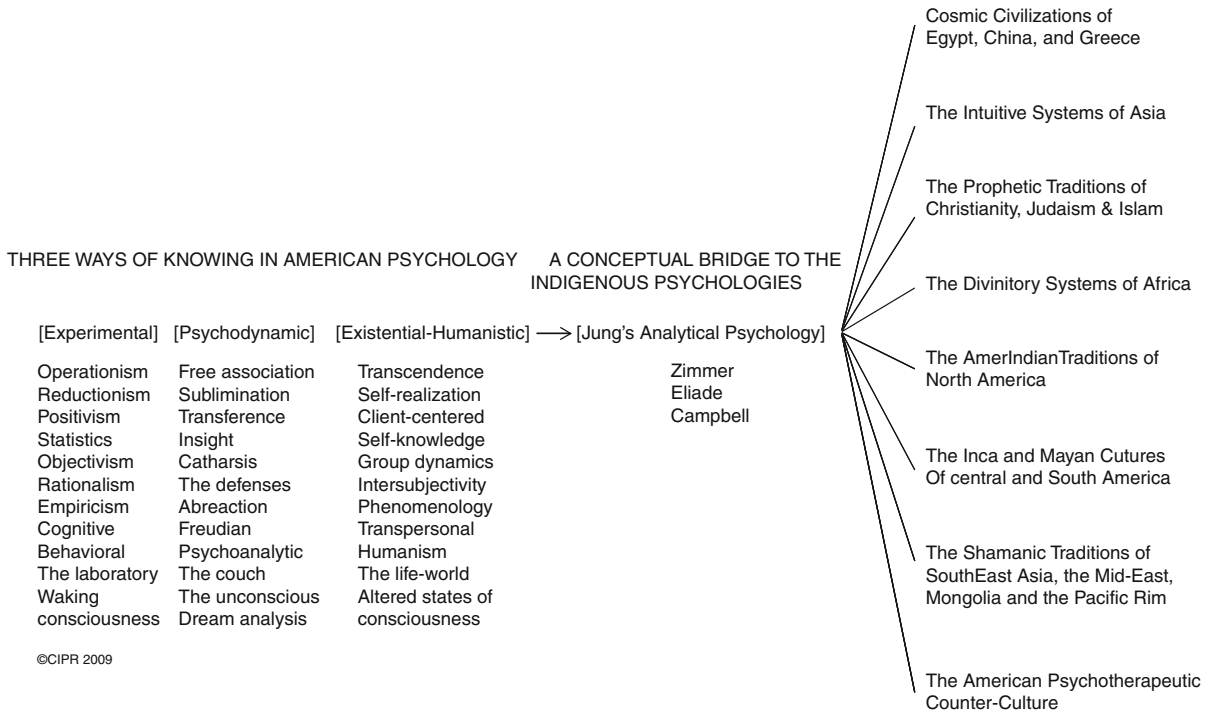
Dynamic theories of personality within the framework of a person-centered science also include, as we have previously said, the classical psychologies of Asia. By such means, a Humanistic, Existential-phenomenological, and Transpersonally-oriented depth psychology presents the larger discipline of psychology with an expanded definition of personality, a wider definition of consciousness, a more complete spectrum of methods for scientific inquiry, and an epistemology allowing psychology to dialogue with non-Western models of personality and consciousness.

A case in point is the Vedantic conception of personality in Hindu psychology. Reminding the reader of the religious, philosophical, and psychological roots commonly shared in these traditions, the person is expressed in terms of the individual human being, or *jiva*, and its relation to *Atman*, the Supreme Self. The consciousness of the individual is identical to the ultimate spiritual consciousness of Brahma. "That art thou, O Svetaketu" is declared in the *Upanishads*. But the normal individual does not realize this because of the veil of illusion, or *maya*, which keeps them in a state of *avidya*, or ignorance. Meditation (*dhyana*) causes one to break through this veil of illusion by detachment of the senses to their objects in the external material world and a turning within for purposes of self-realization. Achievement of this realization through intuitive insight produces the *jivanmukti*, one who is liberated while still in the body. Personality is transformed through the experience of transcendence. In that experience, the one who acts outwardly and the one who watches from within are then recognized as the same (Fig. 9).

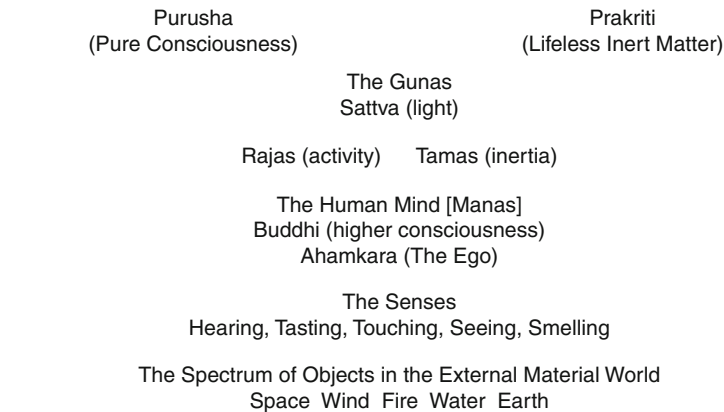
In Yoga psychology, transcendence is achieved by practice of *sadhana*, spiritual discipline, the purpose of which is to generate heat (*tapas*), equated with the fire of transformation. Under the instruction of a spiritual teacher, one follows the blueprint laid down in the *ashtanga-marga*, or eight limbs. These involve (1) *yama* and (2) *niyama*, bodily and mental cleansing as preparation for entering the higher states; (3) *asana*, the practice of physical postures; (4) *pranayama*, the science of breath control; (5) *pratyahara*, withdrawal of the senses from attachment through the senses in either a pleasurable or painful way to objects in the external material world; and then the threefold tool of *samyama*; (6) *dharana*, attention; (7) *dhyana*, meditation; and (8) *samadhi*, absorption. Successful application of the eight limbs causes a quieting of consciousness (*cittavrittinirodha*) and an elimination of states of mind that are scattered and unfocused (*kspita*), torpid (*mudha*), or obsessively attached to fixed ideas (*viksipta*). Application of the threefold tool of *samyama* leads to insight into whatever the particular object of meditation may be.

A series of more refined states of consciousness then follow focusing on absorption at the level of sense impressions, the ego, and the intellect, and the internal

Three different Epistemological streams in American psychology showing the existential-Humanistic Tradition as a portal through Jung to a spectrum on non-Western psychological anthropologies, which reflexively includes the American Psychotherapeutic Counter-Culture



Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 8 The existential-humanistic tradition as a portal into non-western epistemologies



Adapted from Larsen, et al. (1987, p. 53).

Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 9 The tattvas of the Samkhya-Yoga school enumerating the categories of existence

spiritual sense, until the person is experiencing a continuously flowing stream of insights into the world of all objects (*samprajnatasamadhi*). This occurs

at each level through generating more and more of the light of pure consciousness (*purusha*) through insight (*sattva*). The principles of energy (*rajas*), inertia

The Normal States of Consciousness

Ksipta, the restless state
Mudha, the torpid state
Viksipta, the distracted state

Yogic States of Consciousness [Samyama]

Ekagra, the focused state
Niruddha, a complete cessation of
all mental activity on the surface
of consciousness

Samyama Consists of:

Dharana –concentration on the object
Dhyana –meditation [sustained concentration] on the object
Samadhi –absorption into the object
 Samprajnata Samadhi –a continuously flowing stream of insights into the world of
 objects
 Savitarka Samadhi –gross objects as meditation
 Nirvitarka Samadhi –objectless concentration beyond gross objects
 Savichara Samadhi –subtle objects as meditation
 Nirvichara Samadhi –objectless concentration beyond subtle objects
 Sananda–Bliss as an object of meditation
 Nirananda –objectless concentration beyond bliss consciousness
 Asmita –the ego as an object of meditation
 Nirasmita –objectless concentration beyond the ego
 Asamprajnata Samadhi –isolation of pure consciousness from the objects of the
 continuously flowing stream of insights.

Adapted from Mishra, R. S., Patanjali, B. S. M., & Patanjali, B. K. S. I. (1971).

Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 10 Stages of consciousness leading to samadhi in Samkhya-Yoga

(*tamas*), and light (*sattva*) go into equilibrium as one *samyama*; (6) *dharana*, attention; (7) *dhyana*, meditation; and (8) *samadhi*, absorption, and shift one's attention from the objects of insight themselves to their illumined quality. By so doing, pure consciousness (*purusha*) is separated from lifeless inert matter (*prakriti*), and the person goes into a state of complete isolation, immersed in pure consciousness. This is the highest state, or *asamprajnatasamadhi*. As a result of attaining such a state, the adept is called a *kaivalyn*, one who is now liberated while still in the body, similar to the idea of the *jivanmukta* in Vedanta psychology (Fig. 10).

While the methods of yoga are generally appropriated by all schools of thought in Hindu psychology (*darshana*), they have also been absorbed into Buddhist psychology, which aims to achieve release from suffering (*dukkha*). Buddhist psychology is based on the idea that all things are impermanent (*anicca*), have no underlying substantial self to support them (*anatta*), and that clinging to the notion of substantiality is the cause of suffering.

Normal personality is considered illusory, since there is no underlying permanent self to define it. The normal identity is constructed out of a mere heap or conglomeration of conditions (*skandha*). They are *nama-rupa*, name and form; *vedana*, feelings; *samjna*, perception; *samskaras*, the unconscious seeds of waking conscious impression; and *vijnana*, personal consciousness. The first is the physical body, while the last four, the aggregates, are considered the ego or personality – that which detaches itself from the body at death and transmigrates to another body in the process of rebirth according to one's *karma* (meaning thoughts, words, and deeds), until the final state of liberation (*moksha*) is achieved through good deeds and rebirth ends.

The ideal of the liberated personality differs from school to school in Buddhist psychology. In Hinayana Buddhism, it is the *arahat*, one who has “reached the farther shore,” by having achieved *nibanna* (Sanskrit: *nirvana*), “a burning out of the flame of desire.” In the Mahayana philosophy, the ideal is to achieve *sunyata*, the state of complete emptiness. The ideal personality is the *bodhisattva*, one who is liberated while still in the

body, who can step over into enlightenment at any time, but who has vowed to return to the world of suffering and assist all sentient beings down to the last blade of grass to pass over first.

Particularly relevant to the Tibetan Vajrayana Buddhist schools is the Tantric concept of the 84 *mahasiddhas* (Tibetan: *Grub thob chen*), shared also with the Shaivite tradition of Hinduism. These are a collection of profiles of enlightened beings with exceptional powers representing no particular tradition but who are skilled adepts and complete masters of the technologies of enlightenment. They are also called *hamsa*, or wild geese, suggesting that what we are actually dealing with is the generic experience of spirituality within each person regardless of lineage, independent of association with any one particular spiritual tradition.

Other Asian traditions also have conceptions of the liberated personality. In Chinese Confucianism we might point to the ideal of the *chuntze*, “gentlemanliness based on strength of character rather than on hereditary feudal acquisition,” or the master of *wu-wei* (non-doing) in popular Taoism. The point is that each culture has its conception of the ideal and expresses personality according to its own definition of human nature. As we have said, the Existential-Humanistic and Transpersonal traditions at least listen to these other cultures, instead of superimposing a preconceived set of categories or measurable traits of Western origin onto them and then claiming that we somehow understand the people of that culture.

This is but a limited attempt to summarize a dynamic theory of personality within the Humanistic tradition in terms of what I would call a Humanistic, Existential-Phenomenological, and Transpersonally-oriented depth psychology. Existential psychology, phenomenological psychology, and transcendent theories of personality are the only portal we have for entering into the Asian world view. All others superimpose Western categories of reductionistic science onto those cultures and ignore their indigenous systems, but at our peril. Regardless, this flaw is a clue to the change that is to come for psychology (Taylor 2010) (Fig. 11).

The Future of Dynamic Theories

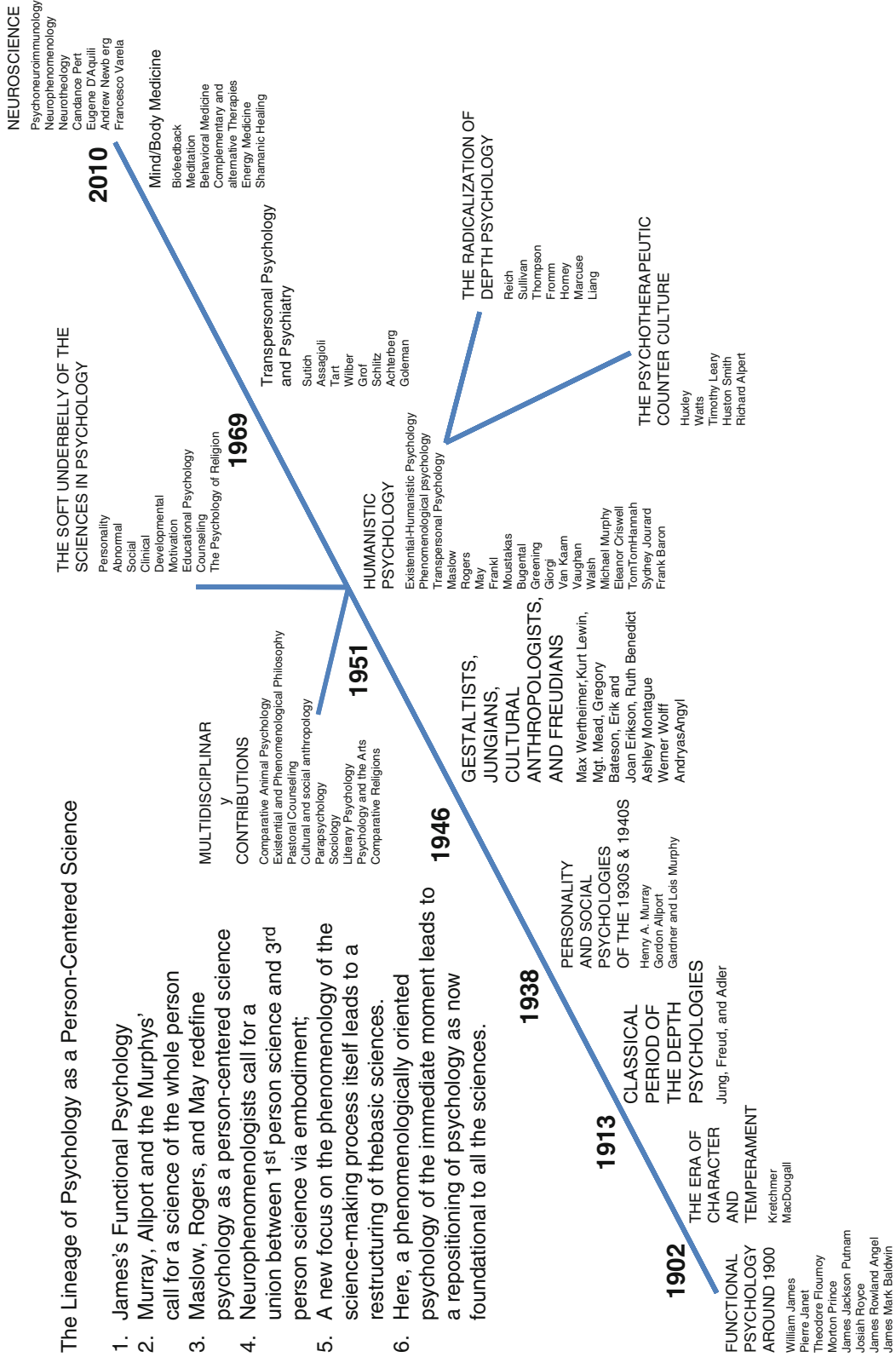
Toward the end of the first decade of the twenty-first century, dynamic theories of personality have been

relegated largely to clinical practice in psychology and psychiatry. Experimental research in personality theory has become largely dominated by trait theory, with some call for more narrative, psychobiographical methods from the periphery. Psychoanalysis has become colonized by Ph.D. psychologists and left by the wayside by psychiatrists, who in the medical school curriculum have integrated it into more general “psychodynamically assisted” approaches to psychotherapy. Cognitive psychology has become the new vogue. The new focus on neuroscience has barely any reference to personality and has substituted this construct for a more cognitive and behavioral definition of the self. Borrowing a phrase from Fernando Vidal, Sonu Shamdasani has referred to this new focus as the ascendancy of “brainhood.” The person is equal to the brain conceptions of mind. Between parallel distributive processing theories, neural plasticity, and string theory, the person has nearly disappeared off the computer screen in the current milieu, though historically this may only be a temporary state of affairs.

Dynamic theories of personality themselves might at first seem to be a thing of the past, although, given the spectrum of epistemologies represented in their history (see Fig. 11), four major forces are at work that may bring them forward in an entirely new way. Advances in trait theory have recently called for the marriage of the five (Fig. 12).

Factor Theory with the DSM, taken with the call for a globalization of both scientific psychology and psychiatry, would extend the DSM and Big Pharma to all cultures in the world. Reacting oppositely, this is enough to jump-start a kind of alternative psychological science on an international scale that takes seriously the way especially non-technological cultures have expressed their own definitions of the human ideal in their own terms.

Collectively these could be taken as the contribution that non-technological cultures have to make toward a definition of world mental health that would be quite eradicated by a global movement to instantiate the DSM and Big Pharma. At the same time, the psychotherapeutic counterculture has expanded considerably into alternative and complementary therapies, particularly from non-Western sources such as Traditional Chinese Medicine, and the lineage of Ayurvedic Medicine from India, and also such systems as homeopathy from the Western



The Lineage of Psychology as a Person-Centered Science

1. James's Functional Psychology
2. Murray, Allport and the Murphys' call for a science of the whole person
3. Maslow, Rogers, and May redefine psychology as a person-centered science
4. Neurophenomenologists call for a union between 1st person science and 3rd person science via embodiment;
5. A new focus on the phenomenology of the science-making process itself leads to a restructuring of the basic sciences.
6. Here, a phenomenologically oriented psychology of the immediate moment leads to a repositioning of psychology as now foundational to all the sciences.

Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 11 The development of existential-humanistic, phenomenological, and transpersonal psychologies in the USA and their sequelae

The Positivistic Assumption:

Consciousness is defined as solely what is in the field of the everyday rational waking state, in contrast to states of coma, sleep, or hyperexcitability. Consciousness is equal to awareness. There is no such thing as an unconscious. The thinker is the thought. Manipulation of the person's articulated thoughts and observable behavior is believed to be all that is needed to change personality.

The Psychodynamic Assumption:

Consciousness is defined as a field of awareness in the everyday waking rational state, but is largely controlled by a vast interior and more primitive domain of the unconscious. Consciousness is also used to refer to the ability of consciousness to bring accessible parts of the unconscious into the field of waking rational awareness, thus leading to a change of personality, based on resolution of unconscious conflicts.

The Transcendent Assumption:

Consciousness is considered either a plurality of states or a single, universal and integral field. Waking consciousness is only one state of consciousness among many others, ranging from the psychopathic to the transcendent. The function of the waking rational state is preservation of the biological organism, which is the primary vehicle for the experience of these other states of consciousness. Awareness and consciousness are not considered the same, as inferior or superior states can control the waking condition without waking rational consciousness being aware of it. Waking consciousness can be transformed through the experience of higher, more expanded transcendent states of awareness and the development of intuitive insight.

Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered. Fig. 12 Epistemologies of consciousness underlying models of personality in the history of psychology

tradition. All of these alternatives can be better comprehended through the epistemology of depth psychology, not the rationalists' method of logical empiricism or cognitive behaviorism.

Regarding the future of dynamic theories of personality, there are also the humanistic implications of the neuroscience revolution in terms of the biology of consciousness, where the search for the solution to the mind/brain problem is likely to proceed through the phenomenology of the science-making process itself, especially in terms of the dynamic inner life of the scientist. Finally, there is a movement toward a more person-centered science, more so in medicine than in scientific psychology. In a person-centered science, the personality of the caregiver as well as the recipient, or experimenter and subject, becomes an integral part of defining the outcome of what is considered good science.

With these changes a transformation of basic science as we know is also likely to come about. The old Newtonian, Kantian, and Cartesian model of reductionistic empiricism from the nineteenth century still driving present-day psychological science may have to share the stage with a more sophisticated phenomenological model of human experience that may

eventually be seen as foundational to all the basic sciences. Big Pharma coupled with the DSM may not be driving world science at that time when it comes down to which culture has a more accurate grasp of human consciousness. The present reductionistic and positivistic model may have significant competitors from alternative and complementary therapies, indigenous psychologies, and world epistemologies different from our own. Meanwhile, the real impetus for transformation may come from the humanistic implications of the neuroscience revolution itself (Taylor 2009, 2010a). Such is the possible direction of a dynamic psychology to come.

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E

Ebbinghaus, Herman

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Basic Biographical Information

Herman Ebbinghaus was born on January 23, 1850, near Bonn, Germany. He studied languages and philosophy at the University of Bonn, although his studies were briefly interrupted in 1870, when he served in the army during the Franco-Prussian War. He obtained his Doctor of Philosophy degree in 1873.

Ebbinghaus began researching memory in 1878, and became a private lecturer at the University of Berlin in 1880. He is best known for a monograph published in 1885 (titled *Über das Gedächtnis* and translated as *On Memory*), which resulted in his appointment of Professor at the University of Berlin in 1886. He moved to the University of Breslau in 1894, and after 11 years he moved to the University of Halle. Ebbinghaus died of pneumonia on February 26, 1909.

Major Accomplishments and Contributions

Ebbinghaus's monograph, *On Memory*, documents his well-known research on memory. Ebbinghaus regarded memory as "ideas" and "mental states," and he was the first to look at memory using a system of methods rather than simply philosophical speculation. Today, he is regarded as one of the important pioneers of memory research, bringing phenomena such as free recall, serial learning, and the forgetting curve to psychological inquiry. Ten of his studies are cited in his monograph. In each study, he was his only participant and his materials consisted of a series of nonsense syllables, with each comprised of three letters, including one vowel.

Ebbinghaus recited the nonsense syllables until he considered them mastered. Mastery was attained when he could recite 150 syllables per minute (one syllable per 0.4 s) without any error or hesitation. According to Tulving (1985), no one is sure why Ebbinghaus chose this rate, but the purpose of his method was to eliminate the effects of prior knowledge on memory. He was primarily interested in forming new memories.

Ebbinghaus examined the speed at which he could memorize certain syllables and whether the length of the syllable had an impact on memorization. He also explored whether repetition affected his ability to memorize nonsense syllables, and more importantly, whether repetition affected forgetting them.

Some of Ebbinghaus's results on learning and forgetting are among the most famous in psychology. He studied the rate at which learning and forgetting occur (learning and forgetting curves) and documented the well-known serial position curve in recall. Ebbinghaus's research reveals the effects of fatigue and time of day on retention as well as the effects of list length and repetition on retention. He also examined the effects of distributed versus massed practice on recall and even short-term memory span, referenced in his work as around seven syllables after a single reading. Thus, much of Ebbinghaus's research and results remain of great interest today.

In addition to his contribution to experimental psychology and memory, Ebbinghaus is also known as a prominent lecturer. His teaching abilities were admired, so much that Cornell University offered him a position in an attempt to lure him to America. While *Über das Gedächtnis* (1885) is his most famous publication, he also published many journal articles in the areas of sensation and perception. Ebbinghaus cofounded the first journal of psychology in Germany, titled the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane* (*Journal for the Psychology and Physiology of the Sense Organs*) with Arthur König and served as

editor for 22 years. Ebbinghaus was also contracted by the school board of Breslau during his last years of life to develop intelligence tests for schoolchildren that would help demonstrate the best distribution of study time for assessments.

In America, Ebbinghaus's research is largely praised for bringing informative methodologies to learning and memory research. He contributed an experimental model that is upheld today, allowing researchers to test alternate hypotheses. He also provided experimental psychology with a model of a research report, including an introduction, methods, results, and discussion section much like what is used today.

See Also

► [Tulving, Endel](#)

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Edgeworth, F. Y.

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Basic Biographical Information

Francis Ysidro Edgeworth was born February 8, 1845, in Edgeworthstown, Longford, Ireland. Edgeworth is recognized as a brilliant and eccentric economist, statistician, and social philosopher. He is especially known for his development of mathematical models of rational behavior, which he used to build models of mutually beneficial trade. Born the fifth son of a father who had been a sixth son, Edgeworth actually ended up inheriting the entire Edgeworthstown estate in 1911, when all other lines of the family died out or produced

no heirs. Edgeworth's education consisted of private tutoring followed by higher education at Trinity College, Dublin, and then at Exeter and Balliol Colleges, Oxford. His university studies were in ancient and modern languages, and during the 1870s he added a self-taught education in mathematics and economics. In 1881, Edgeworth earned a position teaching logic and political economy at King's College, London (Edgeworth 1881). Ten years later, he left King's College upon accepting the Drummond Chair of Political Economy at Oxford University. During his first year teaching at Oxford, Edgeworth assumed founding editorship of *The Economic Journal*, a responsibility he would keep for 35 years. Edgeworth did not marry, had no children, and died on February 13, 1926 (Newman 2001).

Major Accomplishments/Contributions

In 1877, Edgeworth published his first book, *New and Old Methods of Ethics*, a work in which he applied such mathematical forms as the calculus of variations and Lagrangian multipliers to problems of utilitarian philosophy. Edgeworth's main concern was what was then dubbed “exact utilitarianism,” which meant research into optimal allocations of resources to maximize the “happiness of society.” Edgeworth argued that any success of such allocation efforts ultimately depended upon the “capacity for pleasure” of the people of a society. While an “equal capacity” between all people ought to be generally assumed in most cases, Edgeworth nevertheless wondered if certain classes of people might have greater psychological capacities for pleasure than others; specifically, he believed men have more such capacity than women. These were capacities that were innate, mental, and capable of evolving over time (Newman 2003).

In 1881, Edgeworth published *Mathematical Psychics: An Essay on the Application of Mathematics to the Moral Sciences*. The book is a dense and notoriously difficult work that introduces connections between “utility functions” at the level of individual psychological wants and “equilibrium” outcomes from multiple persons trying simultaneously to maximize their individual well-being through trade. A new tool that Edgeworth introduced to help tie these two levels of analysis together was the “indifference curve,” designed to represent a whole series of different weightings of

goods and assets that can be of equivalent psychological value to a given person. In connection with his introduction of the first-ever description of an indifference curve, Edgeworth also introduced the generalized individual-level utility function $U(x, y, z)$, which it seems he developed partly by studying research in psychophysics, such as that done by Gustav Fechner and Wilhelm Wundt.

Also appearing in *Mathematical Psychics* is Edgeworth's analytical finding that under a system of free "recontracting" there will be many equilibrium solutions to a trade situation. This discovery led Edgeworth to the result of the "indeterminacy of contract," i.e., that all any economist can definitively declare is that there exists a "range of final settlements," any of which can be considered possible outcomes of aggregate activity in a market. Edgeworth culminated this line of argument with a long-term, large-numbers result, now known as "Edgeworth's conjecture" (or "Edgeworth's core"), which is that as the number of agents in an economy increases, the degree of indeterminacy is reduced. Edgeworth describes many exchange processes in the book, many within a simplified, bounded-world model, now known as an "Edgeworth box." Altogether, in a manner analogous to mathematical physics, Edgeworth applied his mathematical psychics to the measurements of utility, ethical value, and economic value.

Edgeworth also wrote on topics in many other fields in economics, statistics, and social philosophy. One area of contribution was in probability theory and statistics, for which, in 1885, Edgeworth introduced an interpretation of significance tests for the comparison of means; in fact, Edgeworth even is credited as the inventor of the very word "significance" in its statistical meaning (Edgeworth 1885). Edgeworth executed other studies over many years to look at facets of two-dimensional and multidimensional normal statistical distributions. He contributed advances to our understanding of the law of errors, estimation of correlation coefficients, and understanding of a particular statistical outcome now known as the "Edgeworth series" (FitzPatrick 1960).

Edgeworth studied trade theory and taxation too, treating both in a kind of philosophical fashion as he explored principles for equitable reallocations of economic wealth and well-being. In 1894, he published a series of papers that pioneered the use of "offer

curves" and "community indifference curves." In 1897, he published his "taxation paradox," which is that increased taxation of a good can, in theory, result in a decrease in price. Edgeworth's work on taxation policy also set some foundations for so-called progressive taxation based on his arguments that the optimal distribution of taxes should be such that "the marginal disutility incurred by each taxpayer should be the same"; this is recognized as Edgeworth's "Pure Theory of Taxation." Edgeworth also introduced theoretical breakthroughs on such subjects as monopolies, duopolies, and wartime production (Newman 2001).

When assessed overall, Edgeworth – despite the difficult and even obscure style of his writing – is a giant in the history of social and behavioral science.

See Also

- ▶ Jevons, W. S.
- ▶ Keynes, John Maynard

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Ekman, Paul

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Basic Biography

Ekman is a pioneer and world-renowned expert in the study of emotional research and nonverbal communication, particularly on emotional micro-expression and the corresponding physiological activity of the face (Ekman n.d.).

Paul Ekman was born on February 5, 1934, in Washington, D.C., although he never lived there, Growing up, Ekman lived in Newark, New Jersey, Washington, Oregon, and Southern California (Ekman 2003).

Paul Ekman received his undergraduate education at the University of Chicago and New York University. He received his Ph.D. in clinical psychology at Adelphi University in 1958. During which, he completed his clinical internship at the Langley Porter Psychiatric Institute, part of the University of California, San Francisco (UCSF). While Ekman was still at University of Chicago, his classmates included Susan Sontag, Mike Nichols, and Elaine May. After receiving his Ph.D., he served as chief psychologist in the US Army, Fort Dix, New Jersey from 1958 to 1960. After 2 years as a Clinical Psychologist in the Army, he returned to UCSF (University of California at San Francisco), where he had a postdoctoral research fellowship for 3 years from 1960 to 2004.

Ekman's interests have focused on two separate but related topics. He originally focused on nonverbal behavior; however, by the mid-1960s, he shifted his concentration to the expression and physiology of emotion. In addition, to his research on emotion and its expression for the last 30 years, he has also been studying interpersonal deception (Richard and Ekman 1994). His research on facial expression and body movement began in 1954 and he published it in 1957. In his early work, his approach to nonverbal behavior showed his training in personality. However, over the next decade, a social psychological and cross-cultural emphasis characterized his work, with a growing interest in an evolutionary and semiotic frame of reference. Ekman's work on facial expressions had its starting point in the work of psychologist Silvan Tomkins. Ekman showed that contrary to the belief of some anthropologists, including Margaret Mead, facial expressions of emotion are not culturally determined, but are universal across human cultures and thus biological in origin. Expressions he found to be universal included those indicating anger, disgust, fear, joy, sadness, and surprise, or also known as the six universal emotions.

In 2000, Paul Ekman and his Holiness the Dalai Lama spent 39 h discussing the world of emotion. During their conversation, they found such synergy in their understanding of human emotions that the Dalai Lama gave Ekman \$50,000 in seed money to learn how

to improve emotional balance in schoolteachers and other people in high-pressure jobs (Ekman 2003).

Currently, Ekman is the Manager of the Paul Ekman Group, LLC (PEG), a small company that produces training devices relevant to emotional skills. One of these devices is the FACS, or Facial Action Coding System, for deciphering which of the 43 muscles in the face are working at any given moment, even when an emotion is so fleeting that the person experiencing it may not be conscious of it (Ekman and Rosenberg 1998). Ekman is also currently on the Editorial Board of *Greater Good* magazine, published by the Greater Good Science Center of the University of California, Berkeley. His contributions include the interpretation of scientific research into the roots of compassion, altruism, and peaceful human relationships. Ekman is also working with Computer Vision researcher Dimitris Metaxas on designing a visual lie-detector.

Due to Ekman's detailed knowledge of facial expression, he is much in demand these days. Movie producers from the movie animators such as Pixar and Industrial Light & Magic had sought him out as a consultant in giving lifelike expressions to cartoon characters. In 2009, Ekman was acting as a consultant on the FOX series "Lie to Me" starring British actor Tim Roth (Kreisler 2004).

The Federal Bureau of Investigation (FBI), the Central Intelligence Agency (CIA), Bureau of Alcohol Tobacco and Firearms (ATF), and state and local police forces have also turned to him for help learning to read subtle emotional cues from the faces, voices, and body language of potential terrorists and questionable visa applicants.

Accomplishments

In 1971, Paul Ekman received a Research Scientist Award from the National Institute of Mental Health, and that award that renewed in 1976, 1981, 1987, 1991, and 1997. For over 40 years, his research program was supported by: fellowships, grants and awards from the National Institute of Mental Health, the National Science Foundation, and the Advanced Research Projects Agency of the DOD. In 1972, Ekman was appointed as Professor of Psychology at UCSF, and he remained there for 32 years.

Ekman's many honors included: the Faculty Research Lecturer from University of California, San Francisco in 1983, Distinguished Scientific

Contribution Award of the American Psychological Association in 1991, an honorary doctor of humane letters from the University of Chicago in 1994, William James Fellow Award given by the American Psychological Society in 1998, Honorary Doctor of Humane Letters by Adelphi University in 2008 and Times Magazines Top 100 most influential people of 2009.

In 2001, Paul Ekman was named by the American Psychological Association as one of the most influential psychologists of the twentieth century based on publications, citations, and awards (Taylor 2009).

See Also

- ▶ Forensic Psychology
- ▶ Social Psychology

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Elliott, Richard M.

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Basic Biographical Information

Born: November 3, 1887; Died: May 6, 1969.

Elliott was born in Lowell, Massachusetts to Unitarian parents who encouraged his scholarly gifts. He matriculated at Dartmouth where he intended to study astronomy but concluded that his abilities in mathematics and physics precluded a career in physical science. He

found philosophic debate congenial and arrived at graduate school at Harvard in 1910, to his regret one month after the death of William James. He did his doctoral work with Munsterberg on handwriting, but his most significant mentors were E. B. Holt and R. M. Yerkes. He was attuned to Holt's balancing of aesthetic sensibility with a realistic epistemology. Elliott considered continuing as an experimentalist for a time after his Ph.D. in 1913 but found, while teaching at Harvard, that his heart was not in it. The First World War then intervened and Elliott found himself in a battalion of mental testers under the command of Donald G. Paterson. After the war, Yerkes, who had been at Minnesota in 1917 but rapidly moved to Washington D. C. and into the arena of national scientific affairs, employed Elliott to work on the summary of the war testing work and then recommended Elliott to Minnesota as his replacement. Elliott, along with William S. Foster and Mabel Fernald, arrived in Minnesota in 1919 where he began a career of more than 30 years as department chair.

Major Accomplishments/Contributions

He was the quintessential conductor harmonizing a group of superior psychologists, including Karl Lashley until 1925, B. F. Skinner between 1936 and 1945, Starke Hathaway, Paul Meehl, and Donald G. Paterson. With Paterson and several others, Elliott assisted in developing the Minnesota Mechanical Ability Tests (Paterson et al. 1930) and also contributed to the depression-era survey *Men, Women, and Jobs* (Paterson et al. 1936). Elliott said of himself that he created no psychology, but he made much psychology possible (Elliott 1952). He helped structure the introductory course at Minnesota which came to be a model of its type, and also taught for many years an innovative course in biographical psychology. He mentored Frank Barron, eminent scholar of creativity. He was a member of the planning subcommittee of the WWII-era NRC Emergency Committee in Psychology (Boring et al. 1942) which was an important formative influence on the modern structure of the psychological profession. And, in 1928, Elliott, on E. G. Boring's suggestion, became the editor of the Century Psychology Series for the publisher Appleton-Century-Crofts. In this capacity, he was responsible for bringing to print the essential texts of the systematic behaviorist era, including Tolman's

Purposive Behavior in Animals and Men, Skinner's *Behavior of Organisms*, and Clark Hull's *Principles of Behavior*, as well as many other works in applied psychology, social psychology, and developmental psychology, often by Minnesota colleagues. The Century Series, always recognizable with its red-banded spines, was particularly important in the development of the scholarly study of the history of psychology, publishing among other works Edna Heidebreder's *Seven Psychologies*, E. G. Boring's *A History of Experimental Psychology* and Wayne Dennis's *Readings in the History of Psychology*. Elliott married well to Mathilde Rice, and together they lived a life of cultivated culture and civic involvement in the Minneapolis area: Elliott owned one of the first Art Moderne homes in the University Park neighborhood and his wife was a docent and teacher at the Minneapolis Institute of Art. Fittingly, in light of his respect and support for natural science, Elliott and his wife are memorialized in the Richard M. and Mathilde Rice Elliott Prairie Scientific Natural Area, a habitat for endangered grassland birds near Rothsay, Minnesota.

See Also

► [Paterson, Donald G.](#)

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Ellis, Albert

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Basic Biographical Information

Albert Ellis, Ph.D., was born in Pittsburgh, Pennsylvania, on September 27, 1913. He is recognized

as one of the most influential figures in modern psychology. The contributions of Albert Ellis changed the course of the field of psychology in the twentieth century, and continue to be a dominant influence now in the twenty-first century. He pioneered the field of cognitive psychology and therapy with his specific approach of Rational Emotive Behavior Therapy (REBT).

His father was a businessman who often traveled, and his mother attended to raising him, his younger brother, and sister. Throughout his childhood he suffered from various illnesses and was often hospitalized. He was rarely visited in hospital by his parents, and as a result of sadness about this and other difficulties and adversities he faced in his life, along with an insatiable interest in reading and learning, he developed a philosophical attitude, smart strategies, and efficient tools to help him suffer less emotional pain.

In his later childhood, teen years, and early adulthood, he was an avid reader—particularly interested in the writings of classic, stoic, eastern, and contemporary philosophers, as well as all sorts of fiction, and he also read works by various psychologists, including the behaviorist John B. Watson, Sigmund Freud, and Alfred Adler.

As a young man he found ways to overcome his extreme shyness related to talking to women and speaking in public—and the means he applied for doing so are tools now found in the REBT approach, such as “in vivo desensitization”: pushing oneself to *do* whatever it is that one wants to feel comfortable doing while “anti-catastrophizing”: reminding oneself that no catastrophe or tragedy will result if one makes mistakes or if it takes one a while to achieve one’s goal.

He would also read hundreds of books and articles on issues of relationships, sex, and marriage, helping friends who came to him for advice, and in doing so discovered his talent for problem solving and helping others. As a result he studied psychology; helped many who were having relationship problems by giving them marriage, family, and sex therapy; founded the Love and Marriage Problem (LAMP) Institute for research and therapy in 1938; and continued his study, work, and research. He became a noted sexologist, and was the founder and first President of the Society for the Scientific Study of Sexuality.

Albert Ellis attained his degrees in clinical psychology from Columbia University, completing his M.A. in 1943 and his Ph.D. in 1947, and practiced the then-norm of psychoanalysis with clients—but quickly felt dissatisfied with this therapy as he observed that clients were not significantly getting better as a result of that approach.

He increasingly became more active-directive in the therapy he gave, continuing his researching and writing, and in August 1956, he presented his first paper on Rational Emotive Behavior Therapy (which at that time was named Rational Therapy) at the annual meeting of the American Psychological Association in Chicago. He was jeered and booed by conservative attendees, but persisted in presenting and writing about his empowering approach of Rational Emotive Behavior Therapy which became increasingly and greatly accepted.

Dr. Ellis held many important positions and roles, too many to mention here, which include Chief Psychologist in the state of New Jersey, and adjunct professorships at Rutgers and other universities. He was a consultant in Clinical Psychology to the New York City Board of Education, and to the Veterans Administration. He was a Fellow of the American Psychological Association and served as President of its Division of Consulting Psychology, Executive Member of its Divisions of Psychotherapy and Humanistic Psychology, and as a Member of its Council of Representatives. He was a Fellow of the American Association of Marriage and Family Therapists, the American Orthopsychiatric Association, the American Sociological Association, the American Association of Applied Anthropology, and the American Association for the Advancement of Science. He was a Diplomate in Clinical Psychology of the American Board of Professional Psychology, in Clinical Hypnosis of the American Board of Psychological Hypnosis, of the American Board of Medical Psychotherapists, and of the American Board of Sexology.

He received the Distinguished Alumni Award of Teacher's College, Columbia University, and of the City College of New York. Many professional societies honored him, and he was awarded the 1971 Humanist of the Year Award by the American Humanist Association; the Distinguished Psychologist Award of the Academy of Psychologists in Marital and Family

Therapy; and the Distinguished Practitioner Award of the American Association of Sex Educators, Counselors and Therapists. He achieved the highest awards for professional achievement from the American Psychological Association, the American Counseling Association, and the Association for the Advancement of Behavior Therapy.

Major Contributions

In 1959, Dr. Ellis founded the Albert Ellis Institute and dedicated himself to its work of training professionals, providing lectures, courses, and programs to educate members of the public, and seeing clients in its clinic which provided affordable counseling. His famous Friday Night Workshops for the public were conducted over there on a weekly basis for over four decades. For some years it sponsored an experimental school for children, The Living School, in which emotional education was incorporated into the academic curriculum.

He served as consulting or associate editor of many scientific, psychiatric, and psychological journals, and published more than 800 articles as well as over 80 books and monographs, including a number of best-selling popular and professional volumes. His autobiography *All Out!* was released in 2010, and one of the last books he worked on, *Rational Emotive Behavior Therapy*, was published in 2011 (Ellis 2010; Ellis and Ellis 2011).

He wrote and presented on subjects relevant to the times, and in his final years focused on topics such as Buddhism and REBT. He encouraged rational spirituality, in which one practices kindness, compassion, and tolerance (Ellis 1962). Throughout his career he used and expressed great humor, encouraged others to do so to help them take things less seriously, and wrote hundreds of rational humorous songs—some of which were often sung by delighted audiences in his workshops.

He was very well known throughout the United States and across the globe as a unique and charismatic speaker, and appeared on hundreds of radio and television shows. He wrote for, and was interviewed in, prestigious newspapers such as the New York Times and many popular magazines. His books have been translated into over 20 different languages.

Rational Emotive Behavior Therapy is a highly philosophical approach. It emphasizes the importance of

Unconditional Self-Acceptance, Unconditional Other Acceptance, and Unconditional Life Acceptance.

At its core it is a most humanistic and compassionate approach, while also most vigorous and dynamic in its encouragement to clients, lecture and seminar attendees, readers, and students to challenge their faulty thinking and to take the appropriate actions to enhance the quality of their lives and facilitate the achievement of their goals (Ellis and Joffe 2002). REBT is a holistic approach, recognizing that thoughts, feelings, and actions are intertwined. Cognitive attention and awareness are not enough to bring about change and emotional well-being in many cases—*action* is also required.

The REBT theory and therapy processes apply to issues within the spectrum of those coping with simple everyday problems, to those with neurotic tendencies, across to those with more severe psychoses. It applies to those suffering from addictive behaviors. REBT is applicable to people from all cultures. Its main principle is that it is not the events which happen to people that create their emotions, but their *perception of* and their *beliefs about* the events which happened that create their emotional destinies.

REBT teaches that healthy and appropriate emotions are created when people think in *rational* and healthy ways, which include: (a) keeping things in perspective, (b) wanting—*without demanding*—that things go the way they prefer, and (c) developing high frustration tolerance and ability to tolerate unpleasant circumstances and difficulties if they cannot change them (and changing them when they can).

When people think in unhealthy *irrational* ways—which include (a) *demanding* (instead of preferring) that they *should* or *must* or *ought* to have things the way they want them to be, (b) damning themselves and other individuals and the world when they do not act in the ways they insist they all should be acting, and (c) having low frustration tolerance—then they create debilitating and unhealthy emotions such as anxiety, depression, and rage, which can prevent them from living more fulfilling lives and attaining more of their goals (Ellis 2005).

REBT reminds people that they create their own emotional destinies by the ways in which they think; that they are responsible for doing so; and it urges them

to apply REBT principles and life-enhancing actions in an ongoing fashion throughout their lives, so that they do not create unnecessary suffering and experience greater joy.

Despite the various adversities and difficulties Albert Ellis faced throughout his lifetime, he continually applied his principles in his own life, practicing what he preached. He continued to help others till he was too ill to do so, even months before his passing away. This unique man contributed immeasurably to the well-being of millions of people, and through his great works his legacy will endure.

He died in New York City on July 24, 2007.

See Also

- ▶ Adler, Alfred
- ▶ Watson, John Broadus

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Erdmann, Benno

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Basic Biographical Information

Born: May 30, 1851 Died: January 7, 1921.

Erdmann was born in Guhren bei Glogau, Silesia, and seemed destined, due to his father's early death, to a nonacademic career. However, good fortune intervened and he was able, after graduating from the Realschule in 1868, to enter Gymnasium and ultimately to matriculate at the University of Berlin in 1870. There in 1873 he defended his doctoral thesis on the *Ding an*

sich in Kant's *Analytik* and *Ästhetik* and also habilitated in 1876 with a thesis on non-Euclidean geometry and its relation to the theory of knowledge. His first academic position was at Berlin as Privatdozent, and he then obtained professorships at Kiel (1879), Breslau (1884), and Halle, where he served between 1890 and 1898. After that he spent the next 11 years at Bonn and then returned to the University of Berlin in 1909 where he finished his career.

Major Accomplishments/Contributions

Erdmann established an early reputation as a Kant scholar and produced several critical editions and commentaries, including a much discussed introduction to the *Prolegomena to Every Future Metaphysic* in 1878, an edition of the *Critique of Pure Reason* (also 1878), and commentaries on the *Anthropologie* and the *Critique of Pure Reason*, *Reflections on the Critical Philosophy* (1882–1884). He is usually mentioned in connection with other psychologically oriented Kantians such as his Halle colleague Hans Vaihinger and Alois Riehl. Alongside this Erdmann also made forays into epistemology, psychology, and education, producing *Die Psychologie des Kindes und die Schule* (Erdmann 1901), *Über Inhalt und Geltung des Kausalgesetzes* (Erdmann 1905), and *Wissenschaftliche Hypothesen über Leib und Seele* (Erdmann 1907), and also edited the history of philosophy of his predecessor J. E. Erdmann, an important early influence on Neokantianism. Beneath his philosophical exterior, however, Erdmann was very much in the mold of other contemporary German philosophers who were intensely interested in the laboratory study of psychological processes and the development of a distinct discipline of scientific psychology. Between 1885 and 1893 he had contact with Franz Boas and James Rowland Angell. Boas studied with Erdmann for a time in the 1880s, and Erdmann would have been the dissertation advisor for James Rowland Angell who had prepared to defend his thesis on Kant but left to take a job at Minnesota that would facilitate his marriage. Thus it fell to Raymond Dodge to be the single conduit for Erdmann's blend of philosophy and psychology to modern American psychology. Dodge, by coincidence, became familiar with Erdmann's work through John

E. Russell, his advisor in philosophy at Williams, and decided to study philosophy at Halle with Erdmann. After Dodge arrived in 1894, Erdmann rated Dodge's chances for success as a philosopher low, and put him to work on a problem in epistemology which devolved into psychology at a fundamental sensory and physiological level, the question of the movement of the eyes relative to text while reading. Solution of this problem necessitated the concurrent solution of a specific mechanical problem, the creation of a tachistoscope with both monocular and binocular fields of view to present text sentences. Dodge solved the conceptual engineering problems and with the assistance of the resident equipment builder constructed a mirror tachistoscope which made possible exact observations of the eye's activity in reading, which led ultimately to the verification of the saccadic pauses characteristic of reading eye movements described earlier by Javal and others. Dodge and Erdmann published their empirical and theoretical account of reading as *Psychologische Untersuchungen über das Lesen auf Experimenteller Grundlage* (1898), a foundational document in the psychology of reading. It also marked a decisive moment of change in developing conceptions of cognition, as it introduced the concept of an active, scanning eye in place of a fixed and passive stimulus receptor, which, after many later elaborations by others, developed into the modern study of attention and into information pickup theories of perception. Erdmann was one of the many luminaries at the International Congress of Arts and Science at the St. Louis Exposition in 1904 where he addressed the Section for Methodology of Science. Dodge (1922) noted that Erdmann was not driven to system building and also not particularly defensive of his point of view, which made him the ideal colleague for Dodge but certainly diminished his influence in an era of great scholarly contention.

See Also

► [Dodge, Raymond](#)

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Erikson, Erik

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Basic Biography

Erikson, H. Erik (June 15, 1902–May 12, 1994), was an artist turned psychoanalyst, and was best known for the initiation of the concept of an identity crisis and his influence on psychosocial aspects of stage-like development.

Erik Erikson was born in Frankfurt, Germany, to his mother Karla Abrahamsen. When Erik was about 3 years old his mother, Abrahamsen, married Dr. Theodore Homberger, Erik's pediatrician. Erikson never knew his biological father, who abandoned Abrahamsen before Erikson was born. Erikson had blonde hair and blue eyes and grew up getting teased in grade school due to his Nordic looks, and due to his Jewish roots. Erikson, originally named Erik Homberger, grew up in South Germany where he finished high school and lived a spontaneous young life of traveling through Europe, focusing on art, and visiting

museums. Around the age of 25, after a few years of traveling, Erikson was approached by a friend that was also an artist who told Erikson to apply to teach at a school for American students under the direction of Dorothy Burlingham, who was also friends with the Freud family. Over the next few years Erikson received a certificate from teaching at a Montessori school as well as a certificate from the Vienna Psychoanalytic Society. During the time when Erikson got his certificate he met his future wife Joan Serson, and they had a family with three children, Kai, Jon, and Sue (who also became a psychologist). Not long after raising his family, Erikson decided that he and his family should move to Copenhagen to escape the rising Nazi regime in Vienna. Thus after leaving Copenhagen, they came to settle in Boston.

When Erikson came to America he formally changed his name from Homberger to Erikson, the exact reason is unknown. In America, Erikson taught at the prestigious schools of Yale University and the University of California at Berkeley. Erikson also took some time to work on what would become some of the most famous research studies about modern life. In 1950, Erikson wrote his book on *Childhood and Society* which analyzed the lives of Hitler and Maxim Gorkiy. Erikson also won a Pulitzer Prize award for the book that he wrote on Mahatma Gandhi. During the time that Senator McCarthy was in office, Erikson decided to resign from University of California because educators were being pressured into signing loyalty oaths. After resigning, the fear of being “academically blacklisted” was prevalent, which may be what motivated Erikson to pursue a clinical career as opposed to an academic career. After parting ways from University of California, Erikson left the state and taught at a clinic in Massachusetts and then proceeded to work at Harvard for another 10 years.

Major Contributions

Erikson's most famous contribution to the field of Psychology is his theory on psychosocial development. His work is based on the idea that in every stage of life there is a conflict of interest or internal struggle that a person faces, this idea was known as Erikson's Eight Stages of Psychosocial Development. The general basis of his theory can relate loosely to that of Freud, but focuses more on development throughout the entire

lifespan. His theory is a cumulative process that takes places over one's life. Erikson identified eight stages of psychosocial development. Erikson's eight stages of psychosocial development include: Basic trust versus Mistrust, Autonomy versus Shame and Doubt, Initiative versus Guilt, Industry versus Inferiority, Identity versus Identity Confusion, Intimacy versus Isolation, Generativity versus Stagnation, and Integrity versus Despair. From creating these levels, Erikson creates an ideal level that every human being can approach and surpass throughout the span of their entire lifetime. These stages are obstacles that every person can identify with depending on their age and the period of life that they are facing.

The first stage (Basic trust vs. Mistrust) happens around the first year of life where the responsibility is on the caregiver to invoke a sense of trust in a young child, and to give him/her a sense of stability. The second stage (Autonomy vs. Shame and Doubt) occurs around age 1–3, and the child is starting to get potty-trained, and do little tasks on his/her own. The third stage (Initiative vs. Guilt) is during the preschool age, where children are learning to take responsibility for their own actions, feel guilt if they fail at a task, and ultimately gain a sense of morality. The fourth stage (Industry vs. Inferiority) is at an elementary school age where the person masters intellectual knowledge and gains confidence. The fifth stage (Identity vs. Identity Confusion) is during adolescence when the person is figuring out his/her identity, asking questions like: Who am I? Who do I want to be? They set vocational goals, and begin romantic relationships. The sixth stage (Intimacy vs. Isolation) is during young adulthood when a person is finding and losing him/herself in another person, and really breaking down the barriers and putting trust in their personal relationships. The seventh stage (Generativity vs. Stagnation) is during middle adulthood, when the person is leading a productive lifestyle and raising a family, or gaining success in their career. The final stage (Integrity vs. Despair) is during late adulthood near the end of a person's life when they reflect back and evaluate their life.

Erikson's contributions to the field of psychology were not solely in his theories on psychosocial development, but in his combination of various aspects of learning to psychology like psychohistory,

psycho-biographical, psychosocial, and more. Many of his most famous books were on his analyses of historical figures like Martin Luther King, Thomas Jefferson, Mahatma Gandhi, etc.

After his many contributions to the field, Erikson retired from teaching at Harvard in 1970. After moving around for a few years, Erikson and his wife Joan eventually moved back to Cambridge and founded the Erik Erikson Center, which was directly associated with Cambridge Hospital and Harvard Medical School. Throughout the rest of their lives Erikson and his wife continued to work together and conduct research, and on May 12, 1994, Erikson died.

See Also

- ▶ [Evolutionary Psychology](#)
- ▶ [Rogers, Carl R.](#)

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Evolutionary Psychology

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This entry has three sections. The first concerns the beginnings of evolutionary psychology in the late nineteenth century. The second briefly provides a historical background, set between 1900 and 1975, for the third section, which concerns evolutionary psychology from about 1975 to mid-2010.

Late Nineteenth-Century Evolutionary Psychology

Anaximander, a pre-Socratic philosopher of the sixth century BCE, was quoted by the Roman scholar Plutarch as having said that

- ▶ [At] the beginning man was generated from all sorts of animals, since all the rest can quickly get food for themselves, but man alone requires careful feeding for a long time; such a being at the beginning could not have preserved his existence. (Nahm 1964, pp. 42–43)

Moreover, Plato wrote that Anaximander declared

- ▶ [Not] that fish and men were generated at the same time, but that at first men were generated in the form of fishes, and that growing up as sharks do till they were able to help themselves, they then came forth on the dry ground. (Nahm 1964, p. 43)

Some 2,400 years later, Charles Darwin (1809–1882; see Dewsbury 2009, for a short biography) wrote, using the term “*Quadrumana*” to refer to animals with opposable thumbs, including apes, monkeys, and lemurs:

- ▶ The *Quadrumana* and all the higher mammals are probably derived from an ancient marsupial animal, and this through a long line of diversified forms, from some amphibian-like creature, and this again from some fish-like animal. In the dim obscurity of the past we can see that the early progenitor of all the Vertebrata must have been an aquatic animal, provided with branchiae [gills], with the two sexes united in the same individual, and with the most important organs of the body (such as the brain and heart) imperfectly or not at all developed. (Darwin 1871/1899, p. 609)

Anaximander, when he had focused on the long period of prepubertal growth of humans, may have carried out the thought-experiment of imagining that, if all species had been born at one and the same time, animals maturing faster than humans might have brought their own progeny to a level of population that threatened the survival of humans, probably by competing for food, or possibly by feeding on still immature humans who had not yet developed the fighting skills of faster-maturing species.

Darwin’s “Sexual Selection”

When Darwin wrote that the aquatic ancestors of humans had both male and female characteristics within the same individual, he was preparing the way for the amplification of his theory of evolution by natural selection (Darwin 1859/2004) to include an additional kind of selection, namely, sexual selection. Darwin’s thesis was that, starting at the level of the insects, males had evolved certain physical characteristics whose main purpose was to attract the female, with the outcome that those males naturally born to appear attractive would be more successful at breeding than would rival males who were less attractive. Hence, certain male characteristics, which Darwin called “secondary sexual characteristics” to contrast them with the “primary characteristics” of the organs of reproduction, would become enhanced over successive generations. These secondary sexual characteristics had the peculiarity that they only showed themselves relatively late in life, following puberty, and, as a consequence, females and young males would not possess these characteristics. These ideas were put forward in *The Descent of Man* (Darwin 1871/1899). The influence of Darwin’s ideas about sexual selection on twentieth-century evolutionary psychology was assessed by Ghiselin (1973).

Briefly listing several genres of what Darwin surmised to have been sexually selected characteristics, we can include the use of special sounds to attract females (as in grasshopper stridulation, bird song, and the roaring of sea elephants); the use of special scents (as in the musk of certain deer); the use of bright colors, as in fish and birds (one of Darwin’s many impressive achievements was his explanation of how eye-shaped decorations, ocelli, in the tails of peacocks and of argus pheasants could have evolved over aeons from chance variations in the shading of adjacent feathers); and the use of fierce-looking body-parts in males accustomed to fight in front of females in order to attract the latter (examples include the mane of the male lion, the tusks of male elephants, the horn of the male narwhal, the antlers of many male deer, and the fangs of the male baboon).

There was an additional reason, according to Darwin, why it should have been males, rather than females, in whom these secondary sexual characteristics had been developed. Bright colors, in a female bird,

might give away her position on an open nest to predators, thereby endangering both her life and the life of her nestlings. If so, it could be predicted that, in those rare instances where the female of a species was more brightly decorated than was the male, such females would occupy closed nests, or holes in trees, where they would not be visible to overhead predators. Darwin was able to confirm this prediction from his extensive knowledge of natural history.

However, the possession by male birds of accessories such as very long tails could encumber their flight; and the possession, by male deer, of widespread antlers could impede their forward progress when being pursued over heavily treed terrain. It might then be predicted that the possession of exceptionally well-developed secondary sexual characteristics might lead to a reduction in the survival prospects for highly endowed males. But competition from one or more weaker males might already have been eliminated by such a male, and this single winner in a male-to-male competition might be chosen not by just one, but by several females, to be their mating partner, thus ensuring that the effects of any premature demise of such males on the survival of the species could be compensated for. Møller (2008) has noted that

- Typically, male traits related to the presence of weaponry, or sheer size, have evolved and are being maintained by male-male competition, while visual and vocal displays are involved in mate choice, although exceptions occur . . . sexual size dimorphism in such diverse taxa as pinnipeds, ungulates, and primates increase from monogamous species over multimale polygyny to single-male polygyny. (Alexander et al. 1979; Møller 2008, pp. 78–79)

Darwin assumed that all of these features have their counterparts in humans, but to an extent that is relatively vestigial in comparison with the corresponding features of humans' more savage animal forebears. Recent researchers, however, have stressed that, in Darwin's time, social circumstances were such that Darwin himself might not have been aware of certain intergender issues that nowadays are having a considerable impact on our social mores in the modern industrial West; such issues can arise from situations of conflict between the sexes including deceptive practices, infidelities, and sexual coercion, not to mention

interfamilial conflicts such as arguments between step-parents and biological parents. Buss (2009) had good reason to write "the battle of the sexes, in short, defines one of the momentous struggles unknown to Darwin, a battleground that follows logically from the modern 'gene's eye' view of selection" (Buss 2009, p. 146). This gene's eye view, which contrasts with Darwin's "species' eye" view, will be discussed when we come to late twentieth-century evolutionary psychology.

But, to return to the problem of how humans differ from animals with respect to secondary sexual characteristics, Darwin (1871/1899, pp. 56–58) did contend that one characteristic that clearly distinguished humans from the anthropoid apes was the fact that humans are almost denuded of hair compared with the apes. After giving reasons against the supposition that the lack of hair in humans was associated with the greater ease of keeping cool in hot climates or with the greater ease of picking lice and similar pests from the body-surface, Darwin concluded that

- The view which seems to me the most probable is that man, or rather primarily woman, became divested of hair for ornamental purposes, as we shall see under Sexual Selection; and, according to this belief, it is not surprising that man should differ so greatly in hairiness from all other Primates, for characters, gained through sexual selection, often differ to an extraordinary degree in closely-related forms. (Darwin 1871/1899, pp. 57–58)

In a widely publicized book, Morris (1967) suggested that the evolutionary transition from a fruit-eating ape in the treetops to a meat-eating ape on the ground had led to a change in societal structure in which males hunted as a group while females stayed behind to tend the children. This suggestion revived the heat-reducing argument that had been dismissed by Darwin because Morris claimed that the hunters were forced sometimes to engage in the unaccustomed exertion of sprinting when chasing their prey; a naked skin would be more easily cooled than would hairy skin. If it be wondered whether the brief activity of sprinting could have a long-term effect on the adaptation of physical features, there is the evidence that "The cheetah is in a separate genus from the other cats, however, because it has blunt claws that can be only partly retracted" (Burton and Burton 1969/1974, p. 406). These changes would have been adaptive for

the cheetah because they would have facilitated the sprinting component of hunting, for which the cheetah is famous.

As a side-effect of increased nakedness, however, major changes were postulated by Morris to have occurred in hominid sexual activity, including front-to-front copulation (instead of the rear-mounted copulation associated with the apes), copulation extended over minutes (instead of the seconds associated with, for example, baboons), the invention of clothing for the control of antisocial urges by hiding the genitalia in both sexes (Morris speculated that this use of clothing preceded the adoption of clothing for the purpose of keeping warm), and the development of the female breast as a sexual entity (instead of serving solely as a device for feeding; Morris considered that many breast-feeding difficulties in humans were a byproduct of the fact that the human female breasts had become more globular than were those of their anthropoid ancestors). Morris also briefly discussed, but did not follow up on, yet another theory of why the human is naked; according to an “aquatic theory,” there was an age in which some land-dwelling animals returned to the water prior to resurfacing on land. A naked skin is better for swimming than is a hairy skin, as can be seen from the naked skin possessed by aquatic mammals such as whales and dolphins (Hardy 1960). This theory would later be dismissed, however, on the grounds that whales and dolphins also evolved subcutaneous layers of fat to keep them warm. Humans had exactly the opposite problem, namely, that of keeping cool (Foley 1995, pp. 142–143).

It will be noted that, if Morris is correct and the evolution of human nakedness was originally for cooling purposes, then nakedness has also become an incidental factor contributing to the evolution of human sexual behavior. Cases like this lead to the following question. If an adaptation has evolved for achieving a goal A, and it then turns out that the adaptation also has value in achieving a second goal B, should the second achievement also be labeled an “adaptation”? Gould and Lewontin (1979) and Gould and Vrba (1982) maintained that examples of the second kind should be called “exaptations.” A useful introduction to exaptation in the context of evolutionary psychology has been given by Alcock and Crawford (2008, pp. 37–40), who also discuss reasons for

thinking that sexual selection might be considered a subset of natural selection, even though tradition has favored their being considered conceptually distinct (pp. 30–31). Jablonski and Chaplin (2000) have suggested that, when nakedness first appeared, the skin coloration was black; white skin evolved when, following northward migration, there was an adaptive depletion of black pigment (melanin) to allow more vitamin D to be formed on exposure to the scant sunlight of northern climates.

Darwin was at pains to stress that sexual affinities between males and females were probably expressed very differently in archaic societies than is nowadays the case. He believed that promiscuity probably characterized a very early society, not omitting incest, and not ignoring the fact that the paternity of a child could be in doubt; but gradually, as people developed the social instincts of cooperation (working with other people, rather than against them) and of sympathy (learning how other people thought and felt, and working deliberately to encourage self-respect in others), so did the institution of marriage arise as a device for enhancing child care, for ensuring that a father knew that a certain child was his, and for facilitating fidelity between sexual partners. Darwin gave many examples of cases in the animal kingdom that would have reminded his readers of the tensions between polygamous and monogamous practices in humans. Morris (1967) distinguished between a courtship phase and a reproductive phase in human sexual relationships and considered that marriage was a special case of a more general phenomenon found in both animals and humans, namely, pair-bonding. As noted above, psychological issues relating to pair-bonding constitute a major topic in present-day evolutionary psychology (Buss 2009; Symons 1979; Williams 1975).

Darwin on the Evolution of Emotional Expressions

In his next book of direct relevance to evolutionary psychology, *The Expression of the Emotions in Man and Animals*, Darwin (1872/1904) zeroed in on one particular set of human behavior patterns that he thought exemplified his evolutionary theory of the origin of *Homo sapiens* particularly well, namely, the voluntary or involuntary expressions of emotional

feelings experienced by a person. Many of these expressions are easiest to understand if it is accepted that the progenitors of humans, be they anthropoid or subanthropoid, also experienced those emotional feelings and deliberately or involuntarily displayed those emotions using behavior patterns that would continue to persist, in increasingly diversified and modified forms, in the line of species that had evolved between those progenitors and present day *Homo sapiens*.

To take a simple example: When threatened or put into a situation where fighting might ensue, many dogs bare their teeth in such a way as to reveal their canines, and also depress their ears flat against their heads. Darwin postulated that the ear-depression was a movement designed to reduce the possibility that the ears would be bitten. Turning to humans, Darwin pointed out that we do not fight with our teeth, so our canines are not as large or as sharp relative to our other teeth as are those of dogs; and we have evolved the habit of turning our head, rather than our ears, toward the source of a novel sound, so that we have lost the ability voluntarily to move our ears in a variety of directions. Nevertheless, vestiges of our animal ancestry can be detected in the way we express certain human emotions that are more sophisticated than those possessed by dogs. One such emotion is that of disdain or contempt; one expression of this emotion is the so-called “sneer” or “snarl”; to reveal this feeling toward the person who has actually aroused our disdain or contempt, we turn back the lips at one side of the mouth only and slightly elevate the upper lip to reveal the canine tooth beneath it (Darwin 1872/1904, Plate IV). Darwin’s own account of this action is far more detailed in the exactitude with which he describes the facial muscles involved; and he noted that sometimes a dog, when pretending to fight, “draws up the lip on one side alone, namely, that facing his antagonist” (Darwin 1872/1904, p. 260). In his observations about human infants, Darwin had also noted that a “child does not sneer, because no young animal has [big] canine teeth” (Ghiselin 1973, p. 967).

Because it so well illustrated how the expression of an emotion by a human can reveal the multiple influences exerted by whether or not the muscles are moved voluntarily or involuntarily, and how each component of a set of movements can be shown to have originated at some point in the evolutionary sequence, we quote

in full Darwin’s summary of how it is that, following one or more experiences of loss, bereavement, or sadness, the so-called “grief” expression can come about in humans. In this expression, the transverse lines of the forehead are raised, but only in the region near the bridge of the nose, with the result that the inner parts of the eyebrows take on an oblique orientation near that location.

- ▶ Few points are more interesting in our present subject than the extraordinarily complex chain of events which lead to certain expressive movements. Take, for instance, the oblique eyebrows of a man suffering from grief or anxiety. When infants scream loudly from hunger or pain, the circulation is affected, and the eyes tend to become gorged with blood: consequently the muscles surrounding the eyes are strongly contracted as a protection: this action, in the course of many generations, has become firmly fixed and inherited: but when, with advancing years and culture, the habit of screaming is partially repressed, the muscles round the eyes still tend to contract, whenever even slight distress is felt: of these muscles, the pyramidalis of the nose are less under the control of the will than are the others, and their contraction can be checked only by that of the central fasciae of the frontal muscle: these latter fasciae draw up the inner ends of the eyebrows, and wrinkle the forehead in a peculiar manner, which we instantly recognize as the expression of grief or anxiety. Slight movements, such as those just described, or the scarcely perceptible drawing down of the corners of the mouth, are the last remnants or rudiments of strongly marked and intelligible movements. They are as full of significance to us in regard to expression, as are ordinary rudiments to the naturalist in the classification and genealogy of ordinary beings. (Darwin 1872/1904, p. 372)

The determinants of this expression of grief include the inhibition of habitual responses (the “partial repression” of screaming), the persistence into adulthood of the screaming of the infant, and the defensive contraction of the muscles surrounding the eyes in order to reduce an over-supply of blood to them. This last mechanism is described, elsewhere in the book, as playing a role in the development of weeping (the production of tears) as a response, not only to unhappiness, but also to elation (“he wept for joy”),

and in the course of laughter. Provine et al. (2009) have listed several reasons for why it might be that only humans weep, including the use of weeping as a signal. Darwin also noted that there were two emotional expressions that were peculiar to adult humans. One is the frown (expressing not only worry or disapproval, but also intellectual concentration). The other is blushing (when an act of self-attention is infused with a knowledge that other people are also attending to oneself at the same time; blushing is usually facial because the face is the body-part most obviously visible to onlookers).

Enough has been said to convince the reader that the human behavior patterns typical of the expression of the emotions can be seen to have evolved, often with surprising twists and turns, from the manners in which subhominid creatures express simple emotions such as fear, rage, and surprise. Characteristics that are giveaways concerning the antiquity of certain expressive movements are whether or not the infants of a given species share those movements, from the time of birth, with adults (for example, newborn and adult humans share screaming as a common response to pain, but not weeping); whether or not all, or only some, humans share those movements (for example, affection expressed by kissing, and agreement expressed by head-nodding, are not universal among humans, so are probably determined culturally rather than by inheritance); and whether or not a given set of movements can be controlled voluntarily by both ancient and modern varieties of a species (for example, Darwin speculated that the hominid ancestors of present-day humans could voluntarily vomit food that turned out to be unpleasant when eaten, whereas present-day humans become ill before involuntarily vomiting such food; Darwin thought that modern-day expressions of disgust might be vestiges of that ancestral habit). Incidentally, Sir Francis Darwin (1848–1925), the botanist son of Darwin who completed the editing of the posthumous second edition of Darwin's book, noted that Darwin himself may have queried this explanation after it had been published in the first edition (Darwin 1872/1904, p. 271, Footnote 12).

It is appropriate to mention here that Morris (1967) has surveyed a variety of human expressions of emotion from the same perspective as did Darwin,

but with the addition of more detail than is found in Darwin concerning the expression of emotions involved in human courtship and the human sex act. Morris made good use of the well-known evidence on human sexual responses provided by Masters and Johnson (1966). In discussing present-day social interactions, Morris stressed how the various expressions of aggression in animals (especially those of threatened animals) and of submission in animals (especially those adopted by animals low in a social hierarchy with a dominant male) have their modern counterparts in human behavior. A useful table showing that the social organization of different species of apes is surprisingly variable has been provided by Foley (1995, p. 185) and will be discussed again later.

The classification of the emotions had been a topic of discussion since antiquity; the writings of Hippocrates, Plato, Galen, and others were modified and crystallized into a theologically-based canon of Western psychology by St. Thomas Aquinas (1225–1273). Murray (1988, Chaps. 1 and 2) has summarized these characteristics and here it need only be stated that the emotions were divided into two major classes: those that were aroused in the originations of, and attempts to satisfy, particular desires (the so-called “concupiscent” passions) and those that were aroused when the execution of concupiscent-based actions were thwarted or frustrated (the so-called “irascible” passions). In their review of various modern attempts to classify the emotions, Nesse and Ellsworth (2009) give prominence to the view of Nesse (2004) to the effect that a phylogeny of emotions can be derived from a kind of arousal called “excitement” and another called “apprehension.” Excitement leads to desire and hope; apprehension leads to fear and anxiety. Other emotions fall naturally into place as the desires and/or fears are satisfied or blocked in the course of mating, kinship relations, alliance formation, and the preservation of social status (Nesse 2004, Fig. 2, p. 131). If Nesse's “excitement” is compared with Aquinas's “concupiscent,” and Nesse's “apprehension” is a counterpart to Aquinas's “irascibility” when a desire is thwarted, there is an unexpected convergence between the two.

As for the ways in which emotions are actually expressed by humans and animals, Hess and Thibault (2009) have shown how distinctions have been made

between a theory that stresses the communicative or “cultural” importance of expression of emotion (Darwin 1872/1904; Ekman et al. 1972), a theory that expressions of emotion are signals of behavioral intentions (Fridlund 1994), and a theory that stresses that expressions of emotions are signals of an animal’s appraisal of a situation (Frijda 2000; Scherer 1984). Darwin himself thought that “some expressions are what we might call signals, some are not, and that when they first originated, before they began to evolve, none were signals” (Ghiselin 1973, p. 965).

Darwin’s findings can be schematized as having been concerned with the *feelings* associated with emotions, with the *control* of those emotions, and with the *learning* of how to control both the intensity of the feelings and the unambiguousness of the expressions of those emotions. A brief digression is in order here. The idea of classifying mental characteristics under a few headings goes back to Greek and Roman times. For example, St. Augustine (354–430) argued that the three major faculties of the human mind were memory, understanding, and will; these were superimposed on a model of brain that stressed that inputs from the five senses were integrated there, elaborated using reason (humans) or inherited instincts (animals), and then stored as memories (Murray 1988, pp. 37–68). By the time of Immanuel Kant (1724–1804), St. Augustine’s division was being replaced by a more general scheme that still included inherited behavior patterns, but, with a few exceptions, excluded the idea that any kind of “knowledge” could be inherited. Kant, who was one of those exceptions (please see the section on Baldwin below), has been described by Murphy (1949, p. 404) as having concentrated on the distinctions between “feeling,” “willing,” and “knowing.” As academia slowly absorbed psychology into its curricula, this division became ingrained in the teaching of psychology; for example, Porter’s (1877) textbook entitled *The Elements of Intellectual Science* distinguished between three kinds of conscious state, namely, states of feeling, states of will, and states of knowledge, and so did many other late nineteenth-century textbooks of human psychology.

At the start of the twentieth century, the behaviorist movement, founded by J. B. Watson (1878–1958), emphasized the importance of learning in animal

and human behavior to such an extent that the possibility that behavior patterns could be inherited was more or less overlooked (except insofar as some simple muscular responses and glandular secretions were acknowledged to be “reflex”). The claims of McDougall (1908/1931, especially p. 333), who argued that feeling (“affective”) states, willing (“conative”) states, and knowing (“cognitive”) states had to be integrated into discussions of purposive and instinctive behavior, were widely known but under-appreciated. Tolman (1932), working within the same academic environment that had fostered the over-emphasis on learning theory, was eventually able to demonstrate experimentally that the behavior of rats in laboratory tasks showed evidence of purposiveness and of sophisticated forms of mental representation. This was among the first major breaches to be made in the behaviorist fortress.

The reason that this is mentioned here is that, in their histories of evolutionary thought in psychology, both Plotkin (2004, pp. 53–62) and Salmon and Crawford (2008, pp. 7–8) have asserted that evolutionary psychology almost vanished in Western universities during the behavioristic period covering roughly the years 1913–1950. Green (2009), however, has contended that this view of the history of evolutionary psychology is too black-and-white; the movement known as American “functionalism” maintained a pro-Darwinian position vis-à-vis the name and the nature of psychology over the first decade or so of the twentieth century. The fact that one of functionalism’s outcomes was Watson’s (1913) initial manifesto of the behaviorist ideology should not, according to Green, blind us to the importance with which evolutionary theory had been invested between about 1900 and 1913.

Romanes on the Evolution of Feeling, Willing, and Knowing in Animals and Humans

The division of the mind into compartments labeled feeling, willing, and knowing was an intrinsic feature of the first major attempt, following Darwin’s demise in 1882, to stipulate how natural and sexual selection could have combined, through geological time, to endow the various species of animals (including humans) with the abilities to feel, control, and amend

their emotions. Darwin had served as a mentor to a Canadian-born colleague, almost 40 years his junior, named George John Romanes (1848–1894); a new monograph about Romanes's life and letters is entitled *Darwin's Disciple* (Schwartz 2010). It was Romanes who undertook this enormous and challenging task. Romanes used the terms “the emotions,” “the will,” and “the intellect” for his tripartite classification of the mental abilities.

He drew a large chart showing how different species had evolved, from simple unicellular and multicellular organisms with very low levels of sensory discrimination and of neural mobility, to species whose diversity of emotions, whose level of control of the expression of those emotions, and whose increasing degrees of sophistication at habit-formation and at problem-solving would eventually attain the levels we associate with *Homo sapiens*. A special development in the realm of “intellect,” one that probably took place in the transition from early hominid species to present-day *Homo sapiens*, was the introduction of human language.

In order to have been able to construct this chart, Romanes had to collect reliable information about the behavior patterns associated with a large number of the known species of fauna; most of his evidence on insects could be drawn from the findings of experiments by entomologists, but most of his evidence on subhominid vertebrates had to be based on observations, made in zoo settings, household pet settings, farm settings, and natural outdoor settings, by authorities Romanes considered reliable, including missionaries, military personnel, professional breeders, and fellow naturalists. *Animal Intelligence* (Romanes 1882) documented these observations for species ranging from insects to dogs and apes. *Mental Evolution in Animals* (1883) drew from the observations reported in *Animal Intelligence* to construct those portions of the chart that applied to those subhominid animals. And *Mental Evolution in Man* (1888) filled in an empty portion of the chart, from the apes to humans, including separate discussions of the evolutionary origins of language and of self-consciousness. We may give a brief overview of the gist of this chart, which was published as a pullout in both *Mental Evolution in Animals* and in *Mental Evolution in Man*. The chart has been reproduced by Grinder (1967,

pullout facing p. 172), Boakes (1984, p. 29), and Murray (1988, pp. 266–267).

Romanes essentially reiterated Darwin's claim that the emotions experienced by humans were more influenced by experience and were more capable of being controlled than was the case for subhominid animals. Romanes contended that unicellular and multicellular marine animals (e.g., coelenterates, starfish) felt no emotions; the most primitive emotions, those of surprise and fear, first emerged in the larvae of insects and in the annelid worms; these, as well as the molluscs, probably also possessed sexual emotions, that were not, however, influenced by preferences based on sexual selection. Insects and spiders were the first to reveal parental affection, sexual feelings based on sexual selection, pugnacity, industry, and curiosity. Fish and batrachia showed jealousy, anger, and play, whereas “higher crustacea,” reptiles, cephalopods, moths, and butterflies were capable of affection and sympathy.

With birds, came the appearance of an aesthetic love of ornament, the use of imitation (called “emulation” by Romanes), and the emergence of pride; resentment and terror could also be experienced by birds. The carnivores, rodents, and ruminants are capable of feeling both benevolence and the “negative” emotions we call cruelty, hatred, and grief. Monkeys and elephants were claimed to add, to the above emotions, rage and revenge; and dogs and the anthropoid apes were claimed to add, to these emotions, shame, remorse, deceitfulness, and a sense of the ludicrous. It has now been confirmed that primates do indeed practice deception (Byrne and Corp 2004). On a psychological scale purporting to measure the level of attainment of the “products of emotional development,” Romanes judged dogs and anthropoid apes as having a rating of 28 on a scale of 1–50. Ancestral hominid species were rated as being between 31 and 37, while humans ran a gamut from 37 to 49.

No breakdowns in terms of separate words or names were given of the evolution of individual levels of voluntary control over movement, non-endocrine secretions, or expressions of emotions; the levels of control were simply presumed to be lower in invertebrates generally than they are in vertebrates, with humans having the highest rating.

Romanes's analysis of the evolution of intellect was prescient. Very broadly, the simplest unicellular and

protoplasmic organisms have “excitability,” that is, they are able to move (using non-neural mechanisms) in certain environments. Among the earliest appearances of sensory nerves, along with motor nerves, are those found in jellyfish (who respond to a sensory stimulus with their whole body) and in starfish (who respond to a sensory stimulus with only part of their body, such as an arm). Romanes’s experimental research on this topic led Lesch (1976) to consider him a pioneer in the discovery of the synapse. To Romanes’s heading of “sensation,” which Romanes thought was probably first found in extinct coelenterates, were added various products of learning and of cerebrosplinal elaboration. So, to “sensation” were added “perception” (first found in molluscs, then in insects and spiders), “imagination” (first found in fish and batrachia), and, first found in the other animals listed above, “abstraction,” “generalization,” and “reflection and self-conscious thought.” Romanes’s usages of these terms will now be described.

Along with “sensation” in the coelenterates and echinoderms appeared pleasure and pain. Along with “perception” appeared memory and association by contiguity; Romanes’s claim is in agreement with modern research on habituation and on classical conditioning in the marine mollusc *Aplysia* (Kandel 2006). Along with “imagination” appeared the recognition of offspring (insects and spiders), association by similarity (fish and batrachia), reason (higher crustacea), recognition of individuals (reptiles and cephalopods), and the communication of ideas (butterflies and moths). According to Romanes, birds can recognize pictures and respond to words of command. Carnivores, rodents, and ruminants can “understand mechanisms,” that is, manipulate objects in order to change the location of those objects, a pre-requisite for the solution of many problems in laboratory settings. Under the heading “abstraction” appears the use of tools by monkeys and elephants and an “indefinite morality” attained by dogs and anthropoid apes.

At the same time, Romanes suggested that the above stages of cognitive development in animals were recapitulated over the first 15 months of a human’s life. But older children can go on to develop what Romanes called “generalization” (which here refers to concepts of the kind often referred to by abstract nouns) and “reflection and self-conscious

thought” (the “self-attention” Darwin had referred to in his analysis of human blushing behavior).

In his third book, Romanes went on to show how language could have evolved in the course of speciation whereby *Homo sapiens* had evolved from hominids and subhominids. Romanes’s theory of language is here presented in oversimplified form; but it too incorporated the assumption of a recapitulation, during a human child’s growth from infancy to the age of about 5, of the stages by which language had evolved across subhominid and hominid species.

Romanes saw the evolution of human language as progressing in intimate association with the progression of two other intellectual capacities along the lineage leading from subhominid animals to *Homo sapiens*. One of these capacities concerned the ability to learn; the other concerned the ability to experience self-awareness. What we, as human adults, call “mental states” varies in clarity from sleep-states involving no conscious experiences (other than occasional dreams), through intermediate half-waking states which, with Romanes, we here deliberately call “vague” states of conscious awareness, to the full-blown clarity of those conscious states we describe variously as “waking,” “alert,” “aroused,” or “self-aware.” For Romanes, a complex human language is only available to organisms who are capable of memorizing a large number of words, whose vocal apparatus is capable of pronouncing a large number of phonemes, and whose consciousness is capable of taking on an immense variety of potential mental states, many of which can be communicated verbally to others who share most or all of that same kind of consciousness.

From the learning point of view, we have already seen how Romanes ascribed habituation and learning by contiguity to creatures as simple as molluscs, and learning by similarity to vertebrates such as fish and frogs. What the word “learning” means, at least in most of the animal literature, is that a stimulus that would normally elicit an unlearned response such as surprise or fear can, through repetition or even one-time experience, come to elicit no surprise or anxiety; on the other side of the coin, stimuli that normally elicit responses indicative of pleasure or of insouciant curiosity, can, through repetition or even one-time experience, come to elicit avoidance responses. Typical of the latter is the way in which

birds can learn to avoid pecking at caterpillars following just one unpleasant experience with a bitter-tasting morsel. Let us completely ignore the behaviorist advice that we can avoid the charge of anthropomorphism by not speculating about an animal's presumed feelings of "consciousness," and say that the bird *is* "aware" in what we deliberately describe as a "vague" way, that the particular sense-data associated with that particular species of caterpillar should be appropriately followed by behavioral responses that do not include pecking at that caterpillar. Then we can say that the stimulus that consists of the sight of that caterpillar has acquired the potential to lead to a range of responses none of which were subsumed under the range of neutral, or interest-aroused, responses associated with inexperience with that class of stimuli. But because the bird's "conscious" level of awareness is presumed to be "vague," the learned association between the caterpillar and "not pecking" was given, by Romanes, its own special name; it is a "receptual" association. Had a human learned that a particular brand of chocolate ought not to be purchased because the chocolate contained an allergen or was too hard-centered for the human's taste, the association between the brand and "not buying" would have been given, by Romanes, the special name of "conceptual" association. The human's presumed "conscious" level of awareness of this association is "clear" (as opposed to "vague"), and the association can be clearly communicated verbally to other humans who share his or her language.

For Romanes, the origins of language development proceeded phylogenetically in lockstep with a transition from animals and hominids capable of acquiring "receptual" associations to *Homo sapiens*, who, in infancy, can only acquire receptual associations, but, in early childhood, can grow to acquire conceptual associations as well. Communications between animals have been listed by Wilson (1975/2000, Chap. 10) as being chemical, tactile, surface-wave, visual, electrical, and auditory. The earliest auditory communications between animals were the emission of sounds, usually involuntary, but, as the brain grew in complexity, could have become voluntary, for example, a bird-call serving as a warning-signal to its young. Among hominids, warning-cries and other signals were probably complemented by communicative gestures, and by

sounds that imitated natural phenomena (such as the roar of a lion, or a clap of thunder) or consisted of rhythmic chanting for marching or other repetitive work. Knobloch (1988) has summarized the history of such ideas in Germany prior to Wundt's (1921/1973) exposition of his version of the gesture theory of the origins of human language; Murray (1990a) has reviewed Knobloch's book and summarized its contents.

Romanes, while not denying the usefulness of these theories, preferred to stress that individuals among *Homo sapiens*, who had evolved a throat- and tongue-musculature that was capable of enunciating many more sounds than could be produced by any other species of primate, started, when they were infants, by using the rudiments of verbal communication in contexts where receptual associations were acquired; for example, a child just beginning to learn to talk could ask for something present-in-the-here-and-now (for example, some milk visible on the table), not only by pointing to it but also by emitting a word such as "Mama" or "milk." After the child has developed the ability to mentally represent things-not-present-in-the-here-and-now, the child could use the word "milk" to ask for milk when none was visible; and the growth of conceptual association-forming would lead the child to construct multiword units such as "milk cold" and later to construct sentences such as "this milk is cold" if his request for milk had been satisfied. The final stage in the acquisition of language by conceptual association-forming is when the child has developed a self-concept, and so can say "I want you to bring me some milk." When the child has reached the conceptual level of mental representation, growth in linguistic skill does not have any parallels in subhominid animals, and is closely related to the growth of the child's degree of self-awareness.

Three points need to be made immediately about the foregoing account. First, in simplifying the argument for the purposes of this entry, many distinctions and subdivisions made by Romanes, in his theory of the evolution of language, have been omitted.

Second, Romanes's distinction between receptual and conceptual associations has an important present-day parallel in the distinction now being made by evolutionary psychologists between

“primary” and “secondary” mental representations. In most animals, and in very young children, any representations of events in the external world are based on the presence of those events in the here-and-now and are called “primary” representations. If a ball rolls under a sofa, the child behaves as if the ball had vanished (“out of sight, out of mind”). An older child, however, as well as many vertebrates with a high level of cerebral development, can behave as if they were aware that the ball still existed, but was merely hidden from view by the sofa. So a human child will scabble with her hands, or even with a stick, under the sofa, hoping to retrieve the ball. The child has a mental representation of the continued existence of the ball, even though the ball is absent from the visible contents of the here-and-now. Such a representation is called a “secondary” representation. In his pioneering work on how children acquire social skills and their versions of what is popularly called a “theory of mind,” Perner (1991) introduced the distinction between primary and secondary representations; and the degree to which the distinction has been adopted is exemplified by the following title of a journal article: “Mental evolution and development: Evidence for secondary representation in children, great apes, and other animals” (Suddendorf and Whiten 2001). This article summarizes findings by late twentieth-century evolutionary psychologists that essentially corroborate Romanes’s postulate that humans, hominids, and perhaps apes, monkeys, dogs, and elephants can mentally represent events not taking place in the here-and-now. According to Romanes, the evolution of this ability laid a foundation for the evolution of spoken language in *Homo sapiens*, who, alone among organisms, has a vocal apparatus capable of making the many sound-producing articulations necessary to support such a language.

Third, this theory of Romanes’s (1888) about the evolution of human language has been almost completely forgotten in the later literature. None of the late twentieth-century writers on the evolution of language mention it; these writers include Donald (1991, 2001), Kirby (2007), MacNeilage and Davis (2005), and Perner (1991). Corballis (1991, pp. 16–17) briefly mentioned Romanes’s (1883) chart but made no attempt to deal with Romanes’s (1888) theory of the evolution of language.

This completes our summary of theories about how human psychology, especially the psychology of emotional expression and of cognitive development, could be integrated into the new Darwinian formulation of the animal kingdom and how it had evolved. Central to that evaluation were the mechanisms of natural selection and sexual selection. But, before the nineteenth century came to a close, advances in child psychology led James Mark Baldwin (1861–1934) to speculate that children who were specially adept at acquiring new skills might have also have inherited that adeptness; and Romanes himself, who, like his contemporaries, knew little about the physiological transmission of heredity, contributed to the discussion of evolution a new form of selection based on some ideas about that little-known physiological transmission, ideas that have never received, till the twenty-first century, the attention they deserved. Baldwin (1896) postulated what he called “organic selection,” which had to do with the adaptive value of the degree of readiness-to-learn in given individuals within a species. Romanes (1886, 1897) postulated what he called “physiological selection,” which had to do with anomalous physiological characteristics possessed, by chance, by both conspecific parents at the time of conception.

Baldwin’s “Organic Selection”

Baldwin had a strong background in the non-Kantian empiricism of the Scottish “common sense” school (Murray 1988, pp. 121–124) and the British associationist school (Murray 1988, pp. 137–161). This was in part because one of his earliest instructors was James McCosh (1811–1894), who served as the President of Princeton University between 1869 and 1888 and who wrote a book about the Scottish school during his tenure there (McCosh 1875). Kant is mentioned here because, as O’Keefe and Nadel (1978) have suggested, he was a proto-evolutionist who believed that the brain/mind system of every animal was geared to mesh with its environment in order that the animal survive. For example, birds can fly, with little in the way of formal instruction, without collisions except in illusion-inducing circumstances. Baldwin, however, felt that this meshing of gears vis-à-vis an animal and its environment must necessarily have been acquired by an evolutionary process, one that had extended over

the previous generations of the animal's lineage (a "phylogenetic" process) but one that could also operate within an animal's own experience (an "ontogenetic" process).

A study of his own children convinced Baldwin (1895) that a child had to learn to acquire an understanding, not only of how his or her environment can be influenced by his or her voluntary actions (such as when a child reaches out to grasp an object), but also of how other humans, children or adults, would respond to his or her own voluntary actions (such as when the child asks a person for an object). Baldwin asserted that the acquisition of this understanding involved a series of ever-advancing feedback-loops. For example, the child would do action *A*, the environment would be changed, and the child's mental representation of the environment would be modified; next time the child did *A*, a modification of *A* would suit the child's changed representation of the environment. To illustrate this process using a concrete application: If action *A* consists of the child's moving a cup nearer to herself, the child would mentally represent the cup as being nearer, and the next time the child reached for the cup, the child would reach a shorter distance than had been the case when she first reached for it. Advancement in dealings with other people would follow a similar pattern, leading to the child's developing a theory of mind that facilitated the child's social development. An important component in these learning-by-results processes is the incorporation, into the child's repertory of behavior patterns, of certain acts that had been acquired by imitation; imitation would be especially important in language acquisition and in cooperative play with other children in which toys were interchanged. This theory of the development of child cognition is, of course, a historical antecedent of that associated with the name of Jean Piaget (1896–1980), a matter discussed by Cahan (1984). It also shares elements with the views of Perner (1991) mentioned above. As will be explained below, our modern understanding of learning by imitation is also being strongly influenced by the late twentieth-century discovery of "mirror neurons."

But, if Baldwin's approach were to be considered a plausible extension, to human behavior, of the evolutionary processes that had been applied, by Darwin and Romanes, to animal behavior, there would be

a need for a new mechanism of selection to be added to the categories of natural and sexual selection. This new kind of selection would have the adaptive consequence of favoring, in the breeding process, those individuals who could adjust most successfully to new situations, where, by "adjusting successfully," we can include the remembering and subsequent and modified performance of intended movements, such as reaching and grasping, and vocalizations such as requests (what Skinner 1957, called "mands") or verbal expressions concerning the infant's primary and secondary mental representations (what Skinner called "tacts"). Any infant (of any species) who was more efficient at adjusting his or her behavior in a world that responded to their movements and vocalizations (animals), or to their movements and utterances (humans), would, it was postulated, possess genetic characteristics that reflected this adjustability or readiness-to-learn; and so, in the course of evolution, those individuals who were most successful at responding to an always changing environment would be favored.

Baldwin (1896) called this "organic selection," although it later came also to be known as the "Baldwin effect" (Weber and Depew 2003). Gottlieb (1979) has placed organic selection into a context of evolutionary theory generally; Wozniak (1998) has traced in detail Baldwin's progression from child psychology to evolutionary psychology; Plotkin (2004, p. 83) has stated that Baldwin is the only psychologist to have exerted an influence on evolutionary theory in a specialist sense of that term; and Kirby (2007) has stressed that the Baldwin effect is consistent with complex dynamical systems each of which operates on a different time-scale, namely, individual learning, genetic selection (especially of language), cultural transmission, and biological evolution. Baldwin arranged for his collected papers on evolution to be published, conveniently, in book form (Baldwin 1902).

Baldwin was also among the first to discuss what is currently called "evolutionary epistemology" (Plotkin 2004, pp. 83–88; Wozniak 1998, pp. 449–451); it is a close relative of "genetic epistemology" (Inhelder 1998). The word "epistemology" refers to a theory of knowledge and, here, has a specialized connotation concerning the growth of knowledge within an individual's lifetime; Baldwin's theory of how a child

acquired her knowledge by a series of feedback-loops can be interpreted as a theory according to which successful actions persist in, and unsuccessful actions drop out of, the repertory of behavior patterns acquired as the child ages. This obvious analogy with evolutionary “successes” (adaptations leading to reproductive success) and “failures” (adaptations leading to reproductive failures) as geological time advances led Herbert Spencer (1820–1903), one of Darwin’s first adherents, to claim that the persistence or dropping out of habits, depending on the “success” or “failure” of those habits with respect to the individual’s well-being, could be described as an ongoing transition from a “homogeneity” of potential behavior patterns in the neonate to a “heterogeneity” of established behavior patterns in the elderly (Spencer 1855/1890).

Other examples of this approach in the recent literature on intraindividual development include the application of dynamic systems theory to cognitive development in the child (Lewis 1995) and the extension of a Darwinian approach to individual sequences of neural events that can persist or drop out depending on the benefits they can confer on normal neurophysiological processes (Edelman 1987). Murray and Farahmand (1998) have pointed out that the Gestalt psychologist Kurt Koffka (1886–1941) presented a view of child cognitive development that anticipated the dynamic systems approach (Koffka 1921/1925).

The behaviorist J. B. Watson presented a chart of the conditioned reflexes he presumed to be acquired by a typical child during the first 6 years of his or her life (Watson 1924/1930, p. 138); whether a given item of behavior was rewarded or punished determined its longevity within the hierarchy of habits attained by the child. This is as valid an example of “evolutionary epistemology” as are others in the above list; where Watson differed from those others, however, was in his downplaying of purposiveness in animals, and of mental imagery in humans, as contributors to the ontogenetic development of problem-solving ability. Also in the behaviorist tradition is the account given by Homans (1961), who provided a Skinnerian analysis of the development of human social behavior within a human’s lifetime in terms of what behavior patterns have been socially rewarded and therefore repeated. The sociobiologist E. O. Wilson has contended that

the word “reward” can be defined as the “set of all interactions defined by the emotive centers of the brain as desirable. According to evolutionary theory, desirability is measured in terms of genetic fitness, and the emotive centers have been programmed accordingly” (Wilson 1975/2000, p. 551).

Romanes’s “Physiological Selection”

Darwin, in discussing the use by humans of a shoulder-shrug to express a sense of powerlessness or inability to improve a situation, had referred to a case history communicated to him by a “medical professor” (Darwin 1872/1904, p. 277). According to Darwin, the low level of demonstrativeness displayed by English men and women as compared with that of other European people implied that shoulder-shrugging should be less common in England than on the Continent. In the case in question, a gentleman we here name X, for convenience, had a French father and a British mother. X married a lady, both of whose parents were British. Their two children were reared in Britain, with the assistance of a British nursemaid. Neither X’s wife nor the nursemaid showed any inclination to shrug their shoulders; X himself did so only occasionally, especially when arguing with somebody. But both of X’s children shrugged their shoulders as infants, with the habit dropping out when the children were about a year and a half old. Moreover, both children had a strong physical resemblance to their French grandfather. When that grandfather had wanted something immediately, he had indicated his impatience by rapidly rubbing his thumb against his index and middle fingers; neither X nor his wife used this gesture; but both of X’s children did display it, even though they had never met their grandfather.

This case demonstrated that there was more of a resemblance, with respect to this voluntary gesture, as well as to shoulder-shrugging, between the grandfather of X’s children and X’s children than there was between X and X’s children. For present-day evolutionists, the interesting feature of this case is that a behavior pattern, rather than an anatomical or physiological characteristic, appears to have been inherited; but, for Darwin’s generation, another interesting feature was that children could, in some cases, inherit a characteristic more typical of their grandparents than of their parents.

The explanation of this riddle we owe, of course, to Gregor Johann Mendel (1822–1884), who had studied sweet peas that he grew in his monastery garden in experiments that ultimately led to what we now call the “Mendelian laws of heredity.” These are most often taught to students using examples such as the inheritance of eye color, or Mendel’s own experiments. Using the latter method, Cock and Forsdyke (2008, pp. 205–206) show how Mendel’s experimentation had demonstrated that a characteristic that is not expressed by the first generation of offspring can nevertheless be expressed by the second generation. Mendel had reported this research in 1865, 6 years after the publication of *The Origin of Species* in 1859; but it lay, almost unread, until the work of H. M. de Vries (1848–1935) and others led to its rediscovery in 1900. In Britain, the mathematician W. F. R. Weldon (1860–1906) provided an accurate but critical account of the Mendelian laws of heredity (Weldon 1902), and William Bateson (1861–1926) proposed that the new specialization in science that included the study of heredity and of evolution be named “genetics” (Cock and Forsdyke 2008, p. 248). Moreover, according to these authors, “Bateson was the first to show that Mendel’s laws apply to animals as well as to plants” (Cock and Forsdyke 2008, p. xviii).

But a controversy over the scientific value to be attached to those observational and experimental situations that reported frequencies of genetic features that did not exactly match those predicted by Mendel’s laws led to a rift in the fledgling community of geneticists between a group consisting of Sir Francis Galton (1822–1911, a cousin of Darwin), Karl Pearson (1857–1936) and others, and a competing group consisting of Sir Ronald A. Fisher (1890–1962) and his supporters. This fascinating story is told by Cock and Forsdyke (2008, pp. 197–294), and Plotkin (2004, pp. 62–69) indicates that, because the Galton group were in favor of eugenic engineering to improve society, the resulting dislike, by many social scientists, of the Galton group led to a rather sudden loss of interest in the pursuit of the evolutionary psychology that had been set on such a firm foundation by Darwin, Romanes, and Baldwin. An account of the eugenics movement that relates it to the ongoing movements in genetics is given by Cock and Forsdyke (2008, pp. 419–438).

But we are ahead of ourselves. Back in the 1880s, around the time of Darwin’s death in 1882 and the appearance of Romanes’s books on the evolution of cognition, little was known about the physiological mechanism underlying intergenerational inheritance. Darwin had invented the word “gemmule” to refer to this hypothesized mechanism; Romanes had adopted the word “germ-plasm” from the biologist A. F. L. Weismann (1834–1914), who was among the first to demonstrate that physiological characteristics acquired by an individual prior to becoming a parent were not passed on to the offspring of that parent. For Romanes, the germ-plasm denotes the unknown carrier that took information from the parents and transmitted it, via the sperm and the ovum, to the offspring. One of the difficulties with both natural selection and sexual selection was that they both seemed too “slow” to produce new species (as opposed to varieties) very often in the course of geological time.

Romanes’s postulated “physiological selection” offered a partial solution to that problem. According to Romanes, it could be that an accidental (unpredictable) variation could arise in the germ-plasm of a male which could be matched by an identical, or highly similar, but equally accidental, variation in the germ-plasm of a conspecific female. If this male mated with that female, the offspring would be fertile (as opposed to sterile, which usually occurs when the male of one species mates with a female from a different species). Moreover, the first generation resulting from this mating could have physical and/or behavioral characteristics so different from the corresponding characteristics in the parents, that the first generation could not readily be classified as a normal “variation,” or even as a “variety” of the parents’ species, but instead might plausibly be classified as being the first generation of a new species. That even a minor variation in the first generation could actually persist (rather than be eliminated) in later generations had been proved, using probability theory, by Delboeuf (1877/2010).

Although Romanes’s speculation was ignored for some 100 years after he put it forward, Forsdyke (2006) has argued, in fine detail, that physiological selection can be considered to be a precursor of a new hypothesis about hereditary transmission, one that is currently being evaluated by experts in evolutionary bioinformatics. The hypothesis is that phenotypes

(those observable characteristics of a species that are inherited as opposed to acquired) are not restricted to the conventional kind that has evolved as a consequence of natural selection. They can also include “genome phenotypes” that have evolved as a consequence of the operation of physiological selection. Watson and Crick (1953) had reported that genetic information is coded by individual “base pairs” (adenine-bonded-by-hydrogen-with-thymine, cysteine-bonded-by-hydrogen-with-guanine) that join the two sides of the twisted “ladder” of the DNA molecule like individual rungs. Through a process too detailed to describe here, a sequential pattern of base pairs can be transcribed onto an RNA molecule, and that pattern can later serve as a code for the assemblage of a protein molecule. Protein molecules constitute the building blocks of many cells and also assist in many of the chemical processes involved in the total work of getting from the original DNA molecule to the cells of the offspring-organism that results from the uniting of the DNA from the mother with the DNA from the father.

There have been at least two surprising discoveries about the length of human DNA molecules, where the “length” of a DNA molecule is measured by the number of base pairs each DNA molecule contains. First, despite the fact that humans are cognitively very much more advanced than are amoebae or lungfish, human DNA molecules contain *fewer* base pairs than do the DNA molecules of some apparently simpler animals. The length of a DNA molecule seems to be determined by the properties of the environment in which the organism lives, especially if extremes of temperature or of humidity are present (Watson 2003, p. 204).

Second, it is not the case that *every* base pair on a DNA molecule carries information that will mediate the encoding and production of the conventional phenotypes of an offspring-organism; only a fraction of the total number of base pairs on a DNA molecule can be called “genic.” This means that a typical human DNA molecule may have only a small percentage of its total length that is genic, the remaining portion being apparently “non-genic.” In the nucleus of a typical human cell (of any kind), there are 23 pairs of chromosomes, with each member of each pair containing its own complement of DNA; and “From

measurements of the amount of DNA in a single cell, we have been able to estimate that the human genome – half the DNA contents of a single nucleus – contains some 3.1 billion base pairs” (Watson 2003, p. 165). Of these, just over 35,000 base pairs are genic.

The near-billion remaining base pairs have been called “junk” (Watson 2003, p. 197); on the other hand, they may be precursors of strands of DNA resembling viruses (Dawkins 1976/2006, pp. 245–248); and, very recently, Barash et al. (2010) have observed that very few genic base pairs might actually determine what happens to very many of the apparently non-genic base pairs. The genome phenotype theory outlined by Forsdyke (2001, 2006) and by Cock and Forsdyke (2008) is able to assign properties to those so-called non-genic base pairs, properties that turn out, in fact, to assist in the transmission of heritable information from the parents’ DNA to the offspring’s DNA. The theory can also explain how a new species can arise more rapidly than would be the case if natural selection were the only determinant of what gets transmitted.

1900–1975: A Theoretical Background for Evolutionary Psychology

As noted above, there was a hiatus between about 1910 and 1960 in the study of evolutionary psychology because of the fear of eugenics and because of the dominance of behaviorism. In the discipline of genetics, the period between about 1910 and 1920 was dominated by experimentation, led by T. H. Morgan (1866–1945), on the means whereby chromosomes could mediate the transmission of inherited characteristics from the two parents to their offspring.

Morgan had used the word “gene” to specify the unknown factors contained in a chromosome that mediated the transmission of phenotype from parent to offspring. The 1943 edition of *Chambers’s Twentieth Century Dictionary* defined a gene as “a material unit whose transmission determines (along with other conditions) the inheritance of a given quality” (Davidson 1901/1943, p. 1232). Dawkins (1976/2006) has expressed his preference for Williams’s (1966) definition of a gene as “any portion of chromosomal material that potentially lasts for enough generations to serve as a unit of natural selection” (as cited by Dawkins 1976/2006, p. 28). Morgan’s (1926) book entitled *The Theory of the Gene* described the findings

he had obtained by breeding fruit-flies over several generations; the fact that fruit-fly cells only had four chromosomes made it possible to establish that some inherited phenotypes were linked together as if the corresponding genes had been linked on the same chromosome. Morgan considered that “mutations” arose when the two *copies* of a chromosome break apart and recombine during the “crossover” phase of the manufacture of sperm cells and egg cells. We now understand that a mutation can arise when one base of a base pair is miscopied during the recombination process (Watson 2003, p. 54).

Mathematics had been introduced into evolutionary theory by Delboeuf (1877/2010) and into population genetics by Galton, Weldon, Karl Pearson, and others influenced by developments in inferential statistics and by Galton’s (1888) introduction of the basic concept of statistical correlation. The period from about 1920 to about 1960 introduced mathematics into population ecology. Sewall Wright (1922), having introduced a single number, a “coefficient of inbreeding” that indicated the extent to which individual cattle were purebred, also introduced a “coefficient of relatedness” that would later be popularized by Hamilton (1964a, b). Fisher (1930) explained why the ratio of males to females among the offspring of many vertebrate species that reproduced sexually was about 50/50. Darwin (1871/1899, pp. 242–260) himself had devoted much energy to confirming the 50/50 balance in various vertebrate species. Sewall Wright (1931) showed that, in animal populations, random factors operating during the “crossover” phase of the interaction between copies of the same chromosome during the manufacture of a sperm cell or ovum can have a much greater influence when the population is small than when it is large. Waddington (1957) emphasized how a radical change in environment can favor the presentation of phenotypes that had been genetically determined, but not yet expressed, in individuals who were unusually resistant to the negative effects of that change. If the change persists, the exceptional genic information possessed by that individual would eventually be propagated throughout most of the population. This process of “genetic assimilation” was asserted by Wilson (1975/2000, p. 72) to be consistent with the Baldwin effect.

The period from about 1960 to 1980 was also a period in which new mathematical approaches were introduced into population ecology, but now most of the innovations were inspired by studies of insect populations. When the explanatory value of these quantitative approaches to insect populations became apparent, those same approaches were applied to vertebrate, including human, populations.

The two copies of the chromosome that determines the development of the sperm cell and ovum (in humans, chromosome #23) are labeled XX if a female reproductive cell (the ovum) is to be produced, and XY if a male reproductive cell (the sperm cell) is to be produced. In some insects, notably ants, the two copies of the corresponding chromosome are labeled XO, meaning that there is no chromosome copy equivalent to the Y chromosome copy seen in vertebrates. Making use of this anomaly, Wilson (1971) was able to explain why it should be that, in ant societies, one outsize female “queen” and one or more fertile males (“drones”) could produce a large number of “worker” offspring who themselves would never become parents. Later, Trivers and Hare (1976) showed that, if a majority of males were sterile and, therefore, not competing for females, a pattern of altruistic cooperation between individuals could emerge in a colony, leading to a kind of society named “eusocial” by entomologists. Eusocial societies have three aspects: individuals cooperate in the caring of the young; there is a division of labor with respect to reproductive behavior (for example, sterile males work on behalf of fertile males); and there is an overlap of at least two generations of individuals capable of this kind of cooperation for the good of the colony. Some of these characteristics are also typical of vertebrate “bearing and caring.”

Wynne-Edwards (1962) had argued that many species display altruistic behavior. Because altruism by definition included interactions between individuals who belong to groups, it would follow that any adaptations consequent to changes in altruistic behavior could be thought of as natural selection operating, not just on individuals, but on groups. Wynne-Edwards’s theory of “group selection” was, however, criticized by Maynard Smith (1964) as being less applicable in Nature than was a theory that specified that altruism was preferentially shown toward

an individual's kin; and Williams (1966) integrated various criticisms of group selection theory into a book-length argument, and also collected many of the articles mentioned here into a book of readings entitled *Group Selection* (Williams 1971).

Hamilton (1964a, b) argued, on quantitative grounds, that there would be a genetic advantage for the species if altruism were more likely to be demonstrated by an individual toward a close relative rather than toward a non-related individual. He hypothesized that the probability of altruistic behavior would decrease, with a proviso now to be mentioned, as the proportion of genes shared between the two individuals decreased. The proviso is as follows: within any species, some 90% of genes are shared; so the proportion of genes shared that are uniquely concerned with kinship will be below some 10%. Hamilton utilized the coefficient of relatedness, r , that described the probability that two related individuals would share a gene for an individual trait, over and above the 90% already shared. The crucial point to be noted is that the value of r for any given degree of kinship is not the same for insects as it is for vertebrates. Wilson (1975/2000, p. 416) provided a table, based on findings by Hamilton (1964a, b) and Trivers and Hare (1976), showing that the value of r relating an insect-mother to her daughter is 1/2; it is also true that the value of r relating a human mother to her daughter is 1/2. But the value of r relating an insect-mother to her son is 1.0, whereas the value of r relating a human mother to her son is 1/2.

Hamilton (1964a, b) used the appropriate values of r to calculate what was called the "inclusive fitness" of a social interaction between two individuals. His hypothesis was that "A genetically based act of altruism, selfishness, or spite will evolve if the average inclusive fitness of individuals within networks displaying it is greater than the inclusive fitness of individuals in otherwise comparable networks that do not display it" (Wilson 1975/2000, p. 118). By "inclusive fitness" is meant a measure of how two individuals can both benefit from an altruistic act, and the measure incorporates r .

It was realized, however, that any given altruistic act might involve costs as well as benefits. For example, the vervet monkey has a pronounced alarm call which benefits others by warning them of danger but exposes

the monkey itself by revealing its whereabouts (Gazzaniga 2008, p. 61). A form of mathematical analysis that is especially appropriate for the calculation of costs and benefits to two interacting individuals is game theory, which had been first applied in a biological context by Lewontin (1961). Maynard Smith (1972) later applied this approach to conflicts in humans; Maynard Smith and Price (1973) demonstrated its value when applied to animal conflicts; and Maynard Smith (1977) applied game theory to a specific case of "reciprocal altruism," a name that had been fruitfully applied by Trivers (1971) to cases in which two individuals cooperate in such a way that the inclusive fitness of both is increased. The specific case was that of parent/infant nurturance, where there is little question as to the benefit obtained by the infant, but where there can be a cost to the parent in terms of the time and effort invested in the feeding. Zahavi (1975) applied game theory to the problem of mate selection, which involves costs and benefits to both partners.

Much later, Zahavi (1995) argued that theories of group selection, kin selection, and reciprocal altruism all had their limitations, and that a better alternative was a theory that emphasized that altruistic behavior, no matter to whom it was displayed, also had a benefit for the helper. In fact, the value of "doing good" for the reputation of the helper had been stressed by Darwin (1871/1899, Chaps. 4 and 5) himself, who, in the words of Ghiselin (1973), had affirmed "that a "moral sense" had evolved. But since it furthers the competitive ability of the individual and his family, an "altruistic" act is really a form of ultimate self-interest" (p. 967).

Other evidence obtained in experiments concerned with human social interactions, led to the surfacing, in studies both of human and of animal conflict situations, of evidence that, within a population, there might evolve a common "Evolutionarily Stable Strategy" (ESS) with a genetic basis. In more problematic situations, however, there might emerge, within a population, two or more competing strategies. Separate groups of individuals might each prefer their own strategy for dealing with a conflict situation. Mate selection, sibling rivalry, male desertion, and the division of foodstuffs and other assets between individuals are all examples of conflict situations in human

societies where different strategies of conflict resolution for different individuals may have evolved. Some of these conflicts and these strategies will be mentioned again.

Standing back, it can be seen that the study of social behavior in insects in particular has led to what was earlier called a “gene’s eye” view of evolution. This view was epitomized in two classic works: Wilson’s *Sociobiology: The New Synthesis* (1975/2000) and Dawkins’s *The Selfish Gene* (1976/2006). Many investigators believe that both books remain solid foundations for present-day evolutionary psychology as it applies to humans. In the first edition of *Sociobiology*, the chapter on animal communication paved the way for the study of human communication when Wilson showed that gesture communications could include a range of about 10–20 separate movement “signals” in insects (including the “waggle dance” of honeybees), about 16 in fish (including the “zigzag dance” of the ten-spined stickleback), about 21 in birds, about 25 in mammals, and from 150 to 200 in humans; but humans can also communicate verbally, using between 20 and 60 phonemes (Wilson 1975/2000, pp. 184–185). In the second edition of *The Selfish Gene*, it was shown that eusocial colonies are not restricted to insects, as had been thought in the 1970s; on the dry Uganda/Kenya/Ethiopia borderlands, a recently discovered species of mammal, named the naked mole rat, lives underground in huge colonies and, like colonies of social insects, each colony has a single queen mole rat who breeds only with two or three males. All the other males are sterile; and the work of the smallest males includes digging the burrows and feeding the young (Dawkins 1976/2006, pp. 313–316). It is probable that these animals became naked in order to keep cool (Foley 1995, p. 142).

A historical account of the events discussed in this section, covering the period from 1920s to the 1980s, has recently been provided by Harman (2010). In *The Price of Altruism*, Harman weaves his narrative around the life of George Robert Price (1922–1975), who contributed substantially to the mathematical treatment of kinship theory, before disappearing from academia. Price’s treatment posited that group selection was one possible, but not necessary, determinant of the persistence of altruistic behavior down generations.

1975–2010: Current Trends in Evolutionary Psychology

What began as the study of eusocial insect colonies has led, in roughly the manner described above, to the study of the evolution of human societies, in which cooperative activities, resolutions of conflicts, strategies for competitive survival, and devices for the detection of wrongdoing, are commonplace features. Any evolutionary account of human behavior must, of necessity, treat human beings as members of the group of primates; the primates evolved later than many other orders of mammals, around 60 million years ago (MYA). The first primates to evolve were the ancestors of the modern lemurs, lorises, and tarsiers; the New World monkeys and the earliest hominoids emerged around 40 MYA. The Old World monkeys and the gibbons arose about 25 MYA and the orangutans, gorillas, and chimpanzees emerged between 11 and 2 MYA. About 2.4 MYA, *Homo habilis* had evolved; he was succeeded by *Australopithecus sediba* and then by *Homo erectus* about 1.8 MYA. From *Homo erectus* emerged two lines, namely, Neanderthal man (now extinct) and modern man (*Homo sapiens*). The division of hominids into these two most recent species took place around 0.25 MYA. That they shared a common ancestor has been strongly suggested by analysis of the DNA found in the mitochondria of Neanderthal fossils (Watson 2003, Chap. 9). A chart of modern *Homo sapiens*, showing its African and non-African varieties as estimated from studies of mitochondrial DNA, will be found on page 237 of Watson’s book.

Probably because of the varying environments and climatological conditions, the different species of ape had different types of social organization. Old World monkeys, and gibbons, like chimpanzees, are divided into kin-bonded groups; but the monkey and gibbon groups consist of females rather than males. Orangutans tend to be more solitary, but retain kin-bonding of females. Gorillas are organized very hierarchically, with one male gorilla keeping a harem which will be inherited by his son. Chimpanzees have kin-bonded groups of males in communities, where both males and females help with the offspring. According to Foley (1995), the dropping out of kin-bonding by females, and its replacement by kin-bonding by males, in the sequence leading from gibbons to chimpanzees, was:

- [P]robably a key event in evolution. It provides the ancestral condition from which the patterns of later hominids would be derived, and established the strategies that would be available for modification in the face of the further ecological and environmental shifts of the last 5 million years, the period of hominid evolution. It also illustrates the way in which behaviour, and social behaviour in particular ... is pivotal to understanding evolutionary events. (pp. 184–187)

Taking this assertion broadly, we begin by reviewing recent ideas on how present-day human cognition may have evolved as a consequence of a brain that had grown larger among the predecessors of humans *because* those predecessors had developed societies in which increased levels of social sophistication were demanded. The best-known proponent of this view was Robin Dunbar, whose ideas were paralleled by the general suggestion, by Byrne and Whiten (1988), that any kind of social organization demands of its members a high degree of understanding of how to interact with others. It was in 1988 that Dunbar produced his book entitled *Primate Social Systems* (Dunbar 1988).

It was, however, also at about the same time that other major contributions to human evolutionary psychology were made. For example, Cosmides and Tooby (1987) contributed an article entitled “From Evolution to Behavior: Evolutionary Psychology as the Missing Link,” and thereby started a sequence of investigations that culminated in an authoritative discussion on the role of social exchange in human society (Cosmides and Tooby 1992a, b). Gigerenzer and Todd developed the idea that many problems could be solved by humans using a small number of “fast and frugal” strategies of thinking. The idea of altruism that had been explored by evolutionary biologists was extended to incorporate the study of empathy into evolutionary psychology by Frans de Waal. Simon Baron-Cohen had formulated a model of how children begin to form a “theory of mind”; his theory was later amended to include more about emotions and empathy. Our treatment of human evolutionary psychology from 1975 to 2010 will therefore first trace, in more detail, the approaches to the topic illustrated by the contributions of Byrne and Whiten, Dunbar, Cosmides and Tooby, Gigerenzer

and Todd, de Waal, and Baron-Cohen, in that order. Some remaining issues will then be briefly introduced.

Primate Mental Evolution: From Byrne and Whiten’s Machiavellian Intelligence to Dunbar’s Social Brain Hypothesis

Prior to the surge of field studies in the 1950s and 1960s, discussions concerning the evolution of primate mentality had typically focused on two aspects of interest. First, there were accounts based on discussions of the use of tools by primates. For example, with bipedalism came the freedom to use one’s hands, so a new sophistication in primate intelligence was presumed to have evolved alongside the increased ability to coordinate manual and related bodily activities with mental activities. Second, influenced by new research on ecological issues, the suggestion was made that changes in problems of the environment prompted changes in primate brains. In the 1980s, a synthesis of these two approaches with a number of new observations took place regarding the evolution of primate mentality. These observations included (a) the complexity of primate social groupings (e.g., both competition and cooperation were taking place in the same social groups), (b) an extraordinary enlargement of the neocortex, relative to their body size, in primates, and (c) the finding of a correlation between brain size and group size; sizes in social groupings corresponded to increases in the mean size of the neocortex in the members of those groupings.

Although the sociality of animals in general had been recognized, sociality had not been considered in terms of its implications for the development of primate intelligence in particular. The observation that nonhuman primates often needed to rely on others for support in gaining rank in their social group, as well as to compete with others in that social group in order to attain status therein, presented a standpoint for investigating the particular skills needed to survive in the complexities of a primate society. With the recognition of the social complexity of the social world of primates came a need to account for how this complexity would be processed in terms of intelligence. Primates had to deal with many social dilemmas in their conspecific social groups. So the

question became: what capacities had evolved for maintaining the tricky balance between competition and cooperation in these conspecific groups?

The “Machiavellian Intelligence Hypothesis” (Byrne and Whiten 1988) was initially proposed as a means of explaining why primates have a larger neocortex relative to their body size than do other vertebrates, and how this increased size may have evolved, given the selection pressures exerted by social complexity and group size. (A more detailed anatomical account of the expansion of the neocortex has been given by Miller 2007.) According to Byrne (1996), primates needed to evolve the capacity to use their “heads” in keeping track of the players in their social world. Therefore, solving social problems, planning social interactions, and retaining memories of previous engagements all became skills that necessarily had to be developed within the primates’ social world; activities such as “coalition formation,” and mentalities such as “tactical deception,” were invoked to describe some of those skills.

The main idea behind the Machiavellian intelligence hypothesis is that increased social complexity served to select for increased cognitive sophistication, and the most important social skill that evolved was the ability to predict the actions of others. Social intelligence involves being able to make decisions about when to compete or when to cooperate, in addition to knowing how to engage toward either end; all three types of decision are facilitated by skills at predicting the actions of other individuals. Competition or cooperative activities in the primates’ social group can ultimately be explained through the “gene’s eye” view, where genetic fitness is operating at the level of the group. Two reasons given for why these advanced cognitive adaptations emerged were ecological pressures and social pressures. However, Byrne and Whiten argued that social pressures, in the case of primates, outweighed ecological pressures. This was because any increase in the sociality of primates would make it necessary for individuals to develop social intelligence and the cognitive capacity to predict what their opponent’s next move would be; those were the individuals who were more apt to survive.

Machiavellian Intelligence was renamed the “Social Brain Hypothesis” (Barton and Dunbar 1997; Dunbar 1998), and new hypotheses were formulated about how social group size correlates with neocortex volume in

primates. According to Dunbar (1998), bigger brains are expensive energy-wise; therefore there must be a good reason why the primate brain has gotten so large. In particular, the enlarged size of the primate brain is primarily due to an increase in the size of neocortex (which is generally regarded as the seat of the brain associated with reasoning and consciousness). According to proponents of the social brain hypothesis, the more social the reality, the more intelligent one must be. Dunbar and colleagues have found that physiological indices of intelligence (such as the “neocortical ratio,” which is the volume of the neocortex relative to that of other basal brain structures) correlate positively and significantly with indices of social complexity (group size).

The general level of cognitive capacity associated with individuals also acts as a constraint on the number of individuals that can coexist in one social group. The demands of the social system require an ability, not just to remember, but also to manipulate information (for example, by computing risk levels). Therefore, the larger the group, the greater the computational demand. This constraint on group size, according to Dunbar, is not only evident in nonhuman primate relationships, but also in human relationships. Dunbar reported that the sizes of various human groups identified in any society seem to cluster tightly around a series of values (5, 12, 35, 150, 500, and 2,000); as these values increase, they represent decreasing degrees of familiarity. It was predicted by social brain theorists that the amount of cognitive effort demanded by participation in any group would increase directly with the size of the group. For example, Dunbar (2003) claimed that we can retain five individuals in a close-knit clique, we can keep 12–15 persons in a “sympathy group,” and there are 30–50 people we encounter at least once a month. It is assumed that there is an advantage to having only a limited number of trusted others (e.g., kin and friends) nearby; one does not have to expend inordinate amounts of cognitive energy in keeping score or accounting for who had done what for whom. According to this view, the larger the social group, the more cognitively sophisticated one has to be in order to survive.

Dunbar (1996) expanded his opinions on the social brain to include the suggestion that grooming behavior

between apes in the social group, which serves the purpose of indicating to any member of the group which other members can be relied on to perform this favor, has a parallel in human language. In human language, the imparting of information about who can be trusted to deliver a service is often conveyed by gossip. According to Byrne (1997), “Dunbar therefore argues that speech evolved as an efficient replacement for grooming: Speech does not require the use of hands, which can thus collect food concurrently” (p. 178). Kudo and Dunbar (2001) claimed that social complexity itself could be measured by grooming clique size.

Dunbar (2007) himself has provided a short but valuable summary of his current views on the social brain. According to Dunbar, the evolution of the social brain made it possible for animals to live in groups in which collaborative efforts to solve problems of day-to-day survival would be more efficient than would leaving those problems to be solved by individuals alone. Dunbar also emphasized that humans may have needed a highly developed neocortex in order to make the computations necessary in social interactions in which one individual attempts to read another individual’s mind. The part of the neocortex that is best adapted for this function are the frontal lobes.

If individual X can determine Y’s intention, this is known as a “first-order level” of intentionality. If X can determine that Y can determine what X is intending, this is known as a “second-order” level of intentionality. Evidence that there is a linear relationship between the level of intentionality understood by a species and the absolute frontal lobe volume of that species has been reported by Dunbar (2003), using monkeys, apes, and humans.

Cosmides and Tooby’s Account of the Human Brain: Psychological Adaptations and Cognitive Modules

According to contemporary evolutionary psychologists Leda Cosmides and John Tooby (1992a), the human brain contains a number of functional mechanisms known as “modules,” which had evolved through the process of natural selection. According to these writers, evolutionary psychology is founded on a computational theory of mind, that is, the brain has developed different adaptive mechanisms or cognitive modules designed to address *particular* problems that

our ancestors would have encountered. As a means of ensuring the maintenance of reciprocal altruism in an increasingly social world, for example, Cosmides and Tooby proposed that these modules include a cheater-detection mechanism designed to reveal the presence of cheaters when we are dealing with others in our social exchanges. The word “cheater” had originally been introduced in the context of reciprocal altruism in animal populations; the word “cheating” had been used “solely for convenience to describe a failure to reciprocate; no conscious intent or moral connotation is implied” (Trivers 1971, p. 36). But, when extended to humans, Trivers acknowledged that repeated acts of non-reciprocation could lead to retaliation by the other altruist in the form of “moralistic aggression.”

The experiment for which Cosmides and Tooby are best known is too complicated to describe in detail here, so only its gist will be given. If a difficult problem involving the application of logical “if . . . then . . .” thinking is presented, in which a violation of logic has to be detected, and in which the four propositions of the problem are P (or not-P) and Q (or not-Q), many fail to detect that the conjunction of P and not-Q violates the rules of logic. But if the problem is presented in such a way that activities and people are involved in a problem in which a violation of social rules has to be detected, then the task is performed much more efficiently. For example, the activities can be described as drinking beer (or Coke) and the persons can be described as aged 25 (or 16); a violation of the drinking rules would be demonstrated by a person drinking beer who is only 16 (this is analogous to the case of P and not-Q).

The explanation offered by Cosmides and Tooby (1992b, pp. 184–206) for this finding emphasized that it was not just a change from non-familiar (P and Q) to familiar (person age 16 and drinking beer) or any of several other plausible hypotheses that could have led to this finding. It was the authors’ opinion that the ease with which the problem was solved arose from the fact that humans had evolved a special facility for detecting behavior that did not match socially determined norms of what was acceptable. Most social situations involve reciprocal altruism; but there is always a danger that one of the participants has an ulterior, and not particularly benevolent, motive. In order to detect “cheaters” such as these people, it was postulated, as noted

above, that humans have evolved a “cheater-detection module” that facilitates normal social interactions.

Among the important theoretical contributions of this group was Cosmides and Tooby's (1992a, b) criticism of what they called the “Standard Social Science Model” (SSSM). This model seeks to provide rules that can be easily adapted to any situation that might arise when individuals are interacting socially; but these rules, being so general that they lack any kind of specificity of content or of context, can never be trusted to generate situation-specific hypotheses that can be disconfirmed. In place of the SSSM, Cosmides and Tooby (1992b) argued that “the human mind contains algorithms (specialized mechanisms) designed for reasoning about social exchange” (p. 164). In a later article Cosmides and Tooby (1994) refer to these modules as “functionally specialized computational devices” (p. 329). These devices could have evolved to answer the challenges faced by our hunter-gatherer forebears (for example, habitat selection, foraging, social exchange, competition from small armed groups, parental care, language acquisition, contagion avoidance, and social rivalry). On evolutionarily recurrent tasks such as object recognition, grammar acquisition, or speech comprehension, these devices can often perform better than general-purpose problem-solving methods do. To this list can be added predator avoidance, sexual attraction, mate choice, navigation, hunting, and coalitional cooperation (Ermer et al. 2007).

Humans were considered to have evolved these devices in the course of entering a “cognitive niche” that included an “improvisational” kind of intelligence (as opposed to a “dedicated” kind), and an efficiency at finding information about ways of obtaining needed objects when environmental circumstances are rapidly changing. The search for information can be made more efficient by acquiring the desired information from others, preferably by using linguistic utterances, by making use of the searcher's knowledge of how other humans represent the world, and by a remarkable variety of ways of representing “what would happen if...?” questions and answers. This improvisational intelligence rests on a foundation of “dedicated” modules, including modules for object mechanics, tool use, intuitive biology, social exchange (as outlined earlier), and others.

Barrett et al. (2007) argued that the advances in cognition needed for the acquisition of important information are unique to the human species. They maintained that differences between humans and animals include the extent to which human males help to care for women and children by provisioning them, and in the unprecedented extension of cooperation to large human groups, including those involved in collective aggression. Recent articles by Petersen et al. (2010) and by Tooby and Cosmides (2010) have respectively provided new evolutionary approaches to our understanding of how criminal justice systems should operate and of how coalitions can lead to declarations of war. Both articles incorporate a new variable, namely, a “Welfare Trade-off Ratio” (WTR), which is an index of the extent to which one is disposed to trade off one's own welfare against another person's welfare when one takes action.

In Cosmides and Tooby's (1992b) article, considerable space was devoted to game theory as applied to situations involving reciprocal altruism. It sometimes happens that, if A helps B, and B promises to help A, A does help B, but B then neglects to help A. The payoff to B for cheating can exceed the payoff to B if he helps A as promised. Trivers (1971) had claimed that cases like these were analogous to what game theorists called the “prisoner's dilemma,” a game in which each of the two players has a choice between cooperating or defecting. Because prisoners, in at least some justice systems, are not allowed to talk to each other and because many animals obviously cannot talk to each other, it is not surprising that this game theory approach has been applied to cases of reciprocal altruism between nonspeaking organisms (for example, symbiotic marine species), between individual cells, or even between chromosomes within cell nuclei. An optimum strategy in a game between two noncommunicating individuals who only meet once can be proven to be that in which both players defect (an all-defect strategy, ALLD). But if players meet more than once, a TIT FOR TAT strategy has been proven, both mathematically and experimentally, to be the optimum. A player cooperates on the first move and then does whatever the other player did on the preceding move (Axelrod and Hamilton 1981, p. 1393). Gat (2010) has pointed out that, although a TIT FOR TAT strategy seems superficially like what happens in

a war, war adds the possibility of physically eliminating an opponent in a way no TIT FOR TAT strategy provides for.

Other arguments have been made to the effect that the prisoner's dilemma need not be applied, without qualification, to games in which two players actually *do* communicate during a game. Cosmides and Tooby (1992b), having said that in simultaneous, face-to-face interactions, one can often recognize whether one is about to be cheated, go on to belittle the importance of this argument because the ability to recognize cheating in present-day contexts usually applies to monetary exchange, a historically recent form of interchange that was not built on the social exchanges under discussion here.

But the argument has not gone away. Zahavi (1995) wrote of the prisoner's dilemma:

- ▶ In the real world, individuals assess the qualities and the motivations of their potential partners and invest in advertising their own qualities and motivations – before they enter into any collaboration. ... In the prisoner's dilemma the collaboration is neither preceded by communication, nor are the prisoners able to talk to each other during the game. Hence, clever as the "dilemma" and its solutions are, they have very little, if any, relation with the world of biology and social behaviour. (p. 3)

Zahavi claimed that human players in a prisoner's dilemma game usually benefit from knowing, in advance, each other's propensities to cooperate or to defect. Ridley (2010) described an experiment by Frank in which volunteer participants were divided into groups of three, who then conversed within each group for 30 min. In a real prisoner's dilemma game, only 26% of players actually defected and 74% of the players actually cooperated. This result can be interpreted as being consistent with a penchant for reciprocal altruism in humans that coexists with a tendency *not* to defect (despite the logic-based advantage of an ALLD strategy).

Ridley (2010) has also asserted that the kind of reciprocity studied by Cosmides and Tooby (1992b) was:

- ▶ [A] habit inherited from the animal past that undoubtedly prepared human beings for exchange. But it is not

the same thing as exchange. Reciprocity means giving each other the same thing (usually) at different times. Exchange – call it barter or trade if you like – means giving each other different things (usually) at the same time: simultaneously swapping two different objects. (p. 57)

This argument by a distinguished evolutionary psychologist actually lends support to Cosmides and Tooby (1992b, p. 175) when they had stated that it is not appropriate to judge the merits of social exchange theory on the basis of behavior in a monetary exchange transaction. But later, Cosmides and Tooby (1994) themselves strongly urged that economists recognize that social exchange theory might be more valuable in economics than traditional logic of a "rational" kind has been. The use of specialized modules to make reasoned inferences has become so automatic (because genetically expressed) in human mental activity that the making of these inferences can plausibly be described as "reasoning instincts," which "... make certain kinds of inferences just as easy, effortless, and 'natural' to humans as spinning a web is to a spider or building a dam is to a beaver" (Cosmides and Tooby 1994, p. 330).

Gigerenzer and Todd's "Simple Heuristics" in Human Cognition

Gerd Gigerenzer started his career with a scholarly and rigorous treatment of how sensory abilities and cognitive preferences in humans can be scaled and measured (Gigerenzer 1981). A critical review on how inferential statistics had been applied in experimental psychology and another critical review on how it has been claimed that humans fall well short of computers in speed and accuracy when it comes to probabilistic reasoning (Kahneman et al. 1982) were included in a monograph on how mathematics had been applied in cognitive psychology up to the middle 1980s (Gigerenzer and Murray 1987, Chaps. 1 and 5). Gigerenzer and his colleagues went on to demonstrate that some of the "biases" associated with inappropriate human probabilistic thinking could be lessened in impact if probabilistic questions were rephrased in terms of relative frequencies. For example, Todd et al. (2005), pp. 793–796) reviewed evidence that when participants were asked to base a diagnosis of breast

cancer on the basis of mammograms, presenting the information about false alarms (false positives) and missed signals in terms of probabilities led to only 16% of diagnoses being based on a thinking process analogous to that made by a probability theorist. But when the same information was presented in terms of relative frequencies, this percentage rose to 46%. The actual number of answers close to that predicted by (Bayesian) probability theory was also greater when the question was framed in terms of relative frequencies than when it was phrased in terms of probabilities.

In the remainder of their article, Todd et al. (2005) claimed that humans will try to predict what will happen, given evidence from a small number of events that have happened recently, by reasoning in a rough-and-ready way from the evidence before them. They claimed that one of the reasons that humans have short-term retention capacities of only about four to seven randomly ordered digits or words (Cowan 2001) is that a small number of mental representations concurrently in consciousness can be shown to be as reliable as is a larger number when it comes to making predictions about what will happen next. The adaptive value of a less-than-perfect working memory had also been emphasized, in a mathematically rigorous manner, by Kareev (2000) and foreshadowed in the sequence of Adaptive Control of Thought (ACT) models presented by John R. Anderson and his coworkers (for example, Anderson 1990; Anderson and Milson 1989; see also Anderson et al. 2004).

By about 1995, the “fallacies” in human probabilistic thinking that had been emphasized by Kahneman et al. (1982) and the “fallacies” in human logical thinking that had been emphasized in the experiments on the Wason task described by Cosmides and Tooby (1992b) were being considered, not necessarily as evidence of the inefficiency of computation by humans as compared with computation by computers, but instead, as cognitively adaptive for humans in a world that had grown increasingly complex over the past 50,000 years. Gigerenzer, Todd, and others founded a research group at a Center for Adaptive Behavior and Cognition (the ABC group), located at the Max Planck Institute for Human Development at the University of Berlin; their first major publication was

entitled *Simple Heuristics That Make Us Smart* (Gigerenzer et al. 1999).

The members of the group argued that, in the course of the evolution of human cognition, mental strategies had evolved, some 50,000 years ago, that had been proven to be practically useful, especially in an environment where the prediction of potential danger was of paramount concern; these strategies, of necessity, had to be “fast and frugal.” Todd and Gigerenzer (2007) have gone on to characterize their system of “fast and frugal” heuristics as being an account of “ecological rationality.” Among the classes of simple heuristics are the preference, in a situation involving a choice of options both familiar and unfamiliar, for choosing familiar options; the selection of a particular criterion for choosing one of two options (for example, allowing price or geographical location to be the criterion for choosing at which of two restaurants to eat); a whittling down or elimination procedure (also postulated by Tversky 1972) that focuses on one of several possible criteria that might be used to choose between more than two options; and, in sequential choice situations, such as that of successive interviewing while searching for a secretary, or successive dating while searching for a mate, finding a “stopping rule” to limit the search.

The ABC research strategy can be illustrated by an example concerning the fourth class of heuristics. It was proven, by Todd and Miller (1999), using computer modeling, that the optimum present-day strategy for searching for a suitable employee or mate need not require the interviewing of as many as 37% of potential candidates (the number predicted by one application of probability theory), but between 10 and 20 candidates no matter how large the number of potential candidates in the particular environment being searched. In mate selection, the fact that a candidate himself or herself had to view the searcher as a potential candidate adds a new constraint on the efficiency of the search; and it had been Gigerenzer and Hug (1992) who had demonstrated that performance on the Wason task could be influenced by whether, for example, the task about underage drinking was viewed from the perspective of a law enforcer (the conventional perspective) or from that of a teenager who enjoyed beer. An important change in performance, from the teenager’s point of view, was that a violation

of the social rules now became “not-P and Q” instead of the usual “P and not-Q.” But this finding did not negate Cosmides and Tooby’s (1992b) claim that a “cheater-detecting module” was operative during the search for a violation.

Todd and Gigerenzer’s “fast and frugal” heuristics and Cosmides and Tooby’s “cognitively adaptive modules” are similar in that both avoid the temptation to make mathematically or logically exact predictions the standard against which all human prediction-making should be judged; this high standard is impossible to attain given the limitations of the evolved human brain; but evolution has ensured that a number of adaptive domain-specific cognitive strategies exist that have allowed humans to survive (some might say “muddle through”) successfully to the present day. Nevertheless, it is an opinion within members of the ABC group that:

- ▶ If a different heuristic were required for every slightly different decision-making environment, we would need an unworkable multitude of heuristics to reason with, and we would not be able to generalize to previously unencountered environments. Fast and frugal heuristics can avoid this trap by their very simplicity, which allows them to be robust in the face of environmental choice and enables them to generalize well to new situations. (Todd and Gigerenzer 2007, p. 208)

Frans de Waal, Empathy, and the Evolution of Morality

Aristotle (384–322 BCE) was among the first to report that whales, dolphins, and porpoises were mammals because, unlike fish, they breathed through blowholes instead of gills, were viviparous, and suckled their young. Accordingly, Linnaeus (1707–1778) placed whales and dolphins in the order *Mammalia* rather than in the order *Pisces*. Linnaeus also put humans (*Homo sapiens*) and orangutans (*Homo troglodites*) into a “human” order separate from a “pongid” order, which included the great apes; nowadays, these two orders are collapsed into a single “primate” order. Modern evidence that altruism was practiced by primates observed in their natural habitat, as opposed to zoos or research centers, was bolstered by the work of Diane Fossey (1984) on gorillas, Jane Goodall (1986)

on chimpanzees, and Biruté Galdikas (1995) on orangutans; it may not be an accident that all three researchers were women who “empathized” with their animal subjects to such an extent that discussion of primate behavior *without* reference to altruism would have seemed to them unacceptably impoverished. Unfortunately, Aristotle did not report any evidence of altruistic behavior in monkeys and apes; he only described apes in terms of their external appearance, emphasizing their hand-like use of their feet, their hairiness, and their lack of tails; monkeys were described as tailed apes; and baboons were characterized as having dog-like teeth. On the other hand, Aristotle did report the following example of altruism in dolphins:

- ▶ On one occasion, a shoal of dolphins, large and small, were seen, and two dolphins at a little distance appeared swimming in underneath a little dead dolphin when it was sinking, and supporting it on their backs, trying out of compassion to prevent its being devoured by some predaceous fish. (Aristotle, ca. 362 BCE/1910, p. 631)

This leads us directly to the work of Frans de Waal, who, in 1977, obtained his doctorate in biology at Utrecht University in the Netherlands with a dissertation on conflict behavior in Old World monkeys (macaques). He then carried out research on alliance formation among chimpanzees in a large colony at the Arnhem Zoo, and continued to study chimpanzees, and also bonobos, when he worked, first, at the National Primate Research Center in Wisconsin from 1981 to 1991 and, then, at the Yerkes National Primate Research Center at Atlanta. Here he extended his investigations to include the study of New World monkeys (capuchins). Between his first book, entitled *Chimpanzee Politics: Power and Sex Among Apes* (de Waal 1982/2007) and his latest book *The Age of Empathy: Nature’s Lessons for a Kinder Society* (de Waal 2009), there are seven other books about social behavior in primates; from his early interest in conflict resolution, he has moved to the adoption of an almost activist stance in his insistence that apes and monkeys are capable of disinterested altruistic behavior and that this behavior rests on a foundation of animal-to-animal empathy. The study of animal-to-animal empathy is itself part of a broader context that includes

animal-to-human, human-to-human, and human-to-animal empathy.

According to de Waal (2005), morality is not just a “vener” spread over the natural evil to which we humans are prone; it plays an intrinsic and central part in primates because empathy and reciprocity are the chief “pre-requisites” of morality (de Waal 1996); later he wrote that empathy and reciprocity constitute the “building blocks” of morality (Flack and de Waal 2000). The failure of academic psychologists to have recognized this in the twentieth century was, for de Waal (2009), yet another of behaviorism’s sad legacies.

In a recent review, de Waal (2010) contrasted “reconciliation,” which is an altruistic-seeming aftermath of fighting but is also easy to categorize as self-serving in the sense that it postpones any new and immediate outbreak of hostility between two competitors, with “empathy,” which is an internal feeling that reflects the emotional state of another conspecific individual who is in one’s presence; empathy can also be a feeling conducive to the carrying out of actions that is not just “altruistic seeming” but genuinely altruistic. Among altruistic actions shown by chimpanzees, and their less rambunctious primate relations, the bonobos, de Waal amassed evidence for “consolation” behavior, which he defined as “a friendly, reassuring contact directed by an uninvolved bystander at one of the combatants in a previous aggressive incident” (de Waal 2010, p. 39). These observations on reconciliation and consolation in chimpanzee social interactions had first been reported by de Waal and van Roosmalen (1979).

Consolation behavior has been demonstrated by chimpanzees and bonobos both with conspecific individuals (animal-to-animal empathy) and with their caregivers (animal-to-human empathy). But consolation behavior has not been demonstrated in rhesus macaques, even though these Old World monkeys do demonstrate reconciliation behavior (de Waal and Aureli 1996). This difference between apes and monkeys was claimed to be related to the fact that chimpanzees and bonobos can recognize “themselves” as being separate from other conspecific individuals. Self-recognition is attested to when chimpanzees and bonobos can pass a “mirror test,” in which they attempt to rid themselves of a spot of rouge that had been

painted onto their foreheads unbeknownst to them and then seen for the first time in a mirror. Macaques cannot pass this test.

Empathic feelings allied with altruistic intentions can also explain what de Waal called “targeted helping,” defined as “altruistic behavior tailored to the specific needs of the other even in novel situations” (de Waal 2010, p. 42). Aristotle’s example of targeted helping by “compassionate” dolphins has received support from modern research on dolphins (Caldwell and Caldwell 1966). Furthermore, dolphins can pass the mirror test (Reiss and Marino 2001). Examples of targeted helping abound in de Waal’s (2009) book, and those animals that can pass the mirror test (apes, cetaceans, elephants) are those most likely to show it. Nevertheless, some isolated anecdotes are reported of targeted helping by monkeys and baboons, neither of which usually pass the mirror test. A claim by Hauser et al. (1995), based on video-taped evidence, that cottontop tamarin monkeys were able to pass the mirror test, was, unfortunately, not supported by Anderson and Gallup (1997), who viewed the identical video-tapes; and a replication by Hauser et al. (2001) of the 1995 study indicated that this species of New World monkeys did indeed fail the mirror test. de Waal (2009, pp. 143–150) suggested that there might be different “levels of mirror understanding” attainable by different species; even though some species of monkey might not be able to pass the mirror test, they do know how to use mirrors to find food that is hidden round a corner.

Three other kinds of behavior were added by de Waal (2009) to targeted helping as evidence for the empathic induction of certain behavior patterns. Some animals can indicate, by hand gestures or by direction of gaze, that objects (such as food or predators) of interest to other individuals can be found at a certain location; chimpanzees were particularly good at this kind of communication (de Waal 2009, pp. 151–157). If two individuals known to each other, and seen by each other, receive unequal amounts of food or attention from a caregiver, the individual with the lesser share displays its discontent; capuchin monkeys provided experimental evidence for “inequity aversion” of this kind (pp. 189–193). Food sharing between two capuchin monkeys, well known to each other, can be shown to be increased if the two cooperate to obtain it (pp. 176–177).

These observations are consistent with the views expressed by Ridley (2010) to the effect that humans and apes both show evidence of cooperation; but humans differ from apes in so far as humans reveal more cooperation between strangers, for example, with respect to barter and exchange, while primates usually share only with kin or colony mates. Supporting de Waal's arguments is the following quotation: "Capuchin monkeys and chimpanzees are just as resentful of unfair treatment as human beings are and just as capable of helpful acts toward kin and group members" (Ridley 2010, pp. 96–97).

Targeted helping, consolation, and empathy have been integrated by de Waal into a single model he called the "Russian doll" model (de Waal 2004). In a later account of this model, empathy is defined as follows:

- ▶ Empathy is the capacity to (a) be affected by and share the emotional state of another, (b) assess the reasons for the other's state, and (c) identify with the other, adopting his or her perspective. This definition extends beyond what exists in many animals, but the term "empathy" in the present review applies even if only criterion (a) is met. (de Waal 2008, p. 281)

de Waal called it a Russian doll model because these three capacities, namely, targeted helping, consolation, and empathy, are considered to be nested within each other, with empathy the innermost "doll." According to de Waal, "Empathy engages brain areas that are more than a hundred million years old. The capacity arose long ago with motor mimicry and emotional contagion after which evolution added layer after layer, until our ancestors not only felt what others felt, but understood what others might want or need" (de Waal 2009, p. 208). de Waal considered emotional contagion to be an example of the most primitive form of empathy (the inner core of the doll). Over the course of evolution, two more kinds of capacity were added: first, a concern for others (as in the evidence for consolation behavior, both animal-to-animal and animal-to-human), and, second, the ability to understand the perspective with which others are viewing oneself and one's surrounding (as in targeted helping, both animal-to-animal and animal-to-human).

According to de Waal's (2010) summary of his ideas, the emotional contagion layer is presumed to

be linked up with the ability to mimic the movements of others, via a single hard-wired "Perception-Action Mechanism" (PAM). PAM had first been introduced by Preston and de Waal (2002). The consolation layer, now called a layer associated with "sympathetic concern," is linked via PAM with the ability to cooperate with others in efforts to achieve common goals. And the "targeted helping" layer is linked via PAM with the ability to emulate some of the more sophisticated behavior patterns displayed by others. PAM is postulated to be the mechanism responsible for the increasing complexity of empathy. What is unique about this approach is the way that empathic responses are considered to be centrally organized responses in the evolved brain; they are not the outcome of associative responses acting on mental representations acquired in social situations. Some of the evidence for the autonomicity of empathic responding has been provided in fMRI studies by Singer et al. (2006); but, for de Waal, the evidence from self-observation also counts; one tends to follow, with purely mental "footsteps," each successive step of an artiste on a high wire; a mother tends to copy the mouth movements made by her child as he is being spoon-fed.

Frans de Waal also espoused a "co-emergence hypothesis," according to which certain cognitive capacities could only be expected to emerge in species that pass the mirror test. Among these are advanced empathy abilities such as perspective taking. The way in which a human child has acquired a self-concept by the age of about 2 years is believed to parallel the way the self-concept appears to have evolved in animals whose brains are growing in size. Dolphins and elephants, whose good performance on mirror tests indicates that they also have evolved a self-concept, also happen to share, with apes and humans, certain brain cells known as von Economo neurons (VEN). This led de Waal (2009, p. 138) to wonder to what extent these cells, which may have evolved to ensure greater connectivity within large brains, might mediate the linkups between the development of a self-concept and the development of the ability to imagine what perspectives other individuals may have with respect to oneself. In their review of evidence concerning human children's behavior on mirror tests, Howe and Courage (1993) showed that the use of the pronouns

“me” and “you” is attained at just about the same age as the mirror test can be passed (between 18 and 25 months).

Simon Baron-Cohen and His “Theory of Mind Mechanism”

Simon Baron-Cohen is a psychiatrist based at the University of Cambridge in England; his research in the early 1980s was focused on autism. In the course of his career, he has developed two models, in both of which normal cognitive development in childhood is recounted in such a way as to show how autism can be a naturally occurring variant of normal development. In the first model, Baron-Cohen (1995) argued that, over the first 4 years of life, children learn how to predict the intentions and actions of others by developing a “Theory of Mind Mechanism” (ToMM). This final phase of competence, acquired between 2 and 4 years of age, is preceded by a “Shared Attention Mechanism” (SAM) acquired between 9 and 15 months of age; it was claimed that autistic children are delayed in acquiring SAM, and therefore ToMM. By “shared attention,” Baron-Cohen meant the ability of the child to combine information about (a) how the movements of another person can provide a signal as to that other person’s intention with (b) information about how the location toward which that other person’s gaze is directed can signal the extent to which that other person is paying special attention to that location. Under a shared attention mechanism, a child about a year old can have a “triadic representation” by combining two “dyadic representations,” for example, “Mother wants the cup” (based on the child’s observation of the mother’s movement toward the cup) and “Mother sees the cup” (based on the child’s observation of the mother’s direction of gaze). Putting the two together yields the relatively uninformative representation “Mother wants the cup she can see.” But if the child itself is also looking at the cup, the nontrivial triadic representation “Mother sees that I see the cup” can emerge; this is the beginning of the child’s developing a theory of his mother’s mind. It was suggested that children with autism perform at a level close to that of normal children on tasks involving Baron-Cohen’s “Intentionality Director” (IDD) and “Eye Direction Detector” (EDD).

But, some 10 years later, Baron-Cohen (2005a) realized that the above scheme left out the acquisition, by the child, of a theory of mind that incorporates an understanding of the emotions being experienced by another person; the earlier model had “focused on only volitional, perceptual, informational, and epistemic states” (Baron-Cohen 2008, p. 418). Accordingly, in the first 9 months, an “Emotion Detector” (TED) is added to the IDD and to the EDD; these three detectors combine in arriving at the shared attention model stage of 9–14 months; at approximately 14 months, an “Empathizing System” (TES) develops, and between 14 and 48 months, a modified ToMM has emerged. But this model was also transformed, in its range of applicability, because of the hypothesized existence of important differences between empathic reasoning and “systemizing” reasoning, the latter involving an algorithmic approach to the determination of cause and effect, particularly in the operation of machines and other engineering artifacts (Byrne 1997).

Both Baron-Cohen (2008) and Badcock (2008) have developed this theory in such a way as to lead to a contrasting between adult autism and adult psychosis. This contrast also involves a discussion of gender differences. Baron-Cohen (2005b) has also argued that testosterone levels in the fetus at midterm can affect behavior after birth. The reader is referred to the above articles, because they go into technical details that are difficult, for reasons of space, to convey here.

Some Remaining Issues

A full review of the history of evolutionary psychology would refer to far more literature than can be included here, including the recent publication of books written for a general audience in which have been highlighted the shortcomings of a human mind that evolved in the past for a hunter-gatherer environment and must now be deployed in an often urban environment (Chabris and Simons 2010; Marcus 2008). Here we elaborate briefly on the contention by Cosmides and Tooby (1989, p. 60) that, in order for social exchange to be possible in any species, but especially in humans, the individuals in a particular community should be able to recognize each other and to remember earlier interactions, to understand or guess what each other is intending, to communicate with each other in

language, and to provide approximate cost/benefit estimates of what future interactions with each other might bring.

Recognition Capacities

First, with respect to recognition and the remembering of prior interactions, it is appropriate to acknowledge, in this historical article, the contributions of T. Wesley Mills (1847–1915) to our knowledge of how newborn animals come to adapt to their new environment. As is described in more detail by Murray (1990b), Mills (1898, 1905) reported how he kept diaries of the development of newborn puppies, kittens, and the young of other domestic species. To take one example: A purebred St. Bernard puppy was studied over a period of several weeks after its birth. Its eyes first opened fully by about the 16th day; it could follow a moving object with its eyes on the 18th day; it could blink if a hand were moved before its face as if to strike, on the 19th day; it could follow behind a small object at a distance of 1 ft., or a larger object at a distance of 5 ft., on the 26th day; but it was not until the 31st day that Mills felt comfortable about asserting that the puppy was able to recognize its mother “by sight alone” (Mills 1898, p. 132). The cues of smell and hearing had been more important than had visual cues in the first month of this puppy’s life.

But even though the processing of visual information may come late in the experience of the young of many species, there is little doubt now of the usefulness of visual information for the survival of almost all vertebrate species except perhaps for cave-dwelling fish and burrowing mammals such as moles and naked mole rats. Allan Paivio, of the University of Western Ontario, has devoted his career to furnishing evidence that human beings have evolved a “dual-coding” mechanism for experiencing mental representations, one code being visual (often experienced as visual imagery) and one being verbal (often experienced as inner speech or as “talking to oneself”). Extensive evidence supporting the usefulness of dual coding for our understanding of human memory, including the invention of mnemonic systems, was reported in his first book (Paivio 1971). But this evidence has since been supplemented by his reporting of data concerning the processing and retention of visually presented information by animals (notably birds) and by human children prior to the

age of 5 years or so (Paivio 2007). Following the publications, already mentioned above, by Tolman (1932) of evidence that rats can use “cognitive maps” to facilitate their navigation of mazes in order to obtain food and by O’Keefe and Nadel (1978) on the role played by the hippocampus in mediating visual memory performance in animals and humans, it is now appreciated that Paivio has shown how important vision is, not only for the recognition of locations associated with shelter, food, predators, etc., but also for mediating the “secondary representations” that had been stressed as essential by Romanes (1888) for the evolution of language and by Perner (1991) for the development of a child’s theory of mind.

The ability by humans to recognize faces might even be an example of a specialized adaptation or “module” that has evolved for the purpose of facilitating a baby’s ability to respond preferentially to the faces of certain individuals, such as the baby’s mother, who are usually sources of affection and nurturance. But it was the geneticist team of Axelrod and Hamilton (1981, p. 1395) who suggested that face recognition might represent a specialized neural mechanism that appears to be associated, if brain damage occurs, not with a general deficit in visual recognition ability, but with a specific deficit in face recognition only (“prosopagnosia”).

Empathy Capacities

A number of studies have revealed that empathy might also be a capacity whose neural underpinnings might have been selected for genetically. It was discovered, by recording from individual brain cells, that certain cells in the ventral premotor cortex of a monkey A will respond if monkey A sees monkey B make movement M. These cells were named “mirror neurons” by their discoverers, who acknowledged from the start that the activity in these neurons might signal only that they mediated the visual recognition of movement-actions, carried out by B, that A had also seen performed in the past (Gallese et al. 1996). Accessible summaries of later research on mirror neurons have been provided by Rizzolatti et al. (2006) and by Iacoboni (2008/2009).

But mirror neurons have also been associated with empathy because a human volunteer A could watch a human volunteer B suffer a small amount of pain

administered to B's hand; when A's mirror neurons responded, their neural responses were synchronous with the neural emotional responses recorded for B, but there was no concomitant activation of the part of A's brain that would indicate sensations of pain in A's hand (Singer et al. 2004). Moreover, if A sees an emotional expression on B's face (say, of fear, sadness, anger, happiness, surprise, or disgust) and A then imitates that expression, not only are A's mirror neurons stimulated, but A also claims to feel what B was feeling; a brain region called the insula probably serves as a connection between the mirror neurons in A's ventral premotor cortex and the neurons in A's limbic system, a brain-region phylogenetically older than the cerebral hemispheres, that appears to mediate the feelings associated with strong emotions (Carr et al. 2003).

Later experiments along these lines have shown that individual differences in empathy can also depend on the opinion that person A holds of person B. If A and B had competed in a prisoner's dilemma game, and B had played fairly; and then A had to pay attention to B while a painful stimulus was administered to B; it was found that A's mirror neuron responses to B's suffering (as measured by fMRI) was suggestive of a high level of intensity of fellow feeling. But if B had played the game unfairly, and A knew it, the amount of apparent empathy felt by A because of B's suffering was low or even absent (Singer et al. 2006).

It is to be noted that de Waal (2009) has expressed doubt as to the validity of claims by some authors (e.g., Meltzoff and Moore 1977) that newborns can imitate actions performed by others without the newborns' having ever performed those actions beforehand. It is probably prudent to assume that, just as some neurological configurations appear to mediate face recognition, so mirror neurons are neurological configurations that mediate the recognition of movements (including facial movements) carried out by others. Just as the existence of specialized face-recognition systems of neurons was felt to be supported by the existence of prosopagnosia, so the existence of specialized movement-recognition systems of neurons has been felt to be supported by the existence of autism (Iacoboni 2008/2009, pp. 168–183).

Another contribution to our understanding of empathy has come from our appreciation of the fact

that if individual A intends to deceive individual B, A is materially helped if A understands "how B's mind works." The existence of deceptive behavior in chimpanzee colonies has now been well documented; a review of the relevant literature by Byrne and Corp (2004) precedes an account, by those authors, of how they collected evidence of the frequency of deceptive acts, carried out by various individuals, over the course of long periods of observations, and found a significant positive correlation between the frequency of those acts and the size of the neocortex in those individuals.

Language Capacities

In the nineteenth century, the eminent linguist F. Max Müller (1823–1900) of Oxford University had claimed that the main feature differentiating, say, chimpanzees from humans is the existence of language. He had written: "Man speaks, and no brute has ever uttered a word. Language is our Rubicon, and no brute will dare to cross it" (Müller 1866, p. 392). Most of the theories that have been put forward in the twentieth century, however, have followed the gradualist approach pioneered by Romanes (1888); humans, because they possess self-consciousness and the ability to use words to synthesize new propositions, had outpaced animals, who could only associate vocalized sound with what we now call "conditioned emotional responses" and Romanes had called "receptual associations."

A review of the twentieth-century literature on the evolution of language by MacNeilage and Davis (2005) began by centering on the work of Noam Chomsky, who, in at least one stage of his career as a psycholinguist, had argued that the study of the so-called "universal grammar," with which we all had been born, was unlikely to benefit from an evolutionary approach that emphasized individual differences. As a guide to clear thinking about language, MacNeilage and Davis reproduced two diagrams, one of language production, and one of language comprehension; the diagrams were taken from articles by Levelt (1999) and by Cutler and Clifton (1999), respectively, that had appeared in the same edited volume. MacNeilage and Davis then reviewed various theories of the ontogenetic, phylogenetic, and cultural determinants of language development, including Bickerton's (1995) postulate, to be illustrated below, that "protolanguages" of a very

simple kind evolved before languages useful to modern *Homo sapiens* had emerged. These useful languages included subtle syntactic and semantic specifications and lexicons that contained enormous numbers of words; according to Hoffer (2007), the approximate number of different human languages spoken in 2006 was 6,912.

Intriguingly, Skinner (1957, Appendix), in the same book on language that was so famously criticized by Chomsky (1959), also insisted that the study of evolution was unnecessary in psycholinguistics. The course of acquisition of speech by a child could be described entirely in terms of classical and instrumental conditioning, the stimulus-terms of which were determined entirely by the child's environment. For Skinner, there was no need to specify any part played by the theory of evolution in determining an underlying brain physiology that would mediate certain states of consciousness, in the growing child, that might be prerequisite, over and above the acquisition of vocabulary and syntax, for successful language performance.

It is accepted by many linguists, however, that certain states of consciousness can exist in prelinguistic children (and maybe in some nonlinguistic animals, according to Smith et al. 2003) that form the cognitive substrate whose contents are to be transformed, once the vocabulary, syntax, and articulatory movements associated with a language have been acquired, into linguistic utterances. It is difficult to find just the right words for this nonlinguistic state of consciousness, as has been attested to by O'Regan and Noë (2001) in their consideration of how far visual representations can form potential constituents of this particular state. The word "concept" (along with cognates such as "conceptual") was used by Romanes (1888) and is also in wide use among present-day psycholinguists. For example, Kirby (2007, Fig. 46.2) represented language as a device that bridged a gap between our "concepts and intentions" and our "articulations and perceptions." Levelt et al. (1999) asserted that, when we prepare a word utterance, the first stage is one of "conceptual preparation" for a lexical search; alternatives for "concept" have included the words "intention," "idea," and "notion."

Donald (1991, 2001) utilized the word "mimetic" to refer to a prelinguistic mode of thinking in which any

imagery that takes place is one in which the actor imagines himself, or perhaps even somebody else, carrying out a sequence of movements, mainly of the hands and arms, but also of the face, torso, or lower extremities. In modern humans, this histrionic kind of imagery has largely been added to by visual or verbal imagery, as mentioned above (Paivio 2007). Jaynes (1977) has even argued that in ancient times, at the dawn of writing, the cognitive states of individuals may have included hallucinatory states. Bickerton (1995) gave three examples of what he called protolingual "fossils," by which he meant small fragments of language that actually did convey a meaning, the associated cognitive state of which would necessarily be somewhat indeterminate. He gave examples of short utterances in Hawaiian Pidgin English of about 200 years ago, some two-word utterances of a 23-month-old Anglophone boy, and some equally short communications by apes trained to express their desires.

Corballis (1991) has also argued that gestures probably constituted the main form of communication among the precursors of modern humans, but added that, because hominids were now bipedal (probably from having shifted from forest-dwelling to savannah-dwelling), they used their hands in a variety of ways, including weapon-manufacture, weapon-throwing, and pottery-making (see also Wynn 2002). But hominids also appear to have developed hand preferences, mainly preferring the right hand for most of these tasks. At the same time, the left cerebral hemisphere appears to have become specialized for the production, as well as for the comprehension, of spoken utterances (Corballis 2003). Our understanding of how individual regions of the left temporal lobe mediate the production of linguistic utterances is still not well advanced (Grodzinsky 2000; Reilly 2002); but there is some agreement among researchers that the ability of humans to incorporate the recursive embedding of phrases "nested" within a sentence (for example, "The woman was eating, while reading the newspaper, a banana") illustrates a high level of flexibility in the *ordering* of mental representations, be they words (as in literature), visual elements (as in painting, sculpture, and architecture), or auditory elements (as in music). Corballis emphasized that this aspect of the human mind could be designated as

“generative”; its reordering propensities not only helped in the evolution of human language (which Reilly 2002, believed preceded the evolution of right-handedness), but also in the advances in technological innovation we typically associate with human progress.

Donald (1991, 2001) stressed the influence exerted by the evolution of human language upon the evolution of written culture in particular. He insisted that human culture was a “hybrid” of items stored in “internal memories” (our brains) and in “external memories” (libraries and databases). Included among the contents of our internal memories were what Dawkins (1976/2006) had called “memes,” which are stereotypes or icons of widely disseminated phrases or nuggets of knowledge that had been “picked up” from conversations, advertisements, magazines, and the like. These memes are probably stored neurologically in the same way as are other memories, although it is doubtful that the information they contain can be transmitted genetically (Aunger 2007).

Evolutionary changes also determined the present conformation of the human vocal tract; as described in detail by Lieberman (1984, 1991), the human laryngeal tract is more voluminous and lower down the throat than is that of chimpanzee, thereby permitting a much wider variety of sounds to be produced, from the larynx itself, than is the case for the chimpanzee. Variations in breathing force, tongue and lip movements, and the activation of the vocal cords are associated with the production of some 60 different phonemes.

At the start of the twenty-first century, a case-history was discovered that involved specific articulatory defects that spread over three generations within a single human family; a study of the family’s DNA led Lai et al. (2001) to postulate that the disorder was related to a mutation that may have taken place, between 100,000 and 200,000 years ago, on a particular gene known as the FOXP2 gene. This discovery acted as a magnet for drawing in persons who saw FOXP2 as a “language gene”; but the fact that FOXP2 also exists in songbirds and other kinds of animal, as well as the fact that FOXP2 can be expressed in the embryonic development of the alimentary canal and lungs, inspired several evolutionary biologists to write lengthy cautionary articles about not jumping to hasty conclusions, given the extraordinary

complexity of the events that determine *any* gene-to-phenotype expression (Balaban 2006; Fisher 2006). Ridley (2010) has noted that, when the FOXP2 gene is added to mice, its effect is to enhance “the rapid flicker of tongue and lung that is called speech” (p. 55). But he also noted that, although the FOXP2 gene has been detected in Neanderthals as well as in present-day humans, there is no record that Neanderthals were linguistically advanced enough to have left behind any evidence thereof.

Corballis (2004) has, however, combined the evidence for a language-facilitating FOXP2 gene with the evidence for a mirror-neuron movement-recognition system. He suggested that the acquisition of language, both phylogenetically and ontogenetically, may have been based on an ability to recognize and also to imitate the mouth and facial movements observed in others. Perhaps, auditory feedback and feedback via bone conduction could have helped individuals to connect the hearing of certain self-produced sounds with kinesthetic memories of the articulatory movements they had used to make those sounds. The relative recency of the gene suggests it may have occurred after gestural communication had first been made available to our hominid ancestors, perhaps 350,000 years ago. But “because FOXP2 is expressed in the embryonic development of structures other than the brain . . . it is possible that mutation of FOXP2 was the most recent in the incorporation of vocalization into the mirror system” (Corballis 2004, p. 96).

It was not only Corballis (2004) who saw the possible involvement of mirror neurons in language acquisition; if one combines a suggestion by Meltzoff and Moore (1977) that newborns could imitate gestures they had never seen before, with the new knowledge that mirror neurons could mediate the recognition of gestures performed by others, it is easy to hypothesize that human children might acquire language by imitating, in their own orofacial movements, what they see and hear other humans doing with *their* orofacial movements. A series of studies in various laboratories demonstrated that the mirror neurons of an individual A might be involved, not only in the observing of movements (such as grasping) made by individual B, but also in the execution, by A, of an imitation of B’s movement. These experiments were then extended to the study, using brain-imaging

techniques, of the execution, by A, of imitations of orofacial movements performed by B. These experiments have been reviewed by Iacoboni (2008/2009, Chaps. 2 and 3). Arbib (2005) has developed an argument that the evolution of mirror neurons helped to pave an evolutionary path between movement-recognition in monkeys and the evolution of spoken language in humans.

From a historical point of view, the fact that there may have been a sudden, genetic event, rather than a graduated series of cognitive and/or social events, that determined the ability of humans to produce many more sounds than can primates, means, paradoxically, that Max Müller may have been closer to the truth about the non-gradual origination of human language than Romanes would have cared to admit.

Cost-and-Benefit Estimations

As noted, Ridley (2010) has claimed that the literature on evolutionary psychology has tended to ignore the kind of financial interchanges that so dominate twenty-first-century urban society; the growing discipline of behavioral economics is remedying that oversight. But it has also been assumed, by evolutionary psychologists, that the decisions associated with mate selection (and mate retention, or mate desertion) are also based on cost/benefit analyses that include one's emotional, as well as financial, well being. The huge scientific literature on what is popularly known as "romance" is greatly indebted to David M. Buss of the University of Texas at Austin, and Buss's (2009) summary of what has been learned so far is an excellent starting point from which to search for more detailed information.

The first book whose title contained the term "evolutionary psychology" was actually a tract in a religion called theosophy, which had been founded at the turn of the twentieth century (Preston and Trew 1928). But the modern evolutionary psychologist is more often looking for affinities between the behavior patterns of infrahuman species and those of humans that might throw light on human, as opposed to divine, behavior. To throw some perspective on this topic, we now list differences between chimpanzee and human mating behavior patterns based on an account by Buss (2007).

First, chimpanzee females advertise their readiness for copulation by a swelling of their genitalia that is clearly visible to the males in their vicinity. In humans, our clothes hide these regions; but the curious fact that in animal societies, it is usually the male who displays his finery while the female remains rather drab, whereas in human societies, it is usually the females who dress more colorfully than do males, becomes more understandable historically when it is realized that Darwin himself originally postulated that it was the females of most species, rather than the males, who were the more selective and discriminatory as to whom copulatory privileges should be extended. Much is what is currently known about the role of physical attractiveness in human mating choices has been summarized by Sugiyama (2005) and Scheyd et al. (2008).

Second, in chimpanzees, copulation only normally takes place at propitious times in the ovulatory cycle of the females. But there are few limits, either within a monthly cycle or across the assemblage of cycles that span a large proportion of the lifetime of human females, on how often copulation might be permitted. Because many copulations will not end in pregnancy, the frequency of copulatory activity can be expected, by human males and females, to be far more variable than is the case for chimpanzees. A review of the behavioral consequences of the need to adapt to changes in ovulation has been provided by Gangestad et al. (2005).

Third, chimpanzees rarely form long-term relationships between males and females; humans form such relationships often. This means that human males are often faced with choices unknown to animals, for example, whether to prefer to copulate with the aim of having children or to have sex for its hedonic consequences only. It has been argued that changes in sexual habits down the ages are reflections of changing strategies vis-à-vis the desirability of reproductive, as opposed to recreational, sex; reviews of these historical changes have been presented by Westermarck (1891/1894), Buss (2003), and Shorter (2005). Among the more obvious changes have been the growing social acceptability of premarital, homosexual, and lesbian sex, as well as of common-law marriage. Reviews of the biological impact of these various kinds of human sexual behavior have been offered by Symons (1979) and Schmitt (2005). One of the perennial problems in reproductive behavior, both animal and human, has

been the tendency for males to apply sexual coercion to females. This topic has been reviewed by Thornhill and Thornhill (1992) and by Malamuth et al. (2005).

Fourth, chimpanzee males rarely invest much time or effort caring for their progeny, whereas human males often invest heavily in their children. Geary (2000) reviewed the scientific evidence concerning paternal investment, and, later, summarized his findings as follows:

- ▶ If the certainty of paternity is high, selection favors paternal investment if:
 - A. Investment improves offspring survival or quality, and
 - B. The opportunity costs of investment (i.e., reduced mating opportunities) are lower than the benefits associated with investment. (Geary 2005, p. 487)

It is doubtful whether a conscious process of cost/benefit analysis prefaces all human relationships by either or both partners; moreover, Geary's (2005) summary was based on evidence garnered not only from human communities, but also from primate colonies and insect societies.

Concluding Remarks

It will have been noticed that late twentieth-century technological innovations in brain imaging and in genome profiling have led to the incorporation of neurophysiological and genetic microunits (mirror neurons, the FOXP2 gene) into the early twenty-first-century literature on evolutionary psychology. Prior to these innovations, most progress in the measurement of human brain activity came from the electroencephalograph (EEG), first devised, in 1929, by Hans Berger (1873–1941). Refinements of his original techniques for studying the “brain waves” associated with an ongoing level of conscious alertness have included the study of evoked potentials, isolated events associated with the presentation of a particular stimulus. Schröger (2007) has identified a newly discovered event-related potential as an indicator of a “mismatch negativity” (MMN); it arises when a repetitive auditory sequence unexpectedly includes a deviant event, for example, a momentary and non-repeated change in the frequency of a repeated tone. MMN might indicate to its animal or human possessor that a change has

occurred in the ongoing auditory context (for example, a sudden change of this kind might be speculated to be a signal of danger). A number of inconsistencies in the current literature on the immediate auditory recognition of tones have been reconciled in the light of this MMN perspective (Mercer and McKeown 2010).

The future of evolutionary psychology will surely be one in which a knowledge of behavioral or cognitive psychology will have to be supplemented by an understanding of microbiology and neurophysiology to an extent that might have surprised even the founding fathers of evolutionary psychology, Charles Darwin and George John Romanes. However, the skeptical inquirer will assuredly understand that the latest findings in neurophysiology, microbiology, and science in general, findings often informed by technological innovation, are fundamentally a product of human activity, which in any discipline is subject to human error, unintentional or otherwise (Johnson 2010).

See Also

- ▶ [Comparative Psychology](#)
- ▶ [Galton, F.](#)
- ▶ [Morgan, T. H.](#)
- ▶ [Romanes, G. J.](#)
- ▶ [Tolman, E. C.](#)

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Eysenck, H. J.

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Eysenck, Hans Jurgen (March 4, 1916–September 4, 1997) was a British psychologist of German origin who worked in a variety of areas, but is most known for his work on intelligence and personality.

Biographical Information

Hans Jürgen Eysenck was born on March 4, 1916, in Berlin, Germany. He was born to Eduard Anton Eysenck and Ruth Werner Eysenck; both were actors, who divorced when he was 2 years old. As the son of actors and celebrities, however, he was initially encouraged to pursue the field of acting. Eysenck was raised by his grandmother, but at age 18, after graduating high school, he fled the growing Nazi regime and resettled in England, where he studied psychology, pioneered English practice of clinical psychology, became a leading critic of Freud's theories, and developed his own behavioral genetics, intelligence, and personality theories.

Eysenck's early interests in life might have lead one to believe that he would devote his life to the study of psychology. However, he initially was drawn to the study of literature and history and hoped to declare his major as physics, but failed to meet the requirements for admission into the University of London. He only entered into a psychology program of persons in authority. Despite being indifferent to the subject at first, Eysenck grew to enjoy the field of psychology. He studied under the well-respected psychologist Sir Cyril Burt, an early advocate of statistical studies, and statistician Karl Pearson. Eysenck graduated from the University of London in 1938, where he also received his doctorate in 1940. He served as a research psychologist during World War II at an emergency hospital near London, used to treat mentally disturbed service personnel. Following the war, the psychologist worked for London's well-known hospital, Maudsley Hospital. Eysenck worked his way to the head of the hospital's psychology department in 1947 and in 1950, after relocating to the University of London; he was deemed head of the new psychiatric institute, which was located at Maudsley Hospital. Not only did he contribute his knowledge to psychology in Britain, he also worked as a visiting professor at the University of Pennsylvania and the University of California-Berkeley.

With respect to his family life, Eysenck's marriage to the former Margaret Malcolm Davies ended in divorce. Today, he is survived by his wife, the former Sybille Bianca Giulietta Rostal, whom he married in 1950 and who lives in London; by a daughter from his second marriage, Connie Eysenck of Bethesda; a son from his first marriage; three sons from his second marriage; and eight grandchildren.

Major Contributions

Eysenck was an incredibly prolific writer, who contributed significantly to a diverse array of psychological topics, including personality, intelligence theories, homosexuality, paranormal phenomena, causes of smoking-related illnesses, and the effects of behavioral therapy on cancer and heart disease (Mclaughlin 2000). Some of his many book publications included *The Structure of Human Personality* (1953), *Uses and Abuses of Psychology* (1953), *Sense and Nonsense in Psychology* (1956), *The Structure of Human Personality* (1960), *Handbook of Abnormal Psychology* (1960), *Manual of the Eysenck Personality Inventory* (1964, with Sybil Eysenck), *Fact and Fiction in Psychology* (1965), *The Biological Basis of Personality* (1967), *The Structure of Human Personality* (1970), *Race, Intelligence and Education* (1971), *The Psychological Basis of Ideology* (1978, with G. D. Wilson), and *The Transparent Man: How We See Psychologist* (1983, with Michael Eysenck). In addition, he also contributed articles to the “Encyclopedia of the Social Sciences” and in 1962, he founded and began a long stint as editor of the journal *Behavior Research and Therapy*. Eysenck spent decades as the head of the Psychology Department of the University of London’s Institute of Psychiatry.

Some of Eysenck’s most notable achievements include his significant criticism of psychotherapy, his meticulous measurement-based approach to the field of personality, his success in popularizing psychological concepts in the press, and finally his papers on human intelligence. With respect to his controversial stance on psychotherapy, he advocated behavioral approaches to therapy and argued that psychoanalysis may be no more successful than no treatment at all. In terms of personality, he believed that the “supertraits” of extroversion and neuroticism could account for all of human personality. Finally, with regard to intelligence, Eysenck believed that much of intelligence could be inherited. In fact, he experienced a large amount of criticism for supporting his student, Arthur Jensen’s controversial paper on racial differences in intelligence scores, but later moderated his perspectives to account more for environmental influences on intelligence.

Eysenck advocated Donald Hebb’s theory of human intelligence, which was expounded upon by Phillip Vernon. Eysenck proposed that culturally bounded tests and tests based on educational attainment were likely to encapsulate Hebb’s Intelligence B, while physiological measures like electroencephalography (EEG) and Positron Emission Tomography (PET) with Intelligence C, more of the biological substrate of human cognitive ability. Overall many perceive Eysenck as a controversialist, who was an incredibly productive writer in a plethora of areas related to psychological study.

Major Publications

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F

Fite, Warner

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Basic Biographical Information

Born: March 5, 1867; Died: June 23, 1955.

Fite was born in Philadelphia and educated at Haverford College (AB 1889). He studied in the Philadelphia Divinity School for a year and then began graduate studies in philosophy at the University of Pennsylvania, where, after 2 years at Berlin and Munich, he obtained the Ph.D. in 1894. He then taught at Williams, at Chicago between 1897 and 1903, at Texas from 1903 to 1906, at Indiana from 1906 to 1915, and then at Princeton for the remainder of his career, where he held the Stuart Professorship in Ethics (Flewelling 1999).

Major Accomplishments/Contributions

For most of his career he was solely a professor of philosophy with a specialty in ethics, but earlier, in Chicago, he taught in psychology and was a laboratory assistant to James Angell. There, too, he came into contact with American functionalist psychology and sociology in its nascent stages. His connections with psychology came mostly during the first 2 decades of his career, centering around the concepts of consciousness and instinct and the views of William James and John Dewey. For the most part, Fite's work was tangential to psychology as he was more concerned with constructing a philosophy of individualism, but he provided several critiques which, viewed in historical perspective, constitute an alternative interpretation of psychology from within contemporary philosophy. Of these, the most apposite was his address to the

American Psychological Association in December 1902, *The Place of Pleasure and Pain in the Functional Psychology* (Fite 1903) an evaluation of the pleasure concept in psychology as it had developed in the leading American psychologies up to that time. Fite neatly capsulized the developing functionalist view and anticipated several later developments, including adaptation-level theory: he observed that getting to things through overcoming obstacles produces pleasure or pain, but attaining them causes them to vanish. Conflict, maintained Fite, is necessary for consciousness, and both pain and pleasure determined by their contexts within conflict. Very weak and very strong opponents may produce pain either of boredom in the former instance or frustration in the latter, while extremely strong opponents may produce resignation and withdrawal if one withdraws, or continued frustration and anger if the opposition is maintained internally. Fite took the view that conflict leading to activity is the "realest" of mental activities, and thus relegated pure sensory pleasure to a secondary role, its source to be determined through more fine-grained physiological analysis rather than through the analysis of the relation of agent and environment. Fite's most significant anticipation of future developments in this area was his conclusion that, due to its evanescent nature, pleasure cannot be an end in itself. This foreshadowed subsequent developments both in behavioristic formulations of action and emotion in which pleasure was considered epiphenomenal at best, and in which hedonism was exclusively based on pleasure contingent on action rather than on pleasure as a motivation toward action. Drive and tension states conceived as unpleasant became a more frequent formulation in psychology from this time forward and only very much later were they counterbalanced by views emphasizing the positive value of pleasurable activity in its own right and the context-dependent adaptation-level theorizing implicit in Fite's view. His main contribution after this was his

book *Individualism* (Fite 1911), in which he contended for the necessity of consciousness and individual decisions in the creation of society. Here again, Fite appeared prescient in incorporating psychological theories of development and intelligence into the argument: differences in intelligence, Fite claimed, militated against egalitarian conceptions of the “common good.” Against this Fite proposed an equitable distribution of social goods arrived at by negotiation between independent intellects. After this Fite’s activity was mainly philosophical, but he continued to critique aspects of psychology with which he disagreed, sometimes rather stridently (e.g., Fite 1915). After 1918, he turned away from specifically psychology-related concerns and developed a friendship with the Spanish writer and philosopher Miguel de Unamuno, with whose iconoclastic individualistic perspective Fite was in accord and whose novel *Niebla* (*Mist*) Fite translated in 1928.

See Also

► [Dewey, John](#)

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Flourens, Pierre

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Basic Biographical Information

Flourens (1794–1867) was born in Maureilhan, France. Somewhat of a prodigy, he earned a medical degree at the age of 19 from the *Faculté de Médecine* at Montpellier. Subsequently, Flourens became a protégé of Georges Cuvier (1769–1832), the eminent scientific paleontologist and leader of the comparative method in organismal

biology. Under Cuvier’s guidance, Flourens began the work for which he is most recognized, comparative experimental brain research. Flourens articles on brain research in 1822 and 1823 were presented to the *Académie des Sciences* by Cuvier. These were then assembled together with a newly written preface to become Flourens’ first important book, *Recherches expérimentales sur les propriétés et les fonctions du système nerveux dans les animaux vertébrés* (1824). By 1828, with Cuvier’s sponsorship, Flourens was admitted to the *Académie des Sciences*, and upon Cuvier’s death in 1833 and by his recommendation, Flourens was appointed *secrétaire perpétuel* of the *Académie*. In 1840, he was elected over Victor Hugo to the *Académie de France*. Flourens soon had a professorship in comparative anatomy at the museum of the Jardin de Roi, and in 1855, he was appointed professor of natural history in the College de France where he remained until his death (Pearce 2008).

Major Accomplishments/Contributions

Flourens is best remembered for his pioneering brain-behavior research and for his vigorous opposition to phrenology which contributed to the demise of phrenology’s scientific acceptability. Among many others, Boring (1950) wrote that Flourens was the first comparative, experimental brain researcher, and he is usually credited with developing the method of experimental ablation. Like many alleged “firsts,” Flourens’ brain ablation research was well preceded by sophisticated experimental brain research by another Frenchman, François Pourfour du Petit (1664–1741) (Kruger and Swanson 2007; Neuberger 1981). Nevertheless, Flourens impact on brain physiology was such that Neuberger titled his book, *The Historical Development of Brain and Spinal Cord Physiology Before Flourens*, obviously regarding Flourens to be a transformational person in that field.

Flourens was a meticulous surgeon and a careful behavioral observer, and he used his ablation and observational skills on animals such as frogs, pigeons, and rabbits to determine some of the primary functions of the major regions of the brain. His behavioral observations did not include behavioral experiments, an innovation that was left to Shepherd Ivory Franz (1874–1933) in 1902. But Flourens’ pre- and

post-surgical observations enabled him to identify, reasonably correctly, the predominant functions of structures such as the cerebrum, midbrain colliculi, cerebellum, and medulla oblongata. Referring to the structures' predominant functions, he called them their *action propre*, but his overriding conclusion was that they acted in common (*action commune*); that is, most actions involve most if not all regions of the brain.

Armed with careful experimental data and with a conclusion (*action commune*) that clearly questioned the extreme localizationist views of brain function advocated by the phrenologists (notably Franz Josef Gall and J. G. Spurzheim), Flourens was in a unique position to attack phrenology. Such an attack was highly desired by the French in general, as no less than Emperor Napoleon Bonaparte encouraged Flourens in his research and criticism of phrenology. Phrenology was highly susceptible to criticism, as its methods were questionable and were tied to questionable functional categories, namely, a list of mental faculties that originated with philosophers, Thomas Reid and Dugald Stewart, who did not base them on brain research. Furthermore, the "brain" evidence used by Gall and Spurzheim was derived from bumps on, and recesses in, the skull. While, theoretically, that might have provided for legitimate correlational research (e.g., correlating bumps and faculties) the method was poorly employed. A single case of dubious validity might be the basis for assigning a particular faculty to a particular area of the brain. Before describing how Flourens criticism destroyed phrenology, it is only fair to say that Gall and Spurzheim made many legitimate contributions to neuroanatomy, that Gall's clinical observations led to the discovery of the location of the human speech in the cerebral cortex, and that despite the failure of phrenology, Gall's advocacy for localization of brain function continues to have significant impact.

Flourens attack on phrenology began with his 1824 book (see above). His careful experimental method compared to the deficiencies of phrenological research was obvious. Not only did Flourens provide a clearer basis for interpreting brain function, he provided a strongly contrasting theory of brain function. Additionally, due to the questionable practices of many phrenologists, phrenology developed the reputation of charlatanism. It became easy for the majority of medical and scientific researchers to disavow phrenology and all who were

associated with it. Flourens best remembered attack on phrenology was his book *Examen de la phrenology* (1842) where he displayed writing that was admirable in its precision, brevity, and clarity in identifying all that was wrong with phrenology. He also left a legacy of good advice to be followed in scientific writing. In the Preface he wrote, *J'ai voulu etre court. Il y a un grand secret pour etre court: c'est d'etre clair* (I wish to be brief. It is a grand secret to be brief is to be clear). Flourens' views prevailed until 1860 when localization of function experienced a revival following Ernst Auburtin's, Jean-Baptiste Bouillard's, and Paul Broca's discovery of the human speech center in the cerebral cortex.

See Also

- ▶ [Boring, E. G.](#)
- ▶ [Broca, Pierre Paul](#)
- ▶ [Comparative Psychology](#)
- ▶ [Fowler, Orson](#)
- ▶ [Gall, Franz Josef](#)
- ▶ [Lashley, Carl](#)

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Flournoy, Théodore

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Basic Biographical Information

Flournoy was born August 15, 1854, in Geneva (Switzerland) and died on November 5, 1920, in Geneva (Switzerland). He studied medicine at the

University of Strasbourg as well as with Wilhelm Wundt in Leipzig (1879). As Professor of Psychology at the University of Geneva (1891–1919), he taught physiological and experimental psychology as well as the history and philosophy of science. An influential investigator of psychic and parapsychological phenomena, he is best known for establishing one of the first experimental psychological laboratories and an important psychological journal, the *Archives de Psychologie*.

Major Accomplishments/Contributions

Known primarily for his research into religious phenomena, Flournoy applied his scientific training to religious and parapsychological phenomena. After studying experimental psychology at Wilhelm Wundt's laboratory in Leipzig, Flournoy was convinced of the efficacy of Wundt's method. When he accepted the first position for experimental psychology at the University of Geneva in 1891, he ensured it was within a science rather than an arts faculty. He then established one of the first experimental psychology laboratories and the very first in Switzerland (1892) (Nicolas and Charvillat 1998). Flournoy published many important works on religion and psychology, including *Métapsychique et Psychologie* (1890), *Des Phénomènes de Synapsie* (1893), *Des Indes à la Planète Mars* (Flournoy 1900), *Les Principes de la psychologie religieuse* (1903), *Le Génie religieux* (1904). The third of these, translated into English as *From India to the Planet Mars* in 1901, caused a sensation upon publication, was enormously influential among psychologists, and remains one of the most remarkable books in the history of psychology. It deals with the late nineteenth-century popular medium Hélène Smith (pseudonym of Catherine Élise Müller) who claimed to have visited Mars and whose automatic writing and speaking in tongues (glossolalia) Flournoy took seriously, though not at face value. Ultimately, he rejected a spiritualist explanation arguing that her abilities were subconscious impersonations and that her fantastic imagination accounted for her linguistic legerdemain. Yet he did not doubt the existence of her telekinetic, telepathic, or clairvoyant abilities. This work influenced many psychologists' thinking about occult and parapsychology (e.g., Carl Jung). At his own expense, he and his cousin Edouard Claparède founded (1901) and

edited what is now one of the oldest journals in psychology: *Archives de Psychologie de la Suisse Romande* (since 1902, *Archives de Psychologie*). Flournoy was respected by many of the greatest psychologists and philosophers of his age such as William James (see Letters [LeClair 1966]). In 1909, he was President of the Congress of Experimental Psychology. His continued works include *Esprits et Médiums, Mélanges de Métapsychique et de Psychologie* (Flournoy 1911 and 2010, in English 1911, 2009), and *La Philosophie de William James* (1911; in English 1917, 2009), many of which continue to be issued in multiple languages.

See Also

- ▶ [Analytic Psychology of Carl Jung](#)
- ▶ [Wundt, Wilhelm](#)

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Fordham University, History of Psychology at

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Basic History of the Department

As proclaimed in its logo, Fordham University is the Jesuit University of New York. Psychology at Fordham has been influenced by Catholic and Jesuit traditions and by its location in New York City, with campuses in the Bronx and Manhattan. The university began in 1841 as St. John's College at Fordham, the Bronx, and a course in Catholic philosophical psychology was introduced in 1862. This mental philosophy course and its successors were required of all seniors up to the Class of 1966.

Two of the long-term teachers of this course were Rev. Joseph A. Murphy, S.J., one of the founders of the Psychology Department, and Rev. Joseph F. Donceel, S.J., Ph.D., a philosopher who integrated experimental psychology with Thomism and European phenomenology in his text *Philosophical Psychology* (Donceel 1961).

The first Physiological Psychology course was offered in 1899. This course was often taught at undergraduate and graduate levels by James J. Walsh, M.D., a Fordham alum who later served as Dean of the Medical School. He invited Carl Jung to lecture at Fordham in 1912; these lectures were published as *The Theory of Psychoanalysis* (Jung 1915). Walsh (1912) published one of the first psychotherapy texts, along with dozens of other books on medicine, history, science and the Church, and other topics.

As the college grew to become Fordham University, schools of medicine and law were founded in 1905, followed in 1916 by graduate schools of social service and education at the Woolworth Building in lower Manhattan. Both of these schools offered psychology courses and eventually departments of applied psychology: the Department of Psychology, Measurement, and Elementary School Supervision (1928) in Education, and the Department of Mental Hygiene in Social Services. Three strands were brought together in the founding of the graduate Department of Psychology in 1932 and 1933: a dry run took place under the auspices of philosophy in 1932, and the stand-alone department made its debut in 1933, founded by faculty from philosophy (Murphy and the chair, Rev. Walter G. Summers, S.J.), education (Robert T. Rock, Ph.D., Dorothea A. McCarthy, Ph.D., and Jack W. Dunlap, Ph.D.), and social services (Frank J. O'Brien, Ph.D., M.D. and Michael P. Lonergan, M.D.). Fordham was the fourth American Catholic university and the fourth New York state university to establish a graduate program in psychology. By 1939, the lines between education, philosophy, and psychology had been redrawn, and the Arts and Sciences graduate programs in psychology and philosophy had moved to the main campus in the Bronx. This led to the development of undergraduate majors, including psychology, in the undergraduate college in the Bronx. Today the Graduate School of Education offers degrees in educational psychology, counseling psychology, and school psychology at the Lincoln Center campus.

Among the founders, Rock earned his Ph.D. under Thorndike at Columbia in 1935, and moved from education to psychology to serve as chair from 1939 to 1949, except while serving in the Army's Psychological Research Unit 2 during World War II. McCarthy earned her Ph.D. in developmental psychology at Minnesota, moved to psychology in 1942, represented the department at the Boulder Conference in 1949, and developed the McCarthy Scales of Children's Abilities.

Since 1937, over 800 students have earned Ph.D.s in the Arts and Sciences Psychology Department, and there were more than 70 psychology dissertations in Graduate Education before 1957, beginning in 1923 with Sr. Mary Antonita Emge, S.S.N.D.: *Psychology of Attention and Its Application to Classroom Problems*. The department's first two Ph.D. students were Joseph A. Sherlock and Joseph F. Kubis, both in 1937. Kubis joined the faculty, served as interim chair after the sudden death of his mentor, Summers, in 1938 and again in the 1970s, and retired in 1981. Kubis continued Summers' research on lie detection, and worked with NASA on the human response to space travel.

When Rev. Joseph G. Keegan, S.J., Ph.D. took over as chair in 1949, the faculty consisted of Keegan (Ph.D. 1949 Yale), Rock, McCarthy, Kubis, Anne Anastasi, Ph.D. (Columbia 1930), Rev. William C. Bier, S.J., Ph.D. (Catholic University 1948), Rev. Richard T. Zegers, S.J., Ph.D. (Columbia 1948), and Rev. Henryk Misiak, Ph.D. (Fordham 1946). This was a time of growth in higher education, and Fordham was no exception, with increasing enrollment in undergraduate and graduate programs. At the graduate level, specializations in general/theoretical psychology, experimental psychology, psychometrics, and clinical psychology were offered.

Bier took over as chair in 1958, and worked successfully to attain APA accreditation of the clinical psychology program. His research applied personality testing to members of Catholic religious orders, and he was a founder and from 1949 to 1970 served as the executive secretary of the American Catholic Psychological Association (ACPA). He authored a brief history of the department for the ACPA newsletter (Bier 1953). Misiak (1963) provided an update 10 years later. Misiak and Staudt's (1954) *Catholics in Psychology: A Historical Survey* covered international psychologists missing from mainstream coverage of the history of psychology.

Misiak and Zegers supervised many dissertations on critical flicker fusion and other topics in sensation and perception. Anastasi became the best-known Fordham psychologist, with her widely used text on *Psychological Testing*, and served as department chair (1968–1974) and as President of the American Psychological Association in 1972 (see her biographical entry).

After Kubis, John F. Walsh, Ph.D. served as chair from 1976 to 1982, followed by Marvin Reznikoff, Ph.D. (1983–1986), Kurt Geisinger, Ph.D. (1986–1991), and Nancy Busch, Ph.D. (1991–1996). During these years the Experimental Psychology Program was dropped and the Applied Developmental Psychology Program was initiated. In 1969 an undergraduate college was established at the new Lincoln Center campus in Manhattan, with a Division of Social Sciences that eventually included six psychologists. Trustee-mandated restructuring led to the merger of the Lincoln Center psychologists and the Department of Psychology into a university-wide department in 1995, with Busch as the first chair for one year. Mary Procidano, Ph.D., Frederick J. Wertz, Ph.D. and now Kathleen Schiaffino, Ph.D. have chaired since 1996. A common undergraduate curriculum emphasizing a natural science approach to psychology was developed under Procidano's leadership.

Significance

Fordham psychology is significant in at least three ways: first, in the large number of undergraduate and graduate students who learned about psychology at Fordham; second, in the impact of individual faculty, especially Anastasi, on the field; finally, due to its leadership in the area of the relationship between psychology and religion, beginning in 1862, including the work of Bier, Misiak, and Staudt, and continuing today with the work of Rev. John J. Cecero, S.J., Ph.D.

See Also

► [Anastasi, Anne](#)

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Forel, Auguste-Henri

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Basic Biographical Information

Forel was born September 1, 1848, in La Gracieuse (Switzerland) and died on July 27, 1931, in Yvorne (Switzerland). After a gymnasium education in Lausanne, he studied medicine at the University of Zurich (1866–1871). His doctorate in neuroanatomy was written under the guidance of Theodor Meynert in Vienna (1872). After 7 years in Munich working with Europe's leading brain researcher Bernhard von Gudden, Forel was appointed Professor of Psychiatry at the University of Zurich, a post which included the directorship of the university's psychiatric clinic the Burghölzli (1879–1898). In addition to his contributions to psychiatry, he was a noted myrmecologist (the scientific study of ants), sexologist, brain anatomist, philosopher, and social reformer (e.g., eugenics, temperance). He is generally considered the father of Swiss psychiatry.

Major Accomplishments/Contributions

Forel's early interest was in the anatomy, physiology, geographic distribution, and behavior of ants (Forel 1900). He was the first to describe parabiosis (the natural or artificial joining or grafting of two organisms) and lestobiosis (when colonies of a small species nest in the walls of the nest of a larger species). He continued to work on this subject throughout his life, publishing *Les Fourmis de la Suisse* (Ants of Switzerland) in 1874 and a five-volume work in 1923 (Lustig 2004). After studying medicine in Zurich, he turned to human brain anatomy (Forel 1907). In 1875, Forel made the first complete section of the whole

brain. In 1877, he named a horizontally elongated region below the thalamus whose connections project extensively over the brain from the cerebral cortex down into the spinal cord the “zona incerta,” now known as the “fields of forel.” Forel understood his position as Director of the Burghölzli (1879–1898) as one with a social component which compelled him to speak out on issues as diverse as eugenics (of which he was a proponent) (Küchenhoff 2008), criminal behavior (he was one of the first to put forward the idea of “diminished responsibility”), and psychiatric incarceration. In 1885, he discovered the origin of the acoustic nerve in the brain. In 1887, Forel described cellular functions within the brain, and this work, along with studies by Wilhelm His and Fridtjof Nansen, is considered the beginning of modern neuron theory. Forel was not only a research scientist and director of a major European psychiatric institute, he was an active social reformer publishing papers on prison reform (including penal code legislation) and social morality, in particular, alcoholism; in 1889, he established an institute for the medical treatment of alcoholism, and 2 years later he founded a temperance journal. Like many psychologists, Forel was fascinated by hypnotism and believed suggestion therapy to be a major medical breakthrough. He wrote extensively on the subject and cofounded the *Zeitschrift für Hypnotismus* in 1897. Five years later, this journal was renamed the *Journal für Psychologie und Neurologie*, and it survived as the *Journal für Hirnforschung* and later still as the *Journal of Brain Research*. Forel was also interested in sexuality and hygiene and his influential *The Sexual Question: a Scientific, Psychological, Hygienic and Sociological Study* was published in 1905 (Forel 1905), the same year as Freud’s “Three Essays on Sexuality”. In 1909, he established the *Internationalen Verein für medizinische Psychologie und Psychotherapie*. He was a lifelong proponent of psychotherapy and trained Eugen Bleuler (his successor at the Burghölzli) as well as Adolf Meyer (later president of the American Psychiatric Association). In addition to being an academic polymath, Forel was an active Socialist, internationalist, pacifist and advocate of Esperanto.

See Also

► [Bleuler, Eugen](#)

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Forensic Psychology

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Forensic psychology is psychology applied to the law, derived from the Latin “forensis” – pertaining to a forum, or court of law. This specialty is currently in transition between two very different definitions.

1. The traditional, broad definition of forensic psychology: “the science and practice of psychology applied to legal issues,” including all aspects of law – criminal law (offenders, victims, witnesses, police, attorneys, courts, corrections), civil law (competence, disability, personal injury), family law (child custody, guardianship), and other branches.
2. The more modern and narrow definition of forensic psychology is simply that part of clinical psychology focused on the mentality and behavior of individuals in the legal system. More formally, the 1991 Specialty Guidelines define this as: “all forms of professional psychological conduct when acting, with definable knowledge, as a psychological expert on explicitly psycholegal issues, in direct assistance to courts, parties to legal proceedings, correctional and mental health facilities, and administrative, judicial, and legislative agencies acting in an adjudicative capacity” (Section I.B.1.b).

This more focused definition emerged in 1991 in the “Specialty guidelines for forensic psychology” (Committee on Ethical Guidelines for Forensic Psychologists 1991). In 2000, this was part of a successful petition to the American Psychological Association (APA) by its Division 41 (the American Psychology-Law Society, or AP-LS) to recognize those qualified “to provide psychological expertise to the judicial system.”

In this essay, the term “law-psychology” refers to the traditional broad definition (Rieber 1987), and “forensic psychology” is reserved for the more modern and focused definition. In both cases, this is a small yet fast-growing area within modern psychology, judging by available resources – training programs, organizations, textbooks, and journals.

Law-psychology. The application of scientific psychology to law dates back to its very origins before 1900, in Europe as well as the USA (see Table 1). This is best seen as a “curvilinear” history, since early turn-of-the-century enthusiasm dissipated by 1910, only to rekindle slowly in the 1960s, and then rapidly in the 1990s.

Before 1900, many leading psychophysics researchers quickly saw the value of their new findings on human perception, memory, and reporting for the legal process. For example, in Paris, in 1901, Alfred Binet published an essay on the “Science of testimony,” as did Wilhelm Stern in Leipzig in 1903. In Vienna, in 1906, Sigmund Freud sought supporters for his new method of psychoanalysis when he addressed an audience in University of Vienna Law School on its unique value on “the ascertaining of truth in courts of law,” helping to detect liars from their subtle nonverbal cues. Most notably in 1908 in the USA, Wilhelm Wundt’s redoubtable student Hugo Munsterberg, the Director of the Harvard Laboratory of Applied Psychology, published his classic book, *On the Witness Stand*, attacking American courts of law as “pre-scientific” for ignoring the value of new research on eyewitness evidence and hypnosis. Almost immediately in 1909, John Henry Wigmore headed an onslaught of US attorneys who mounted a blistering academic counterattack, successfully stifling Munsterberg and others’ further development of this topic.

Law-psychology re-emerged in the 1960s, with the publication of *The American Jury* in 1966. This landmark volume co-authored by attorney Harry Kalven

and sociologist Hans Zeisel provided a brilliant behavioral science analysis of the operations of the Chicago criminal courts (Kalven and Zeisel 1966). For example, by analyzing 3,000 actual criminal trials, the authors found that judges and juries agreed on 78% of verdicts – thus resolving the long-unanswered question “Does a judge versus jury trial make a difference?” Also in 1966, New York attorney James Marshall’s volume, *Law and Psychology in Conflict*, reissued a call for more scientific research on the troubling problem of flawed eyewitness evidence in court. Along with the formation of the American Psychology-Law Society in 1969, a few pioneering authors, schools, and books began to redevelop the law–psychology interface. But throughout the 1970s, there were clear tensions when lawyers and psychologists tried to collaborate and to apply behavioral research to legal issues. This “uneasy courtship” grew into a “marriage” by 1999, when both national psychology associations in North America were headed by an attorney-psychologist: President Patrick H. DeLeon of the American Psychological Association and President James R.P. Ogloff of the Canadian Psychological Association.

Forces. The attractive forces binding law and psychology seem clear. If psychologists seek to do work of value to individuals and society, what can be more valuable than helping to decide the fate of individuals on trial in criminal and civil courts? Similarly, in their effort to improve procedural and distributive justice, these courts naturally welcome any assistance behavioral scientists can offer.

The repellent forces also seem clear, in two ways – the very different goals and methods of law and psychology. (1) *Goals.* The goal of law is to judge human behavior, whereas the goal of psychology is to simply understand without judgment. (2) *Methods.* The classic philosopher C.E. Pierce asks “How do we know facts?” and limns four methods to ascertain facts: (a) “Tenacity” – what has been done in the past, (b) “Authority” – relying on expert opinions, (c) “Intuition,” (d) “Empiricism” – what empirical tests reveal. It is notable that lawyers are trained to rely on the first three, while psychologists are taught to rely exclusively on the fourth – empiricism. For instance, “Is it best to allow TV cameras in the courtroom for high-profile trials, or is this disruptive?” While courts rely on past precedents (*stare decisis*), testimony by experts, and

Forensic Psychology. Table 1 Background of law-psychology

1879 – Wilhelm Wundt “founds” the science of psychology by forming the first psychology lab in Leipzig.
1901 – In Paris, Alfred Binet publishes his article on the “Science of testimony.”
1903 – In Leipzig, Wilhelm Stern publishes his research on the use of psychology in obtaining testimony.
1906 – In Vienna, Sigmund Freud addresses law students on “Psychoanalysis and the ascertaining of truth in courts of law.”
1908 – At Harvard, the Director of its Laboratory of Applied Psychology, Hugo Munsterberg, publishes <i>On the Witness Stand</i> , his pioneering book on psychology applied to the courts.
1909 – In Chicago, Northwestern Law Professor John H. Wigmore counterattacks in the <i>Illinois Law Review</i> against Munsterberg’s 1908 attack on pre-scientific law.
1909–17 – In the <i>Psychological Bulletin</i> , G.M. Whipple publishes an annual review of psychology research on testimony.
1916 – Psychologist Edwin G. Boring begins publishing the <i>Journal of the American Institute of Criminal Law</i> .
1920 s–30 s – Occasional treatises appear, such a lawyer Robert Hutchins and psychologist Donald Slesinger’s <i>Legal Psychology</i> (1929), M.E. Burr’s <i>Legal Psychology</i> (1931), E.S. Robinson’s <i>Law and the Lawyers</i> (1935). (. . . Forensic psychology wanes, then re-emerges in the 1960s . . .).
1955–66 – Chicago lawyer Harry Kalven and sociologist Hans Zeisel research and publish <i>The American Jury</i> (1966), their classic empirical studies of the Chicago court system (Kalven and Ziesel 1966).
1966 – New York attorney James Marshall publishes <i>Law and Psychology in Conflict</i> .
1969 – Psychologists and lawyers form the American Psychology-Law Society, APA Division 41.

Forensic Psychology. Table 2 Background of forensic psychology

1896 – Psychologist Albert von Schrenck-Notzing testified on suggestibility of witness testimony in a murder trial.
1908 – In Pennsylvania, clinician Lightner Witmer, a student of Wilhelm Wundt, introduces a course on psychology of crime.
1909 – In Chicago, neurologist William Healy and psychologist Grace Fernald form the Chicago Juvenile Psychopathic Institute to assist the Cook County Juvenile Court.
1923 – The exclusion of psychologist William Marston’s polygraph testimony creates a new rule in <i>Frye v US</i> , 293 F. 1013 (DC Cir. 1923).
1962 – Psychologists are allowed to testify on insanity, based on expertise rather than a specific credential, in <i>Jenkins v US</i> , 307 F.2d 637.
1991 – APLS publishes its Specialty Guidelines for Forensic Psychology (Committee on Ethical Guidelines for Forensic Psychologists 1991).
1993 – The admission of scientific evidence into US courts is expanded in the <i>Daubert</i> decision.

judicial intuition, psychologists are taught to look only at objective evidence from actual tests of this question. The very different goals and methods of these two fields of law and psychology can complement or conflict, depending on the care with which they are paired.

Topics. Since the 1960s, psychologists in diverse specialties (such as social, clinical, industrial, perception) have applied their research to legal issues (Wright et al. 1980; Rieber 1987). These law-psychology researchers have shown no lack of creativity in the diverse topics they have researched on all aspects of the legal system. In criminal law, for example, behavioral researchers have studied the *offender* (assessment, motivation, competence, terrorism, profiling), *victims* (second-injury, victim-blame, victim services, VORP victim-offender reconciliation programs), *witnesses* (bystander behavior, good Samaritans, citizens arrest, witness assistance, duty-to-aid policies), *police* (selection, training, styles of policing, stress, burnout, corruption, community relations, domestic violence), *attorneys* (prosecution, defense, methods of persuasion, voir dire), *courts* (juries, judges, negotiated pleas, jury work consultation, pretrial publicity),

evidence (eyewitness identification, line-ups, hypnosis, polygraphy, confessions, entrapment, false/recovered memories), *corrections* (punishment, rehabilitation, sentencing, capital punishment).

Forensic psychology. In law, the emphasis on an accused offender's mental state long predates the advent of psychology – stretching back to the 1700s. For example, “Can a wild bull be put on trial for killing a farmer?” In *Rex v. Arnold* (1723), an English court's “wild beast test” found a demented person lacks the requisite mentality to commit the crime of murder. Similarly, in 1843, despite public outcry of the “M’Naghten rule,” a London court found Daniel M’Naghten “not guilty by reason of insanity” in the killing of Prime Minister Robert Peel’s secretary, due to “a mental disease or defect” that rendered him unable “to know right from wrong.” (Interestingly, M’Naghten was immediately adopted by US courts by 1851, and remains the test used in most of the 50 US states 160 years later.)

In its judgments, law does not separate one's behavior from the mental state associated with it. For example, the same behavior (a killing) may be murder, manslaughter, or no crime at all depending on the mental state of the killer. So modern textbooks in criminal law are saturated with hundreds of terms referring to mental states – knowingly, deliberate, premeditated, duress, reckless, negligent, voluntary, incompetent, and insane. Has the accused a “guilty mind” (*mens rea*)? At the same time, psychologists have typically been discouraged if not barred from testifying as consultants in courts of law across most of the twentieth century because, unlike psychiatrists, they are not licensed medical doctors recognized as experts by the court. This is gradually changing, as forensic psychology and its unique scientific knowledge base achieve greater recognition. When the historic 1993 *Daubert* decision clarified five new rules on the admission of science into US courts of law, this possibly opened a new chapter in the expanding role of forensic psychology (*Daubert v Merrill Dow Pharmaceuticals* 1993).

Besides their shared history, the modern specialties of clinical and forensic psychology share some clear similarities and differences. (1) *Similarities.* In both, the practitioner uses the same skill set to apply scientific concepts and methods to assess clients, and possibly help plan appropriate interventions to benefit their

behavior and mental state. (2) *Differences.* The forensic psychologist is typically an expert consultant hired by the court, so her/his primary duty is to the court (not the individual), confidentiality is moot, the primary goal may be assessment or treatment, there is likely a time limit, the client may not be voluntary and may be more of an adversary than ally in this process.

In practice, individual practitioners vary in how much they balance the interests of the court versus the person with whom they are working.

Topics. Using this more narrow conception, forensic psychologists have shown vigor in applying their clinical and related skills to help the legal system better understand the individuals in it. For example: *investigations* (criminal profiling, crime scene analysis, psychological autopsies, hypnosis, polygraphy), *mental states* (competence, insanity, malingering), *dangerousness* (risk assessment, at-risk juveniles, stalking, bullying, sexual offenders), *syndromes* (battered women, rape, child sex abuse, posttraumatic stress disorder), *discrimination* (racial, sexual, hate crimes, sexual harassment), and *families* (mediation, child custody, guardianship, child abuse/neglect).

Future trends. Like other practicing psychology specialties, the forensic specialty normally requires a state license. Depending on each state, this typically means a doctorate in psychology, suitable internship, a year or 2 of supervised professional experience, and a passing score on the EPPP – the Examination for the Professional Practice of Psychology. Judging by the number of practitioners and training programs, forensic psychology is a small but unusually fast-growing specialty compared with other practice specialties, for at least a few reasons: (1) *Openings.* There are many openings to work with correctional facilities, if not state or federal courts. (2) *Fees.* Since fees are paid by a third party, the psychologist need not deal with the uncertainties of “managed care” or a client's insurance company, which are known to pressure practitioners. (3) *Forensics.* There is a growing public fascination with forensic science in general, of which forensic psychology is one part.

At the same time, the demands of forensic work require special talents to survive in working with courts, as Dr. Gerald Koocher warns: “So you really want to practice forensic psychology? Forensic psychologists are by nature an argumentative bunch, with abundant self-confidence and strongly held opinions.

Why else would they readily subject themselves to the high degree of scrutiny and challenge that goes along with presenting oneself as an expert in the legal system (e.g., challenging cross-examination, withering criticism of peers consulting to the opposing side, and increased risk of ethical complaints)?” (Goldstein 2007, p. x).

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Foucault, Michel

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Michel Foucault (1926–1984) was one of the major thinkers of the twentieth century. He was born, educated, and lived in France. He held a chair at the prestigious Collège de France; he also taught at universities around the world, including the University of California at Berkeley.

Foucault was not a psychologist, but his formulations on such issues as discipline and the care of the self, as well as the emergence of psychology and the human sciences more generally, continue to possess great relevance for psychology. In addressing Foucault’s work, perhaps the best place to start is his *Discipline and Punish* (1975/1979). The book dealt with the emergence of the “disciplines” in the Western world from the seventeenth century on. The disciplines involved such practices and procedures as fixing in place and

confining, observation and surveillance, training and exercise, judging and classifying according to norms (“normalization”), and examination. The disciplines avoided violent methods and public displays. They were geared toward enhancing and guiding human capacities, aptitudes, and energies, not repressing them. Nevertheless, the disciplines deployed power over the individual in order to enhance the utility and docility of the individual for institutions such as prisons, hospitals, factories, schools, and the military, and for society more generally. The disciplines were thus applied to the bodies of prisoners, students, patients in hospitals, inmates in madhouses, workers, and others – but the effects of the disciplines also produced certain forms of selfhood “within” these individuals. Indeed, Foucault described his book as “a correlative history of the modern soul and of a new power to judge” (p. 23).

The schools provide a good example of how discipline produced effects of selfhood within the individual, effects that simultaneously tended to homogenize and to differentiate individuals. Thus, in the schools, students were observed, examined, compared, and categorized with regard to norms of behavior and performance. In this process, the individual student was both pressured to conform to standardized norms, and thus in a sense homogenized with respect to his or her schoolmates, while, at the same time, the student developed a differentiated sense of self – as, for example, being an industrious, well-behaved, superior student, or a lazy, misbehaved, mediocre student.

The emergence of psychology and the other human sciences was closely connected to the deployment of the disciplines and their production of selfhood, especially from the eighteenth century onward. Prisoners, students, workers, the “insane,” and others were subjected to hierarchical observation within their respective institutional contexts; their behaviors, the results of examinations conducted on them, and so on were recorded, compiled, and classified; and the resulting records and case files were examined and compared. According to Foucault, it was precisely from such “ignoble” procedures that human sciences such as criminology, educational psychology, psychiatry, and industrial psychology originated. Foucault used the term “power-knowledge” to designate the complex of technologies of power and forms of knowledge that

emerged in the West. The term aptly indicated the manner in which disciplinary power and the human sciences interacted with each other, mutually reinforcing each other in their development during the modern era.

With the publication of the introductory volume of *The History of Sexuality*, Foucault (1976/1978) supplemented his treatment of discipline with the notion of “biopower.” According to Foucault, biopower came to combine disciplinary techniques with the regulation of the population. The disciplines were thus incorporated within biopolitical strategies directed at enhancing the health and welfare of the population while simultaneously managing the population. As the “pivot” that connected the discipline of the individual’s body with the enhancement and management of the population, sexuality played an important role in the rise of biopower. Moreover, it assumed a special significance for the modern sense of selfhood. Arguing against the “repressive hypothesis,” Foucault thus claimed that in the modern Western world, sexuality had, by the nineteenth century, come to be elicited, observed, and disciplined – while individuals had come by then to see sexuality as the key to the inner truth of their psyches.

In his later work, Foucault (2003a, b) elaborated on what he called the “technologies of the self.” According to Foucault, the ancient Greeks and Romans were concerned not primarily with knowing the self in the modern sense, but with the care of the self. For the ancients, the care of self involved a kind of esthetic self-fashioning; that is, they focused on the art of living – which involved mastering themselves and their passions, avoiding excess, and, at least during the era of the *polis*, caring for their fellow citizens – in order to live in an ethical manner. To be sure, during the Hellenistic and Roman eras, the emphasis shifted toward detailed self-examination, but the concern with the art of living remained. In the fourth and fifth centuries A.D., however, the Christians formulated and implemented a very different mode of the care of self. Stressing purification and self-renunciation, they turned inward, searching the deepest recesses of their souls for forbidden desires. According to Foucault, Christianity thus initiated the Western project of subjecting the self to constant scrutiny in order to decipher its hidden truth. The implications of these developments for the history of Western

civilization were great: the emergence of the modern self, with its unceasing hermeneutic quest for meaning within the psyche, and the emergence of the modern human sciences, especially psychology, psychiatry, psychoanalysis, and related fields, came to be inextricably intertwined in the West during the modern era.

As suggested above, Foucault’s work is valuable both for providing an understanding of the historical context for the emergence of psychology and for the critical examination of the practices that came to be associated with this field. In addition to his own writings, those interested in exploring Foucault’s critical approach to psychology and its history will find the work of Nikolas Rose instructive. Rose has done extensive work on the rise of the “psy” disciplines, as he has put it. See especially his *Inventing Our Selves* (Rose 1998).

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Fowler, Orson

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Biographical Information

Orson Fowler was born on October 11, 1809, in upstate New York. Along with Henry Ward Beecher, his classmate at Amherst College, Massachusetts, Orson Fowler went to Boston in 1832 to hear the lectures of Johann Gaspar Spurzheim. As a result, he abandoned his plans to become a minister and became a convert to phrenology. After graduating in 1834, Fowler began a career

as an itinerant lecturer and phrenological demonstrator throughout New England, eventually traveling as far as Mississippi, Upper Canada, and later on California, Nova Scotia, and London, England.

In 1838, Fowler founded the *American Phrenological Journal* in Philadelphia, and in 1842 moved it to New York City, at which time he resigned as its editor and became its publisher along with his younger brother, Lorenzo. They turned it into the most widely read phrenological periodical in America. Fowler & Fowler (1836) preached a philosophy of personal improvement under the motto “self made or never made.” Their practical Yankee ingenuity inspired entrepreneurial endeavors, the primary one being their publishing firm located in the center of Manhattan commerce, which became Fowlers and Wells after their sister, Charlotte, and her husband, Samuel Wells, joined in 1844. From their successive buildings came their books on phrenology as well as those by associates promoting related alternative movements. By the early 1850s, Fowlers and Wells had the largest mail order list of any business in New York City and thus contributed to the large increase in reading material for the populace. Early on they also established a Phrenological Cabinet, reportedly containing numerous casts of heads and more than a thousand skulls. In 1854, however, Orson Fowler left the company evidently because Wells refused to publish on the forbidden topic of “self-abuse,” that is, masturbation. Fowler set up his own “matrimonial intelligence office” where people could come and receive a phrenological analysis from him regarding marriage suitability but also about other matters such as career. He conducted a rudimentary sort of psychological assessment whereby his customer purchased his book and he used its chart to indicate from one to seven the strength or weakness of each of the phrenological faculties. This information was the basis for his intuitive advice regarding the best type of marriage partner, career choice, etc. In 1863, he moved his office to Boston. He died on August 18, 1887.

Major Contributions

Orson Fowler promoted many populist social movements of Jacksonian America. He embraced nearly every alternative cause of the 1840s including botanical medicine, hydropathy, vegetarianism, bathing using a new contraption now called a shower, temperance

including with respect to tobacco, tea, and coffee, a new phenomenon called exercise, women’s reform within limits (he once wrote, “only laying hens have the right to cackle,” *Sexual Science*, 1870, p. 141), shorthand at work, and mesmerism including before surgery. A notable exception is that he did not support the back-to-nature utopian communes or fringe religious communities of the era. He was the first to promote octagonal residences, and built his own four-story, 60-room unadorned octagonal mansion near Fishkill, New York, overlooking the Hudson River. He described his plans in *A Home for All* (1848), and in a second edition recommended using a new construction material, “gravel walls,” which we now call concrete.

Fowler readily accepted the vitalistic psychophysiology that supported the phrenological perspective. As he wrote in his book, *Sexual Science* (1870), “Spirit life is that architect which first makes the bodily structures and then uses it” (p. 60). Specifically regarding phrenological theory, he changed his mind over the years about the number of faculties and cerebral organs, but he maintained the common theory that the signs of the domestic propensities are grouped at the back of the skull, the moral sentiments at the top, and the intellectual faculties at the forehead, which he reasoned was proved by the fact that animals have no foreheads.

Like many in the educated populace, Fowler incorporated the old belief in temperaments into his phrenological perspective. Unlike Spurzheim, however, he was part of a shift in the emerging popular culture whereby three temperaments rather than the classic four were employed. Put too simply, this trend dropped the sanguine temperament, which in one version of the old theory was the balanced ideal, and considered the other three to be variations. Fowler and others, however, employed new nomenclature, namely, the vital, motive, and mental temperaments, each with their corresponding body and head types. (In the next century these types reappeared in the form of Sheldon’s somatotypes.) Phrenologists such as Fowler used differences in temperament to assess variations in behavior that were not explainable using only their craniology. The combination enabled them to explain almost anything.

As time passed Fowler became less concerned about establishing a specific set of organs and corresponding faculties and more interested in using his phrenological

perspective to give people guidance and advice. As more time passed his organology played less of a role, and a much revised set of faculties in their various manifestations and behavioral expressions became his emphasis (cf. *Human Science or Mental Philosophy*, 1873).

More than most contemporary phrenologists but reminiscent of Gall, Fowler gave great attention to that most primary of faculties, namely, amativeness, the sex instinct. Interested in promoting both personal enhancement and better hereditary endowment, he became a spokesperson for improving the human race by following natural laws that he considered to be based on phrenological science. As such, Fowler was a forerunner of the eugenics movement. Improving humanity as well as marriages, thought Fowler, requires the development of a spiritual rapport between a man and woman such that their enhanced “parental sexuality” results in creating “better souls” (*Sexual Science*, p. 12). The sex act itself is of utmost importance because “the magnetic-spiritual rapport between partners during the conjugal interview determines the progeny” (*Sexual Science*, p. 637). Fornication and self-abuse are sins of commission, whereas celibacy is a sin of omission. He considered education in phrenological science to be absolutely essential for producing superior progeny and avoiding various sins of a sexual nature. Fowler emphasized that the sins of sensuality and their opposite, prudery, both stem from a perverted organ of amativeness, the cerebellum, which in turn is sometimes caused by “interrupted love” due to, for instance, a broken heart or disappointed love especially regarding the opposite-sexed parent. By the social standards of the early twenty-first century, the sexual mores of Fowler appear quaint and conservative including because he believed that sexual intercourse is for the purposes of propagation only, but in his day he was considered by many to be a libertine. Even one of his former coauthors reviled him, and in some circles he became known as “The Foulest Man on Earth.” Nevertheless, Fowler (1878) continued to practice his own personal philosophy when, for instance, he married for a third time at the age of 72 and his new wife gave birth to three more children. But his reputation declined and he died in debt.

See Also

► [Gall, Franz Josef](#)

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Fraisse, Paul

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Basic Biographical Information/ Major Accomplishments

Eminent French experimental psychologist Paul Fraisse was also an active member of the Socialist Party. He joined Albert Michotte’s laboratory (1935–1937) where he did experiments on visual perception and getting his doctorate. In 1940, he was captured by the Germans and liberated in 1943. Fraisse occupied many positions in French and international psychology. He was director of the experimental psychology department at Sorbonne University where he promoted a variety of directions in psychological sciences such as abnormal psychology, industrial psychology, differential psychology, educational psychology, child psychology, and experimental psychology. He was a very active member of International Congress of Psychology, International Union of Scientific Psychology, French Society of Psychology, and editor of *l’Année Psychologique*. He was a successful mentor, he supervised over 50 PhD students several of them became most prominent psychologists. He co-edited nine volumes on *Treatise of Experimental Psychology* (1963–1976) with Jean Piaget. He founded the *International Journal of Psychology* and directed a series of psychological books “*Le Psychologue*” at the famous French University Press. He had excellent contact with Soviet psychologists as well as North American psychologists, South American psychologists, and European and African

psychologists. In April 1955, he was invited to spend 3 months in the Soviet Union visiting psychology departments and psychology laboratories. He was accompanied by Jean Piaget and René Zazzo. Paul Fraisse was a most respected psychologist to the best of my knowledge his efforts resulted in fruitful exchanges for the unity and greater advances of psychology. His contributions were in the field of perception, estimation of duration, time, rhythm, and memory for drawings or words indicating the same objects, images in memory for concrete and abstract sentences. He conceived time as a regulator of human activities. He promoted the experimental method in psychology. He was appointed as an honorary professor of psychology at Sorbonne University and received honorary doctorates from many national and international universities (Bonn, Lisbon, Rio de Janeiro, Barcelona). He was a regulator active participant in psychological seminars, congresses, and publications until his death, at 85, in 1996. He was editor of volumes, monographs, series including over 200 scientific articles, and more than 40 books. Fraisse's work has been translated into many languages. Readers interested in learning more about Fraisse's life and evolution of his ideas should consult the following publications (Fraisse 1963/1957, 1983, 1984, 1991).

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Franz, Shepherd Ivory

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Basic Biographical Information

Born: May 27, 1874; Died: October 14, 1933.

Franz took his Bachelor's degree (1894) and Ph.D. (1899) at Columbia, studying mainly with Cattell with an interim stay at Leipzig with Wundt in 1896. He then went first to Harvard, where he was assistant in physiology with Henry P. Bowditch and W. T. Porter between 1899 and 1901 and undertook some of the earliest behavioral neuropsychological studies. In these, he experimentally removed trained behavior through brain ablation in cats, then retrained them, demonstrating the ability of undamaged regions to take over the functions of damaged parts (Franz 1902). He then taught physiology at Dartmouth until 1904 when Edward Cowles, founder of the psychological laboratory at the McLean Hospital in Waverly (Belmont), Massachusetts, nominated Franz to a position there in pathological psychology. There he served until 1906, when he moved to Washington D.C. The next year, on the invitation of the psychiatrist William Allan White, Franz became chief clinical psychologist at the Government Hospital for the Insane (St. Elizabeth's) in Washington D.C. In conjunction with his duties there, he also taught at George Washington University as professor of physiology and psychology from 1906, mentoring several graduate students there and at St. Elizabeth's. Franz remained at George Washington and St. Elizabeth's, eventually becoming director of the laboratories there, until 1924 when he moved to Los Angeles, where he joined the faculty of the University of California at Los Angeles, playing a significant role in founding the Graduate School at UCLA as well as the graduate psychology program in 1931. He remained there until his death from amyotrophic lateral sclerosis in 1933.

Major Accomplishments/Contributions

Franz was important to the development of two psychological specialties, clinical psychology and neuropsychology. Regarding clinical psychology, Franz, along with Wells and others at the time, established the role of the clinical psychologist in a psychiatric hospital setting. Franz wrote one of the earliest manuals for clinical testing and authored several articles on clinical practice as it evolved. Franz exemplified the ambiguous relation psychology had with medicine at the time. On the one hand, he was considered a valuable contributor in the hospital setting and even was awarded an honorary M.D. from George Washington University in 1915. Yet he was very much aware of the tension generated in the partnership of psychiatry and psychology. His pithy comment, “Up to the present time, so far as my knowledge goes, most psychiatrists as such will not kiss a psychologist, nor will most psychologists kiss a psychiatrist as such (Franz 1922, p. 242),” was often quoted. As a pioneer neuropsychologist, Franz won a priority dispute against Otto Kalischer regarding his ablation technique (Thomas 2000). He maintained his scientific skills alongside his clinical practice and contributed to establishing the scientist-practitioner model as a norm for clinical psychology. He also authored many theoretical and empirical papers in which he refined his views on the functional equivalence of cortical regions in learning and memory. Franz was particularly critical of strict localizationist approaches to brain structure and function and decried what he termed “new phrenology” (Franz 1912). Franz continued to lecture and write on neuropsychology after moving to UCLA: he also made significant contributions to the theory and practice of rehabilitation after brain injury, emphasizing neural plasticity (Franz 1929; Colotla and Bach-y-Rita 2002). Franz’s most significant contribution, however, came through his teaching of Karl Lashley, whom he instructed in ablation techniques. The publication of their collaborative work (Franz and Lashley 1917; Lashley and Franz 1917) in the new journal *Psychobiology* marks the starting point for Lashley’s subsequent trajectory as a neuropsychological theorist.

See Also

- ▶ Lashley, Carl
- ▶ Wells, Frederic Lyman

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Freud, Anna

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Basic Biography

Anna Freud. British Psychologist. Born in Vienna, Austria, 3 December 1895: daughter of Sigmund Freud, *q.v.*: emigrated to England in 1938, later naturalized. Educated at the Cottage Lyceum. Vienna. Chairman, Vienna Institute of Psycho-Analysis until 1938. Member, London Institute of Psycho-Analysis. From 1938; worked with the Hampstead War Nursery during World War II and in 1952 founded the Hampstead Child Therapy Course and Clinic. London. Recipient: Grand Decoration of Honour in Gold, Austria, 1975. Honorary doctorate: Clark University, Worcester. Massachusetts. 1950; University of Sheffield, 1966; Jefferson Medical College. Philadelphia, 1964; University of Chicago, 1966; Yale University. New Haven. Connecticut, 1968; University of Vienna. 1972; Columbia University. New York. 1978; Harvard University. Cambridge. Massachusetts. 1980. *Died* (in London) 9 October 1982.

Major Accomplishments

One of the areas with which Anna Freud was most concerned throughout her career was the relationship between theory construction and phenomenology. Yet, because she so rarely addressed this matter directly, this important area of her work also has been perhaps the least attended to and the least appreciated. This is unfortunate since it may well be that her constant focus on the connection between the life of the mind and theoretical descriptions of that life will prove to be one of her most important and enduring contributions to the field of psychology.

In the sciences, one of the most important goals of a theory is to break down and simplify (without oversimplifying) the phenomenon that it describes, creating an ordered foundation out of a chaotic whole. This breaking down facilitates data collection and presents a viable means of approaching hierarchical organization. Moving on, the investigator begins a reintegration of the parts into an ordered whole. The utility of a theory depends on the paths it opens up for investigators following in the footsteps of the theoretician. Without this continual flow of new insights, the whole process of breaking down and building up reaches a dead end.

With time, a good theory comes more and more to resemble the phenomenon it describes as succeeding investigators fine-tune it with the conceptions of their own. It is possible, however, for us to forget that we are dealing with concepts which had authors, rather than life as it is lived. When this happens, theories harden, taking on a reality of their own divorced from the world of experience.

Anna Freud was continually aware of this possible split, and she always struggled to maintain a connection between her ideas and the world she was trying to describe. From her first efforts to help teachers, on through her response to war-torn families and their children, to her most abstract level of theory building, there remained for her a deep commitment to developing psychoanalysis to help the development of children, and using this material to help the development of psychoanalysis. This effort led Anna Freud to pioneer in the development and use of additional research techniques to supplement and complement classical psychoanalytic methods. These extend from the development of child analysis and the use of the

nursery school, residential care center, day care center, and hospital, to the investigation of the developmental impact of such sensory deprivations as blindness and deafness.

What appears in Anna Freud as practicality is not fortuitous. It is a calculated but rare combination of lucidity, humanism, and science, and a remarkable appreciation and utilization of the reciprocal relationship between theory and phenomenology. Speaking at Yale University in 1966, she addressed just this matter:

- ▶ It is serious that the division between theory and practice is widespread. There are many people who work on the theory of child development, and there are many other people who work practically with children, but not enough people have the opportunity to apply their theories or to be taught developmental theory while the practical work with children goes on. I may say that in this last respect. I have been especially fortunate all my life.

From the very beginning I was able to move back and forth between practice and theory. I started as an elementary school teacher. I changed from there into the field of analysis and therapy; and then, from then on I changed constantly back from the theoretic study of these problems to their practical application.

This openness to new experiences gave Anna Freud a wider perspective of the world and a resiliency and flexibility that allowed her to build anew without relinquishing the hard-won knowledge of the past. This, combined with an unfettered and articulate intellect, allowed her to cut through a mass of complexities and organize troublesome material into a coherent whole.

In her developmental Profile schema, Anna Freud was aware of these complexities, arising from the difficulty of dealing theoretically with many factors. Her concern was with presenting a useable organizational model which would facilitate the gathering, storage, and assessment of data. Such an instrument imposes balance, completeness, and comparability, not only for individual cases but also for comparisons between analysts. This is an instrument with many potential uses, including the assessment of change over time, compilation of similar cases, comparison of differing ones, and as a training aid.

It was in coming to grips with this question of data collection, storage, and analysis that Anna Freud came to the concept of developmental lines. Before this, psychoanalytic methods rested primarily on the conceptualizations of the structural model, which was an attempt to disentangle and articulate individual functions. Although concerns with interrelationships were present, they were not the primary focus at that time. With the concept of developmental lines, Anna Freud forcefully reintroduced organization and hierarchy as major concepts.

Few within or without psychoanalysis have contributed so large a body of theoretical propositions so pertinent and useful to the field as Anna Freud.

See Also

► [Psychoanalysis](#)

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Froeschels, Emil

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Emil Froeschels was an influential otolaryngologist who specialized in speech, language, and hearing disorders. He adapted existing psychological and physiological theories to explain communication problems and designed innovative methods for carrying out speech therapy. Froeschels' work spanned a broad range of communication problems including dysarthria (e.g., speech of the cerebral palsied), stuttering, voice, language, and hearing impairment.

It was in Vienna, Austria around 1909 that Froeschels began to develop and write about his theories and clinical practices. He continued his considerable publishing record after his emigration to America in 1938, where he moved to avoid the threat of Nazi persecution. By the time of his death in 1972, he had published some 24 books and 320 chapters and articles, mostly on topics related to breakdowns in speech perception and production and to therapies aimed at remediating them. He also had established and served as director of several speech, language, and hearing clinics in both Europe and America, founded and led several important professional organizations in the field of what he termed logopedics, and served as mentor to a number of clinicians and researchers who themselves became important contributors to the speech–language pathology field in both Europe and America.

Froeschels was born in Vienna, Austria on August 24, 1844 and died in New York City on January 18, 1972. He was educated in Vienna, receiving his medical degree from the University of Vienna in 1907. It was an exciting time for the medical profession, since physicians of his day were exploring and expanding the boundaries of the medical enterprise. Doctors in both Austria and Germany were establishing a subspecialty within medicine for diagnosing and treating children and adults with speech, language, and hearing disorders. Among them were Albert Liebmann, Leopold Treitel, and Hermann Gutzmann Sr. in Berlin and Raphael Coen in Vienna. These “speech doctors” were

all well known to Froeschels (Rieber 1980). Preyer had already published his detailed study of his own child's language development (Preyer 1882, trans. 1898) and Liebmann had, by then, published an influential subclassification of childhood language disorders (Liebmann 1898; Weiner 1986). Coen had also founded a special school for children with speech and language disabilities (Coen 1886; Weiner 1986) and Gutzmann had established his renowned Berlin School of Speech and Voice Therapy (Rieber and Froeschels 1966).

In Austria at the time, there also was path-breaking work going on in the field of otology and education of the hearing impaired. Viktor Urbantschitsch (1847–1921), one of Froeschels' teachers, was developing and successfully using intensive auditory training methods with deaf students in his school, with the aim of wakening their “dormant auditory senses” (Urbantschitsch 1894).

Watershed innovations in neuroanatomy were also part of Froeschels' intellectual milieu. Paul Broca (1824–1880) and Carl Wernicke (1848–1905) had already made public their discoveries of areas of the brain that were involved in different types of aphasia, and Ludwig Lichtheim (1845–1928), Adolf Kussmaul (1822–1902), and Carl Wernicke had published their diagrammatic schemas that offered a theory for how the brain worked for normal language processing and how it was implicated in different types of speech and language breakdowns (Head 1926, Vol. 1, p. 65).

Finally, the psychoanalytic movement had just taken root. Freud had already published his *Interpretation of Dreams* (Freud 1900) and he and his followers were having regular Wednesday meetings at Freud's home in Vienna. This Wednesday group evolved into Vienna Psychoanalytic Society in 1908, with Alfred Adler as its first president. Eventually, Adler broke away from Freud to form his own school of Individual Psychology – a theoretical orientation that Froeschels was closely affiliated with both in Austria and in the United States. Indeed, in 1948, Froeschels became the first director of the influential Alfred Adler Institute in New York City.

Emil Froeschels' built upon these various twentieth-century innovations. He took the ideas of the diagram makers and the diagnostic typologies of Alfred Liebmann to hypothesize about the causes of language disorders in children and adults (Froeschels 1918).

He designed remedial approaches for his clients based on the sensory training methods of Urbantschitsch and Raphael Coen (Froeschels 1918). And he emphasized the emotional side of speech, hearing, and language disorders drawing upon psychoanalytic theories of Sigmund Freud and Alfred Adler (Froeschels 1945).

Perhaps Froeschels' was most recognized within the field of speech pathology for his clinical techniques involving muscular functioning and articulatory positioning. He devised a means for teaching his patients to assume naturally occurring articulatory and rhythmic functioning by having them simulate the movements involved in chewing food (Froeschels 1952). He and his followers used this chewing technique with those who stuttered, had dysarthria, and voice disorders. Another widely used speech therapy approach designed by Froeschels was his "pushing technique" to strengthen the laryngeal muscles of his voice patients and override the excessive closure of the vocal folds involved in vocal paralysis (Froeschels et al. 1955; Stathopoulos and Duchan 2006). Finally, Froeschels' "F method" provided clinicians with a way for teaching their young patients how to position their articulators for the production of "s" sound (Froeschels 1947).

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G

Gall, Franz Josef

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Basic Biographical Information

Joseph Franz Gall was born on March 9th, 1758, in Tiefenbronn, in the German Grand Duchy of Baden, to a family of Catholic immigrants of Italian origin with the family name Gallo.

Gall received a degree in medicine in 1785 in Vienna and produced his first scientific publication in 1791 (*Philosophisch-medizinische Untersuchungen über Natur und Kunst, im kranken und gesunden Zustande des Menschen*). Between 1796 and 1801 he held private courses in anatomy and craniological demonstrations in Vienna that made him famous, during which he met his future disciple and collaborator Johann Caspar Spurzheim. In 1798 Gall published *Neue Teutsche Merkur*, an important work in which he presented the fundamental principles of his encephalic-craniological conceptualization, as an open letter to Baron von Retzer who was the imperial officer for censorship and Gall's mentor. In 1801, Emperor Francesco II of Habsburg condemned Gall's doctrine, retaining that it induced materialism and contradicted the primary moral and religious principles; in 1802 an imperial rescript ordered Gall to stop teaching and prohibited him from publishing other writings on the matter.

Having left Vienna definitely, Gall traveled across Europe between 1805 and 1807, accompanied by Spurzheim, during which time Gall visited psychiatric hospitals, colleges, and prisons in various countries and held conferences and lectures at academic circles and institutes to full audiences. Gall reached Paris in 1807 where he remained for the rest of his life; he became a naturalized French citizen in 1819. He began teaching to the public in 1808, first at the Athénée des Arts and

subsequently at the Hôtel du Belloy. His research results, published in *Mémoire*, which he edited together with Spurzheim, were presented to a commission at the Institut de France the same year. The commission, whose members included Georges Cuvier, Philippe Pinel, and Raphael Bienvenu Sabatier, judged Gall's theory as being scientifically groundless.

Gall published his principal works between 1810 and 1825: *Anatomie et physiologie du système nerveux en general et du cerveau en particulier* (4 vols., Paris 1810–1819) – the first two volumes (1810–1812) of which were written in collaboration with Spurzheim – and *Sur les fonctions du cerveau et sur celles de chacune de ses parties* (6 vols., Paris 1822–1825). Gall died August 22, 1822, in Montrouge (in Paris) following a period of vascular hemiplegia; he was buried in the Père-Lachaise cemetery in Paris and his skull was conserved at the Musée de l'Homme (Lombardo & Duichin 1997).

Major Accomplishments/Contributions

Influenced by Johann Gottfried Herder's dynamic-vitalistic perspective, Charles Bonnet's organological theory, and Johann Kaspar Lavater's physiognomy, Gall founded a new discipline at the end of nineteenth century that focused on the study of the functional relationships between *mental faculties*, *cerebral areas*, and *cranial morphology* (Lesky 1970). His controversial encephalic-craniological doctrine – which was initially spread in the Germanic area as *Schädellehr* (“craniology”) – is today commonly known as *phrenology*. The term “phrenology,” which Gall rejected as inappropriate, was used, in a completely independent manner, by the American Benjamin Rush (1805) and the Englishman Thomas Forster (1815); Gall's student Spurzheim subsequently adopted and spread the term, making it canonic.

Gall developed an observational method based on palpation and the visual inspection of protuberances and indentations of the cranium (the so called

“cranioscopy) that, theoretically, made it possible to identify the underlying areas of the cerebral cortex and the specific faculties connected to each area. Gall’s encephalic-craniological theory was schematically based on four fundamental postulates: (1) mental faculties are innate, (2) these faculties are based in the brain, (3) the specific form of the encephalus depends on the various extensions and the distribution of cerebral organs, and (4) cranial morphology is completely shaped by the conformation of the brain, which develops continuously from infancy to adulthood. According to Gall’s *organological* perspective, the attention was essentially on the physiological-anatomical structure of the *brain* and its *organs*; the *cranium* was given secondary consideration and seen as being the faithful imprint of the underlying cerebral mantle. By means of the *cranioscopical* method (which constitutes the *pars caduca* of Gall’s doctrine) it was possible to localize the individual cerebral organs, to which the individual dispositions were correlated (Young 1970).

Building upon his competencies as an expert anatomist, Gall traced an innovative topography of the brain that included not only an exam of the brain’s structure and faculties, but also the correlated mental dispositions. Through a comparison of numerous human and animal craniums, Gall identified 27 faculties or fundamental dispositions, considered “primitive forces,” that he divided in two groups: (a) the first, comprised of 19 functions that were common to humans and all vertebrates, was the product of the organs in the posterior and central regions of the brain, and (b) the second, comprised of eight intellectual and moral faculties only present in humans, was ascribable to the organs in the anterior region. The naturalistic and observational method allowed Gall to empirically connect the mental faculties of various areas of the brain, thus disproving the theory that saw the faculties of the cortex as being homogenous and rooting the signs of personality within the cerebral neurophysiology and cranial morphology (Lanteri-Laura 1970).

With this, Gall opposed the doctrine of sensualism with its roots in the Enlightenment, while sustaining a *nativistic* conceptualization of the individual dispositions and faculties that could be modified by education and socio-environmental factors. At the same time, he distanced himself from the traditional assumption of Faculty Psychology, according to which the *faculties*

were *general attributes* of the human mind (e.g., cognition, affection, conation) and not *distinctive characteristics*, in terms of intensity and degree of development, of the personality of each individual (Spoerl 1936).

Despite the attempt to summarize the two epistemological paradigms, the anatomic (based on dissection) and the semeiotic and clinical (evidence based), Gall’s methodology lacked adequate statistical and experimental comparisons and was not able to provide us with anatomical proof that various functions were based in the areas of cerebral cortex. The credit that Charles Spearman and Gordon Allport gave Gall was no less than that of being the first to indicate the distinctive elements of human subjects, analyzed both in normal and pathological cases, delineating a pioneering expression of the psychology of individual differences (Lombardo & Duichin 1997).

See Also

- ▶ Allport, G. W.
- ▶ Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered

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Galton, F.

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Basic Biographical Information

Galton (1822–1911) was born near Birmingham, England, and died in Haslemere, England. He shared

a grandfather, Erasmus Darwin, with Charles Darwin, but Charles's grandmother was Erasmus's first wife, Mary, and Galton's was second wife, Elizabeth. After medical apprenticeships in Birmingham, he enrolled for further medical studies at Kings College, London, but interrupted his studies to travel. Galton then enrolled in Trinity College, Cambridge, emphasizing mathematics, but illness prevented him from completing his course, and he took a poll degree (bachelor's degree without honors) in 1844 (Anonymous 1911; Darwin 1912). That same year Galton's father died leaving him financially independent, and he abandoned his proposed medical career.

Lewis Terman estimated Galton's IQ to be 200, which well reflects the breadth and depth of his accomplishments. Appendix III in Forrest's (1974) biography of Galton consists of a chronological list of more than 300 publications including 17 books. A few examples will suggest that seemingly anything that got Galton's attention might become a subject for study or invention. Articles included "Statistical inquiries into the efficacy of prayer" (1872), "Thoughts without words" (1887), and "Arithmetic by smell" (1894), and inventions included a heliostat (a device for signaling), bicycle speedometer, supersonic whistles, diving spectacles, and a periscope. Other inventions were made to assist in his more concentrated areas of study, such as, geographic exploration, meteorology, behavioral genetics, and mental measurement. Methods and devices for fingerprint identification and composite portraiture aided both his studies of human genetics and the forensic sciences.

After abandoning medical study, Galton traveled extensively, for example, up the Nile to Khartoum and then to Syria, as well as a self-financed exploration trip in equatorial Africa. Reports of his travel and exploration were well regarded by the Royal Geographical Society that made him a Fellow in 1856, and his books *Tropical South Africa* (1853) and *The Art of Travel* (1855) were well received.

Major Accomplishments/Contributions

Galton's importance in the history of psychology resulted from combining interests in anthropometry, genetics, statistical methods, applying Darwin's theory of evolution to human intelligence, and methods of

mental measurement. The "spirit" of Galton's legacy was summarized in his obituary in *Nature* (02/02/1911, p. 440).

The unity of those contributions lay largely in the idea that exact quantitative methods could be applied, nay, rather must be applied, to many branches of science, which had been beyond the field of either mathematical or physical treatment.

Genetically, Galton believed that "genius" (a term he later abandoned for "eminence") and other traits, both desirable and undesirable, ran in families (e.g., *Hereditary Genius*, 1869), and he recognized the difference between abilities that were due to "patent" (phenotypic) versus "latent" (genotypic) influences. In conjunction with his interests in genetics and behavior, he collected anthropometric measures both morphological and of sensory, motor, and memorial abilities; the latter three were essential in his conceptualization of intelligence. He was the first to study twins and other familial relationships in the context of human behavioral genetics.

Galton sought effective ways to quantify, interpret, and communicate his findings, favoring graphical presentations and statistical summaries. He was well aware of the such methods being developed to assess variability among astronomers' observations (also known as "error") as well as Adolph Quetelet's use of such methods to summarize large samples of anthropometric measurements (e.g., chest girths of 5,758 Scottish soldiers obtained from tailors' measurements for the soldiers' jackets). Galton also recognized the value of quantifying relationships so that predictions from one set of measures might be based on a set of related measures. To do that he developed the first statistical measure of "co-relation," and he provided the commonly used means of expressing correlation coefficients as two-digit decimal numbers between -1.0 and $+1.0$. Galton's correlation coefficient was based on quartile distributions; his protégé, Karl Pearson, put it on a sounder basis by using the normal distribution. Pearson and other notable pioneers in statistics such as Sir Ronald Fisher and Charles Spearman benefitted from Galton's influence and from funds left in his will to University College, London. Galton's legacy eventually included the development of the departments of statistics and genetics at UC, London.

Unfortunately, Galton's legacy will be tainted by his association with eugenics, a term he coined in

Inquiries into Human Faculty and Its Development, (1883, pp. 24, 44). Galton was interested in identifying youth with high potential for intellectual development and cultivating their development. However, taken to such intolerable extremes as discriminative immigration, sterilization, and miscegenation laws in the USA (and elsewhere) and to the horrifying extremes of genocide represented by Nazi Germany (and elsewhere), eugenics arouses disgust today. Despite that, it should be acknowledged that much of what Galton advocated continues to be represented today as merit scholarships and other means of recognizing and rewarding abilities deemed to be worthy of fostering.

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and highly noted private school in Massachusetts. However, Gardner chose to attend a prep school closer to home in Kingston, Pennsylvania. He excelled in his academics, and was stimulated by educators employed by the school. Gardner was accepted and attended Harvard University, where he was enrolled as a history major, which would allow him to further delve into the study of law.

While at Harvard, however, Gardner was guided by Erik Erikson, a world-renowned psychologist, who introduced Gardner to the study of psychology and social sciences. In 1965, Gardner graduated from Harvard summa cum laude. Upon graduation, Gardner furthered his education in Harvard's doctoral program, and found himself researching alongside Jerome Bruner, who was heading a study on arts education, which was named Project Zero. As of today Gardner is still heavily involved with Project Zero, and is a professor of cognition and education at Harvard, along with teaching at Boston University's School of Medicine where he teaches neurology (Smith 2008).

Gardner, Howard

JACOB WEBBER

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Gardner, Howard (1943–) is a leading theorist in cognitive development, an activist in education, and is best known for his Multiple Intelligence Theory.

Biographical Information

Howard Gardner was born in Scranton, Pennsylvania, in 1943, to his mother and father who had managed to flee Germany in 1938 at the heart of World War II. Howard was the second of two children, but his older brother Eric, was killed just prior to Howard's birth. Gardner personally expressed that as he grew up and came to terms with his brother's death, and his family's Jewish traditional values and faith, he had a hard time relating to his parents and peers (Smith 2008).

Gardner grew up in a house where education was praised and something sought after. His parents encouraged him to attend Philips Andover, a superior

Major Contributions

It was in the late 1990s that Gardner introduced his Theory of Multiple Intelligences. After his own soul searching, coupled with his educational research, Gardner strongly rejected this traditional mindset that intelligence is measured by a person's ability to perform on a standardized test, one of the most common being the I.Q. Test. Gardner first developed seven intelligences, that he felt better synthesized an individual's level of intelligence:

Linguistic: Those who excel through language, whether that is written or vocal; realistic or fictional; and those who have a mastery of expression through different modes of writing (authors, poets, lawyers).

Logical/Mathematical: Individuals who are able to use mathematical equations to solve problems, and who use science and logical thinking to solve and analyze problems (scientists, mathematicians, researchers).

Musical: Individuals who strive to compose, perform, or analyze musical patterns (musicians, composers, conductors).

- Bodily Kinesthetic:** Individuals who use their bodies, and are consciously aware of their physical being and abilities (dancers, actors).
- Spatial:** Those who have an ability to observe their surroundings and understand how to solve a problem within the space they are given, or within an allotted space (architects).
- Interpersonal:** Those who are in tune with the feelings of others, and have an understanding of the needs and wants of those around them (educators, counselors, sales).
- Intrapersonal:** Those who have an understanding of themselves. These individuals are in tune with their own emotions and fears (therapists, religious leaders) (Gardner, 1973).

Gardner later added an eighth intelligence of Naturalistic, which involves those who look toward nature and the natural sciences to solve problems.

Gardner has said in his book *Frames of Mind*, as well as in interviews, that individuals do not just fit into one of the intelligences, but realistically many of us find that a couple of the intelligences define our beings. The main idea behind Gardner's theory is that people do not learn the same way and that as humans exploring the world through different exercises will allow for a full mastery of our educational endeavors, along with our cognitive and personal growth.

Some schools in North America have been developing curriculums to encourage this MI (Multiple Intelligence) learning. Gardner is still developing more intelligence theories, which include Spiritual Intelligence, Naturalist Intelligence, and Existential Intelligence.

Gardner continues to research and write about his experience in the education field. Over the years he has earned recognition and countless awards for his work. In an autobiography, he suggests that it has been the union of his inquisitive mind and drive for perfection, with his creativity that has led him to find so much joy and passion in his research.

With now 25 published books, and hundreds of journals and articles, it seems as though followers seem to be waiting eagerly to see what Gardner will produce next. This unique and gifted mind has risen from childhood sadness, a confusion of personal identity, and a challenging educational journey. He has greatly influenced and redefined the meaning of intelligence.

Selected Publications

- Frames of Mind: The Theory of Multiple Intelligences*
Intelligence Reframed: Multiple Intelligences for the 21st Century
The Unschooled Mind: How Children Think and How Schools Should Teach

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Geissler, L. R.

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Basic Biographical Information

Geissler (1879–1932) was born in Leipzig, Germany. After being graduated from the 8th grade in the public schools in Leipzig, he was graduated from the King of Saxony's Teachers Seminar at Loebau in 1901. He also received a State Teacher's Certificate and permission to enroll at the University of Leipzig; however, he began teaching and never enrolled at the University. He attended a few of Wilhelm Wundt's lectures as a *Hospitant* (Guest listener); Wundt is the generally acknowledged founder of psychology as an independent academic discipline. In 1902, Geissler immigrated to Galveston, Texas, where he had a brother, and in 1903 he enrolled in the University of Texas. Transferring course credits from the King of Saxony's Teachers Seminar enabled Geissler to be graduated from the University of Texas in 1905. In 1905, he enrolled at Cornell University as a student of Edward Bradford Titchener, who had earned his Ph.D. under Wundt. Geissler earned his Cornell Ph.D. degree in 1909, and his dissertation "The Measurement of Attention"

was published in 1909 in the *American Journal of Psychology*. It also provided the basis for one of the tests included by G. M. Whipple in his pioneering *Manual of Mental Tests* (1910) to which Geissler also contributed in other ways (Thomas, in press).

Geissler remained as an instructor at Cornell until 1911, in part working with Whipple, before moving on to work as a research psychologist for the National Electric Lamp Association in Detroit, Michigan in 1911–1912. This appeared to have marked the beginning of Geissler's interests in applied psychology, the area in which he would make his greatest contributions. From 1912 to 1916, Geissler was an Associate Professor at the University of Georgia in Athens, Georgia. He served on the faculty at Clark University in Worcester, Massachusetts, from 1916 to 1920, and he served at Randolph-Macon Woman's College in Lynchburg, Virginia, from 1920 until his death in 1932.

Major Accomplishments/ Contributions

Throughout his career, Geissler kept his hand in basic research and theory, but his emphasis was on applied psychology. Despite not heretofore being recognized as such (Thomas 2009), Geissler was the principal founder and coeditor (together with Granville Stanley Hall and James W. Baird) of the *Journal of Applied Psychology*; functionally, Geissler served as both the chief and the managing editor of the journal for the first 4 years. Geissler began working to found the journal while at the University of Georgia in early 1916. He moved to Clark University in September 1916, where the journal's first issue (March 1917) was published. Each of the founders contributed an article to the first issue, but it was Geissler's "What Is Applied Psychology?" that helped further define the field of applied psychology as well as the journal's intended scope. In the article Geissler compared and contrasted "general or pure or theoretical sciences" versus "practical or applied sciences and technology" in terms of "aim," "standpoint," "scope," "problem," and "method." His analysis of these differences between pure and applied psychology holds up well today. The following year in the journal, Geissler published "A Plan for the Technical Training of Consulting Psychologists" in which he outlined potential programs of study at the bachelors', masters', and doctoral degree levels where one might become an

"assistant consulting psychologist," a "consulting psychologist," or an "expert consulting psychologist," respectively. Financial and other turmoil at Clark University that came to light in 1920 led Geissler to relocate to Randolph-Macon Woman's College, and when Hall retired as president of Clark University that year, the new president, Wallace Atwood, wrested the *Journal of Applied Psychology* from Geissler's hands.

In addition to his academic duties at Randolph-Macon, Geissler served in several consulting capacities during his remaining years, and he continued to publish both pure and applied research. He was elected president of the Southern Society for Philosophy and Psychology, and his presidential address, "The Objectives of Objective Psychology" was published in the *Psychological Review* (1929). It is an unheralded but modern discussion that bears meaningfully, for example, on theoretical tensions that arise today between cognitive psychologists and behavioral neuroscientists.

See Also

- ▶ [Hall, G. Stanley](#)
- ▶ [Titchener, Edward Bradford](#)
- ▶ [Wundt, Wilhelm](#)

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Gelb, Adhemar

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Basic Biographical Information

Born: November 18, 1887; Died: August 7, 1936.

Gelb, born in Russia, began philosophical studies at Munich in 1906 and moved next to Berlin in 1909

where he took his doctorate in 1910. His thesis was a summary and analysis of the trajectory of Gestalt theory up until that date and anticipated the full bloom of the Gestalt psychological movement. His primary dissertation supervisor was Alois Riehl who was a profound influence not only on the first generation of Gestalt psychologists but also on the philosophers who formed the nucleus of the unity of science wing of logical positivism including Hans Reichenbach and Herbert Feigl (Heidelberger 2007). After serving for a time as an assistant at the Berlin Psychological Institute, Gelb began a long association with the University of Frankfurt in 1912. In 1915, he began a long partnership with Kurt Goldstein at the Institute for Research on the Aftereffects of Brain Injury, which evolved from Edinger's neurological institute. There they conducted groundbreaking research on the relation of brain damage to changes in and recovery of higher order cognitive functions. Much of this work was founded on Gelb's perceptual expertise (Gelb et al. 1920). After becoming part of the regular faculty at Frankfurt in 1919, Gelb continued this neuropathological work alongside a comprehensive program of perceptual investigations including studies of perception in the colorblind, of visual agnosia, of simultaneous contrast, of object and form perception, of color constancy, and of the relation between space, time, and touch. In 1929, Gelb became the director of the Frankfurt Psychological Institute. Called to Halle in 1931, he was dismissed from his position there by the Nazis in 1933, and, ill and stateless, moved first to the Netherlands, lectured for a time to Sweden, and died of tuberculosis in a German sanatorium under conditions of great privation (University of Halle n.d.).

Major Accomplishments/Contributions

Gelb favored collaborative work and did not thrust himself into the foreground: nonetheless, his work had a profound and lasting effect on developments in both neuropsychology and perception. In neuropsychology, his work with Goldstein was the foundation for much subsequent work on the longitudinal effects of brain damage: the work of Hans-Lukas Teuber in the 1950s and later was a direct descendant of the Frankfurt program. As part of the Frankfurt faculty, Gelb was the

psychology instructor for many of the leading members of what became the "Frankfurt School" including Friedrich Pollack, Max Horkheimer, and Theodor Adorno. His most enduring contribution is the eponymous Gelb Effect, which he described in a 1929 chapter on the perception of objects (Gelb 1929). Gelb contended that the perception of lightness depended on, among other things, field relationships and not on perception of absolute magnitudes of energy in isolation. If it did, he claimed, then we should perceive a weakly illuminated white paper as blacker than a strongly illuminated black velvet surface, but we do not. As a demonstration, Gelb arranged a darkened room with indirect strong lighting falling on a black velvet disk, which in these circumstances appears silvery like the full moon on a dark night. Introduction of a white paper into the illuminating beam reveals, suddenly and strikingly, the actual surface colors of the objects. The Gelb Effect has been the starting point of many subsequent studies attempting to explain its perceptual and cognitive mechanisms (e.g., Brussell and Festinger 1973). Gelb was also an influence on the development of phenomenological psychology in North America through his influence on Robert MacLeod, with whom he collaborated when MacLeod was a student in Berlin (Gelb 1933).

See Also

► Gestalt Psychology

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George Mason University's Arch Lab

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Basic History of the Arch Lab

The Arch Lab is the research arm affiliated with the Human Factors and Applied Cognition Program at George Mason University. Although the human factors program had its origins in the 1970s, starting with the approval of a Master's degree in 1977 under the direction of Dr. John Allen, the Arch Lab did not come into existence until much later. The Lab was founded in the spring of 1996 by Drs. Deborah A. Boehm Davis and Wayne D. Gray. At that time, Wayne and Deborah were the only two faculty members primarily identified with the human factors and applied cognitive program. The two faculty members chose to merge their labs under one umbrella, merging Gray's C-A-T (Cognition-Artifact-Task) laboratory with Boehm-Davis' less colorfully named Human Factors Laboratory. The goal of the merger was to build a central laboratory to encourage collaboration and cross-fertilization of ideas among the students and faculty of the human factors and applied cognitive program.

A number of different names were initially proposed for the lab. The first proposal, from Wayne, was CoSTAR – Cognitive Science: Theory, Application, and Research. However, the students in the program at that time wanted the term human factors included in the name. We challenged them to create such alternatives; they are shown below.

ORCHESTRAL – ORganization of Cognitive science and Human Engineering; Theory, search, and Application Labs (pertaining to the arrangement, coordination, or manipulation of elements to achieve a goal or effect)

COHERENT– COgnitive science and Human Engineering; REsearch, ENgineering, and Theory (logically connected; consistent; harmonious)

ARCH – Application and Research of Cognitive science and Human factors (a curved structure spanning two sides)

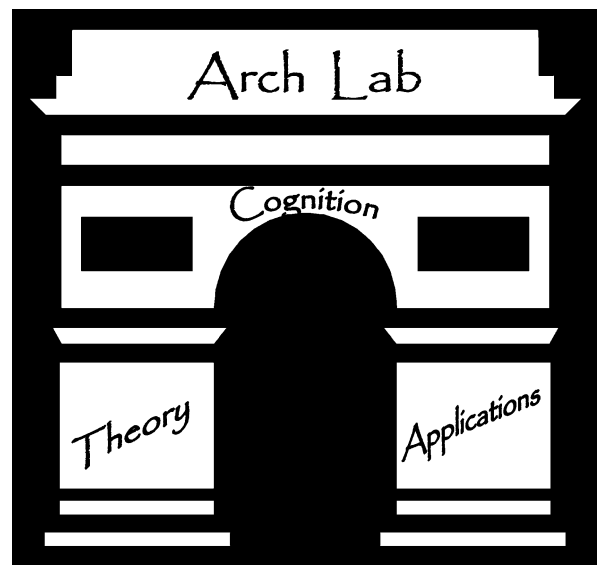
COGENT – COGnitive science and Ergonomics: (something) and Theory (forcefully convincing due to validity)

TORCH – TheOry and Research of Cognitive science and Human factors (anything that serves to enlighten, guide, or inspire)

HECTARE – Human Engineering and Cognitive science: Theory, Application, and REsearch (a metric measure of area equal to 100 acres)

The eventual winner was ARCH, with a slight change in wording to “Applied Research in Cognition and Human factors.” Along with the new name, a logo was developed (see Fig. 1). As can be seen in the figure, one pillar of the arch represented the development of theory while the other pillar represented application domains. The arch provided a bridge between the two types of work through cognitive psychology.

Some years later, a decision was made to update the logo and to use the word “Arch” without using it as an acronym. The arch remained the bridge between theory and applications; some faculty members are primarily engaged in basic research, some are engaged primarily in applied research, and some are heavily engaged in both areas of endeavor. The new logo, reflecting



George Mason University's Arch Lab. Fig. 1 Original ARCH Lab logo



George Mason University's Arch Lab. Fig. 2 Current Arch Lab logo

this change and a more modern “look and feel” is shown in [Fig. 2](#).

The Research

When the lab was established, there were two primary application foci – human-computer interaction and transportation (driving), each using two primary approaches to the development of theory – behavioral experiments and computational cognitive modeling. Over the years, our research has expanded to incorporate numerous other application domains including automation, aviation, medical, human factors, and robotics. It has also grown to encompass a wider range of basic research, including work on biological motion, eye movements, and visual perception. Although research in the lab continues to be primarily focused on behavioral and computational methods of research, convergent evidence from cognitive neuroscience (ERP, fMRI, TCD, fNIRS) plays an integral role in many of our research programs. This focus on neuroscience led to the establishment of the Center of Excellence in Neuroergonomics, Cognition, and Technology (CENTEC) in 2010. CENTEC research is focused on enhancing human effectiveness in air, space, and cyberspace operations through research in neuroergonomics, technology, and cognition. This center, and the majority of our research, has been funded by a number of different government agencies, both public and private, as well as by industrial partners.

Arch Lab Membership

To date, the Arch Lab has been home to 33 tenure-line and research faculty members and 3 staff members. Student engagement in the lab has grown over the years, from roughly 5 undergraduate and 30 graduate students at the start to our current numbers of roughly 15 undergraduate and roughly 45 graduate students in any given year, for a total of over 250 students over the years. The graduate program in human factors and applied cognition which is affiliated with the lab was initially directed by Wayne Gray. Deborah Boehm-Davis assumed leadership of the program in 2002 when Dr. Gray left the university. She remained in that role until 2006 when Dr. Raja Parasuraman became director of the program.

The Facilities

The Arch Lab originally consisted of approximately eight rooms and a shared conference room housed in a “modular building” on campus (the Chesapeake Module). In 1997, with the award of a large grant from the Department of Defense, the lab was moved to a dormitory (yes, a dormitory!) on the Mason campus (Carroll Hall). The lab moved to its current home in David King Hall in 2002 with the acquisition and renovation of roughly 5,000 square feet of space that had previously housed another department adjacent to the remainder of the Psychology Department.

The lab is equipped with state-of-the-art technology including an acoustically shielded room for auditory research, infrared eye-tracking systems (some with magnetic head trackers), a high-speed (500 Hz) gaze-contingent display system, and other devices for auditory and visual stimulus presentation. Capabilities in the laboratory include low-fidelity part-task simulations, medium-fidelity simulations for aviation (commercial and general), air traffic control, driving, robotics, distributed (individual and team) decision making, and unmanned vehicle applications and high fidelity simulations for driving and general aviation.

Significance

Arch Lab researchers have made significant research contributions to both cognitive psychology and human factors. Perhaps as important, the faculty has trained a significant proportion of the human factors practitioners working in the Washington metropolitan

region. Former students are working in research and teaching positions in the academic, public, and private sectors, which includes industry, government, consulting, and research and development organizations. These students have been taught not only by the program faculty, but also by distinguished practitioners working in the region. These lecturers have included Jack Adams, Marilyn Sue Bogner, Alphonse Chapanis, Steve Fadden, Susanne Furman, Jack Laveson, Tom Mayfield, and David Meister. As the Arch Lab continues to thrive at Mason, it hopes to inspire new generations of researchers and practitioners to excel in the professional community.

See Also

► [Human Factors Psychology](#)

Gergen, Kenneth

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Kenneth Gergen was born in 1934 and grew up in Durham, North Carolina. He was the second of four brothers; his father was chair of the Department of Mathematics at Duke University. He holds a B.A. from Yale University and a Ph.D. in experimental social psychology from Duke University, where his advisor was Edward E. Jones. Between college and graduate school, Gergen served for 2 years as an officer in the United States Navy. From 1963 to 1967, he was an Assistant Professor and Head Tutor in the Department of Social Relations at Harvard University. In 1967, he moved to Swarthmore College, where he served as chair of the Psychology Department for 10 years and for many years held the Gil and Frank Mustin Professorship. Currently he is a Senior Research Professor at Swarthmore. Gergen is also a founder and President of the Board of the Taos Institute, a nonprofit, educational organization dedicated to fostering relational practices compatible with constructionist theory. He holds several honorary degrees and has been the recipient of numerous awards, fellowships, grants, and visiting professorships at universities all over the

world. Among these honors are the Guggenheim and Alexander Humboldt Fellowships, several awards from the American Psychological Association, and election to the presidencies of two divisions of the APA. He has served on 35 editorial boards, was an Associate Editor of *American Psychologist*, and is a founding editor of *Theory & Psychology*. He is married to the feminist psychologist, Mary Gergen, and has collaborated with her on numerous projects.

Gergen is a leading social constructionist and relational theorist. He has spent much of his long and prolific career contributing to the critique of individualist and empiricist models in psychology and to promoting a reconstruction of the field that emphasizes relational processes. Gergen argues that the emergence of all intelligible action (including claims to mental states) occurs within relationships. He is also known for his view that psychological and social theories should be evaluated in terms of their potential to transform social life, rather than their alleged correspondence to objective realities. Among his most influential books are *Toward Transformation in Social Knowledge* (Gergen 1982, 1994b), *The Saturated Self* (1991; 2nd edition, 2001), *Realities and Relationships* (1994a), *An Invitation to Social Construction* (1999; 2nd edition, 2009), and *Relational Being: Beyond Self and Community* (2009). Gergen's work has had international impact in various subdisciplines of psychology (including social, developmental, theoretical-philosophical, and cultural psychology), as well as in other fields. These include psychotherapy (especially systems and family therapy), organizational development, education, and religious and cultural studies. He also has a longstanding commitment to reaching out not only to scholarly audiences, but also to other professionals and the lay public.

During the early years of his career, Gergen did experimental research in social psychology. His approach underwent a major shift in 1973, with the publication of his seminal and provocative paper, "Social Psychology as History" (Gergen 1973). In this article, Gergen argued that social psychological research and theory do not reflect universal behavior patterns. Rather, they describe historically and culturally variable modes of conduct. He also argued that psychologists' theories circulate back into society, thereby playing an active role in transforming

patterns of action. Subsequent writings on generative theory – e.g., *Toward Generative Theory* (1978) and *Toward Transformation in Social Knowledge* (1982) – elaborated upon these themes. During the 1970s and 1980s, Gergen devoted much of his work to challenging existing assumptions about psychologists' theories and practices. He drew on critical and literary theory, along with recent developments in the philosophy of science, to argue that knowledge is socially constructed, and thus that conventional understandings of psychology as an empirical and value-free science are not sustainable (*The Social Constructionist Movement in Psychology*, 1985). Simultaneously, he proposed that the longstanding Euro-American belief in a unitary, autonomous self is eroding, largely as a result of the ways in which contemporary communication technologies increase dependency on networks of relationships (*The Saturated Self*, 1991). By the 1990s, he had begun to give more prominence to a corollary theme: the primacy of relationship over individuality (*Realities and Relationships*, 1994a). Thus, in recent years, his writings have promoted a move away from framing the mind and self as interiorized subjectivity and toward theorizing forms of sociality designed to promote greater collaboration and well-being (*Relational Being*, 2009).

Since the dominant self-understanding of psychology has been that it is an empirical and cumulative science, it is not surprising that Gergen's theories have been the subject of controversy and debate. Experimentalists have argued against his framing of psychology as an interpretive and sociohistorical discipline, instead reaffirming their commitment to the view that psychology's methods should emulate those of the natural sciences and inquire into universal laws of behavior. Some interpretive, critical, and feminist psychologists (though they hold much in common with social constructionists) have suggested that Gergen's language-oriented theories lack an appreciation of human embodiment and subjectivity, and that his radically anti-foundationalist stance can lead to moral relativism. In his recent writings, he has addressed these concerns more directly, and his work continues to attract new constituencies, most recently in the fields of theology and gerontology. Gergen has been a powerful force in theoretical and qualitative psychology during the late twentieth and early twenty-first

centuries. His creative, synoptic, and lucid contributions have helped to catalyze a number of intellectual and social movements, both within and outside the field. In addition, his work has paved the way for the increasing legitimacy of narrative, discursive, sociocultural, and other qualitative, self-reflexive approaches in psychology.

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Gesell, Arnold L.

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Basic Biographical Information

Arnold Gesell was considered one of the leading experts on childhood in his day. Trained in both psychology and medicine, he established normative data for many areas of early development, with a particular emphasis on motor development. His theory of development placed a heavy emphasis on maturation, that is, an innate timetable of growth and development. Although much of his normative data is still used by childhood professionals, his approach was later eclipsed by more dynamic theories.

Gesell was born in Alma, Wisconsin on June 21, 1880. He graduated from the University of Wisconsin

in 1903 and worked for a time as a high school teacher and principal. He later enrolled at Clark University to study for a Ph.D. degree in psychology which he received in 1906. His mentor was G. Stanley Hall, one of the founders of developmental psychology. Hall was well-known for his belief that evolutionary principles played a major role in explaining development and Gesell continued in his tradition, although in a less obvious way. After graduating from Clark, Gesell returned to teaching for several years and then accepted a position as director of the Yale Clinic of Child Development (1911–1948). During this period, he also began medical training and eventually received an MD degree from Yale University in 1915 (Gesell 1952).

While directing the Yale Clinic, he and his associates conducted an extensive series of observations of children, resulting in many articles and books. He and his team, including Louise Bates Ames and Frances Ilg, were known for their careful and detailed observation. The Clinic also made use of filmed records, using a specially constructed photographic “dome” to conduct some of their observations. Several of their experiments, particularly the so-called co-twin studies, are considered classics of child psychology. Gesell also conducted various assessments of children around the state in his position as school psychologist for the State Board of Education in Connecticut. He is often identified as the first school psychologist in the USA.

Shortly after Gesell’s retirement in 1948, Yale discontinued funding for the clinic. Several of his remaining colleagues moved to the newly formed Gesell Institute, near the Yale campus, and continued their work there with private funding (Ames 1989). Gesell died in New Haven, Connecticut, on May 29, 1961.

Major Accomplishments/ Contributions

Although Gesell recognized the contribution of the environment to development, his emphasis was on maturation. For him and his followers, it was clear that development proceeded in fixed patterns, guided by an inner timetable. This approach was consistent with the writings of Jean Jacques Rousseau (1712–1778), often considered the philosophical father of classical developmental psychology.

Much of Gesell’s work consisted of gathering extensive normative data on children. He popularized the practice of developmental testing. From the standpoint of child-rearing, Gesell recommended that parents always take into account the developmental level of the child before acting. For example, he argued that parents should never begin toilet training before the child is prepared for it maturationally. To do so is to invite trouble. If, on the other hand, the parents are patient and wait for the appropriate time, toilet training will proceed more easily and effectively. Gesell also believed that the child was capable of engaging in a great deal of self-regulation. Rather than subjecting the child to rigid and predetermined times for feeding and sleeping, parents were advised to let infants play a greater role in establishing their own schedules (Gesell and Ilg 1949). Many of these ideas about the “wisdom” of the child have been prominent in contemporary writing. Gesell’s emphasis on maturation level has also had important implications for early education.

One of Gesell’s classic experiments involved studies with identical twins. In these studies, one twin was given training in a motor activity, for example, step climbing or walking, while the other twin received no such training. At the end of the experimental period, the twin who received training could, in fact, engage in more effective motor behavior than the twin who received no training. However, the superiority was short lived. As the other twin matured, the apparent differences in ability between them disappeared. For Gesell, the implications were obvious. Maturation had the governing role in motor development, not experience and training. The key to successful development was matching experience and learning to maturational readiness.

Although most of Gesell’s work concentrated on motor development, he believed that similar principles applied to all aspects of development. In fact, he wrote books and articles describing development well into adolescence (Gesell and Ilg 1956). Gesell was criticized because his samples consisted largely of middle-class Caucasian children from New Haven, but he felt they were a good standard against which other development could be compared. Despite the limitations of his sample, his data appear to have held up well over the years.

His critics also felt that he paid little attention to individual differences, and his use of norms encouraged this belief. In fact, Gesell always emphasized the individual nature of children and warned parents and professionals that normative data were only broad guidelines. Although he argued that all children passed through the same stages in development, he emphasized that they could differ significantly in their rate of development. Moreover, he recognized that children had biologically derived individuality, resulting in different temperamental and personal styles (Thelen and Adolph 1992).

See Also

► [Hall, G. Stanley](#)

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Gestalt Psychology

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Introduction

The history of experimental psychology in the English-speaking world, especially in North America, was dominated from about 1913 to 1956 by behaviorism, neobehaviorism, associationism, and neoassociationism. The year 1913 was the year of publication of the first article on behaviorism by J. B. Watson (1878–1958); 1956 was the year nominated both by Baars (1986) and by Murray (1995) as the year in which the so-called Cognitive Revolution began. The subtleties of nomenclature hinted at by the distinction made above between behaviorism, neobehaviorism, associationism, and neoassociationism were not really incorporated into the literature until Anderson and Bower (1974) were

obligated to explain how their computer model of Human Associative Memory (HAM) differed from the Hullian model that had dominated research on human and animal learning between 1940 and 1956.

According to Anderson and Bower (1974, Chaps. 1–3), the word “behaviorism,” as used by its inventor J. B. Watson, incorporated four features that had also characterized “associationism,” a term that had been used by Locke (1701/1947, book 2, Chap. 33), Hamilton (1852, pp. 889–914), and many others to refer to the notion, first clearly propagated by Aristotle, that the thinking experienced by humans cannot be described as random but as connected. The first of these features is just that: mental experiences are indeed *connectionistic*. The flow of ideas can ultimately be decomposed into a basic stock of simple ideas; so associationism is *reductionistic*. These simple ideas can be identified with sensations (either from the external world or from interior feelings such as those of emotion); associationism is therefore *sensationalistic*. And it is possible for a theorist to derive simple, additive rules that will predict the properties of combined associative configurations from the properties of the underlying simple ideas; thus, associationism is *mechanistic*. Anderson and Bower (1974) claimed, therefore, that “associationism is a historical tradition distinguished by its attempts to reconstruct the human mind from sensory experience with minimal theoretical assumptions” (p. 11). They went on to point out, influenced by Bever et al. (1968), that, in behaviorism, there is an additional assumption, namely, that all observable behavior can be explained in terms of chained associations of habits; in humans these habits often include verbal chains, experienced as silent “talking to oneself.” This last assumption is what has caused most disagreement *vis-à-vis* the identification of Watsonian behaviorism with traditional associationism.

Anderson and Bower (1974), however, contrasted the above account of associationism with what they called rationalistic theories. Whereas associationism had been connectionistic, rationalist theories tend to be *nativistic*; instead of being reductionist, rationalist theories tend to be *holistic*; instead of sensationalistic bases for thought processes, we have *intuitionistic* bases; and instead of mechanistic properties, we have *vitalistic* properties.

“Vitalism” was a word originally used in the nineteenth century to refer to a putative “life force” that characterized living, as opposed to inanimate, objects. But, as Murray and Farahmand (1998) showed, the Gestalt psychologist Wolfgang Köhler wrote at length against the idea that any forces other than those known in physics and chemistry played any part in determining events in the mind–brain system. But Anderson and Bower went on to explain that, when they used the term “vitalistic,” they were referring to the fact that many human thought processes appear to be determined by future goals and purposes; the role played by goals and purposes as motivating forces underlying not only human, but also animal behavior, would, of course, be one of the major issues dividing the Watsonian behaviorists from the Gestalt psychologists. Here, we replace Anderson and Bower’s term “vitalistic” with “purposivistic.”

Anderson and Bower (1974), in developing their HAM model of long-term memory storage and retrieval, were forced to include the fact that a memory search by a human necessarily involves a rough knowledge of the end point of that search. At the same time, Anderson and Bower did not want to abandon the mechanistic properties that allow for sequences of causal propositions to connect those successive steps in the modeling that parallel the successive steps experienced by a thinking human (whether the modeling be neural, computer, or mathematical in nature). As a consequence of having to incorporate motivational properties into an otherwise mechanistic system, they proposed to brand their version of associationism, *neoassociationism*.

This was not the first time this word had appeared in experimental psychology. Berlyne (1965) took the view that, not only humans, but also animals, were motivated by a desire for novel stimulation; in order to add this view to his otherwise mechanistic model of human and animal behavior, he had used “neoassociationism” as a word describing how, in his theory of behavior, he considered motivational and planning procedures to be elements that had to be integrated with S-R connections of the more conventional type. Indeed, a major contributor to the success of the cognitive revolution had been Miller et al. (1960) book entitled *Plans and the Structure of Behavior*.

Gestalt psychology was considered by Anderson and Bower (1974) to be a stimulating, but flawed rationalistic theory that had attempted to rival behaviorism in rigor but had failed to do so largely because its major theorists, Max Wertheimer (1880–1943), Kurt Koffka (1886–1941), and Wolfgang Köhler (1887–1967), had failed to produce an axiomatic quantification of Gestalt theory that could rival the axiomatic quantification of behavioristic theory produced by Clark L. Hull (1884–1952). A recently published correspondence between Hull and Max Wertheimer clearly attests to Hull’s own demands for a quantified treatment of Gestalt psychology (King and Wertheimer 2005, pp. 267–270).

Because Hull’s theory had been initiated as a straightforward rendering of Pavlovian ideas in the context of human paired-associates learning, and had then been adapted for application in animal learning tasks such as running down an alley to get food, or making a choice as to which way to turn in a T-maze, the validity of Hull’s animal model had to be questioned when evidence was obtained concerning the reinforcement value of rewards that did not necessarily satisfy an animal’s physiological needs. It was also found that rats placed in mazes more complicated than those mentioned above were able to make use of sensory cues so cleverly as to suggest that the choice of which way to turn was based on more than the mere repetition of a set of limb movements that had been rewarded on the previous trial. Discoveries like these led Koch (1961) to coin the term “neobehaviorism” to distinguish Hullian and other theories of the 1930–1960 period from Watsonian behaviorism; the word was rapidly taken up by learning theorists. One of the most eminent neobehaviorists E. C. Tolman (1886–1959) actually invented words like “sign-Gestalt” and “cognitive map” to describe the sophistication that even rats seemed to apply when given the task of finding their way through a radial maze. These ideas were expressed in a book with the revealing title, *Purposive Behavior in Animals and Men* (Tolman 1932).

The following survey of Gestalt psychology begins with a brief historical account of how Wertheimer, Koffka, and Köhler contributed, in their own individual ways, to the general narrative of the growth of Gestalt psychology. Subsequent research that has been strongly influenced by the discoveries of these investigators will

then be described in the framework that includes, for reasons to be explained, a distinction between inanimate and animate stimulus configurations.

The Achievements of Wertheimer, Koffka, and Köhler

According to *Cassell's German and English Dictionary*, the noun *Gestalt* can be translated as “form; shape, figure; stature; mien, air; aspect, manner; vision” (Breul 1952, p. 246). Given the plethora of meanings, it is not surprising that the word *Gestalt* has been left untranslated in many psychological texts.

Even harder to translate is the term *Gestaltqualität*, introduced by von Ehrenfels (1890) to refer to the fact that a visual input that would be described by a geometer as “four lines” might be so connected on a page that a viewer would judge them to represent a “square”; or that an auditory input that would be described by an acoustician as a sequence of tones varying in frequency would be so connected in mental experience that a listener would judge them to represent a “tune.” The lines constituting the “square” could be moved en bloc to a different location on the page, but the “square” would, phenomenologically speaking, remain a “square”; the sequence of sounds constituting the “tune” could be played at opposite ends of a piano’s keyboard but the “tune” would, phenomenologically speaking, remain the same “tune.” Von Ehrenfels insisted that the “squareness” of the elemental lines or the “tuneness” of the elemental tones was not necessarily the result of a conscious effort to “make sense of” the respective conjunctions of lines or tones, but were perceived immediately, with the immediacy itself determined by the “Gestalt quality” of the four-lines-viewed-together or the four-tones-heard-as-a-sequence. An abridged version of von Ehrenfels’s (1890) article reveals how Gestalt quality can be expressed in English (von Ehrenfels 1937).

To describe the perceived “square” or “tune” as examples of “configurations” of lines or of tones seems as good a translation of *Gestalt* as can be hoped for in this psychological context; but it has proved easier, historically, to preserve *Gestalt* as an untranslated import into the English language, as noted above. Indeed, the word “Gestalt” has been adopted so enthusiastically that it has acquired a new

usage as a synonym for “holistic” in certain therapeutic circles; historically speaking, the term “Gestalt therapy” has little to do with the Gestalt movement. But its founder, Fritz S. Perls (1893–1970) did work in Berlin in 1926 with Kurt Goldstein (1878–1965), a Gestalt-influenced neuropsychiatrist, prior to Perls’s emigration to South Africa in 1942 and then to the USA in 1946. Here, Perls founded both the New York Institute of Gestalt Therapy and, in 1966, the Esalen Institute in California (Sahakian 1975, pp. 202–204).

The range of referents to which the word *Gestalt* was applied by members of the Gestalt movement was also, not surprisingly, wide. Brunswik (1929) was critical of what he considered to be the over-wide range of phenomena to which the word was being applied, and drew up, in a tabular format, a survey of Gestalt phraseology. This table was translated into English by Hartmann (1935, p. 285). It begins by distinguishing between two fundamental usages of the word *Gestalt*. In the first, the word *Gestalt* is applied to the outer, external world; Köhler (1920/1938b) was fond of talking about “physical Gestalten”; for example, when an electric current is passed into a block of conductive material, the current is able *instantaneously* to charge the block as a whole. In the second fundamental usage, the word *Gestalt* is applied to the inner world of private experience. In one such context, the word *Gestalt* characterizes the holistic manner in which sensory inputs are responded to; good examples would be those of “squareness” and “tuneness” described earlier. In a second context, the word characterizes the unity given to a series of actions that are carried out sequentially with the aim of attaining a particular purpose. In the context of sensory processing are included the laws of grouping in perception, often met for the first time by readers in introductory psychology texts. These laws of perceptual grouping are closely related to the organization of visual inputs into “figure” and “ground,” and the organization of auditory inputs into the musical language of rhythm, melody, and harmony. In the context of describing sequences of mental events, Gestalt phenomena include moments of insight (“Aha” experiences) during problem-solving by apes and humans. In a moment, we shall see how the word *Gestalt* can also be used in a context of social psychology.

Max Wertheimer

Max Wertheimer obtained his Ph.D. from the University of Berlin in 1904; his dissertation was about the potential usefulness of word-association tests in detecting criminal guilt. He also spent a few years studying Aboriginal cultures, including their music, with Carl Stumpf (1848–1936) before spending a year at Würzburg, where he interacted with Oswald Külpe (1862–1915) and other members of the Würzburg School; he also worked at Vienna with Sigmund Exner (1846–1926), who was studying apparent movement with the aid of a tachistoscope that allowed two electrical sparks to be presented with a very short time interval between them. His first publications were about the music of the Vedda people in what is now Sri Lanka (Wertheimer 1910) and about number concepts in Aboriginal peoples (Wertheimer 1912; King and Wertheimer 2005, p. 96) claim that Max Wertheimer took the group ethos as representing a general Gestalt; Wertheimer's task was to display the artistic, linguistic, and other expressions of intellectual endeavor as parts within a general whole.

But he was still not qualified to teach a university course; the article that earned him the title of *Privatdozent* at the University of Frankfurt in 1912 was his exploration of the cognitive components of the visual perception of apparent movement. Exner had already established that, between two identical visual stimuli, displayed one after the other at differing locations, there was an optimal time interval between the stimuli that would lead to an appearance of movement from the first to the second. Wertheimer (1913/1961) restructured the problem by seeing it, not so much as establishing the limits of when two stimuli could be detected as occurring separately in time, but as a method for exploring how the mind grouped successive stimuli into a unified visual experience or “whole.”

Apparent movement was, of course, the physiological underpinning of the new art of cinema; its importance for Gestalt psychology lay not only in its being the first demonstration of an emergent “whole” arising from a temporospatial concatenation of parts, but also for its usefulness for showing the influence of mental expectation on the perception of “what happened” when a stimulus seemed to shift from one location to another. For example, if dots 1, 2, 3 (...) are illuminated first together, and then dots 2, 3, 4 (...)

are illuminated second, the line of dots seems to shift as a whole to the right and participants do not necessarily detect that dots 2 and 3 were illuminated twice. This is the paper in which the notion of mental “organization” is introduced in the context of the mental “set” (*Einstellung*) with which a display is viewed/parsed/interpreted/labeled by the viewer. In particular, two lines illuminated one after the other will be seen to yield apparent motion, the closer they are together (later, this would be called the “law of proximity” as a determinant of perceptual grouping). At this stage in Wertheimer's theorizing, *Gestaltqualität* was just one of several theories that he considered might be applicable to the phenomena of apparent movement.

One of Wertheimer's teaching colleagues at Frankfurt was Friedrich Schumann (1863–1940), who had originally worked with G. E. Müller (1850–1934) at Göttingen. Müller and Schumann (1889) had collaborated on research demonstrating the role of *Einstellung* in determining judgments of subjective heaviness; if a light weight were picked up after a series of heavy weights had been picked up, the light weight was judged to be much lighter than was an equal weight that was picked up without having been preceded by a series of heavy weights. More details about this research have been given by Murray (1999). Müller and Schumann (1893) had also shown the importance of rhythmization during the learning by heart of successive pairs of nonsense syllables in a long list. Schumann had not only developed a memory drum for use in experiments on rote learning, but had also developed Exner's tachistoscope for application in Wertheimer's studies of apparent movement.

Yet, neither Schumann nor G. E. Müller himself counted themselves as members of the growing “Gestalt movement.” G. E. Müller, in particular, developed the notion that what we normally call “memorizing” was largely a matter of “organizing” the to-be-remembered material into groups he called “complexes” (Müller 1923). His contributions to our understanding of organization in learning tasks were fully acknowledged by Köhler (1929, p. 287 ff; 1947, p. 157 ff). But Müller himself considered it unnecessary to load an accretion of “Gestalt formation” onto the rather simple conceptualization that grouping during learning could be facilitated by rhythmizing, semantic-association forming, and reliance on one's unusually

good retention of the initial item of a to-be-remembered list. Müller's rather neglected contributions to the role of organization in memorizing were reviewed by Katona (1940) and by Murray and Bandomir (2000).

In 1916, Wertheimer left Frankfurt to teach at Berlin, where he was later joined by Köhler in 1922. Wertheimer's best-known paper, in which he delineated the principles of organization in perception (including the laws of proximity, similarity, closure, and "common fate"), was published in the fourth volume of a new Gestalt journal entitled *Psychologische Forschung*; the title of the paper was "Investigations of the doctrine of Gestalt" (Wertheimer 1923/1938a). Hartmann (1935) wrote that Wertheimer's study leads to a summary statement that

- ▶ In psychology, the right formula is, *Constellation of stimuli* → *Organization* → *Reaction to results of organization*, rather than the usual *S* → *R* type. The organism is not barren functionally, it is not a box containing conductors each with a separate function; it responds to a situation, first, by dynamical events peculiar to it as a system and, then, by behavior which depends upon the results of that dynamical organization and order. (p. 100)

According to Hartmann, underlying all of the laws of grouping is the more general law of figure-ground organization, which had most notably been written about by Edgar Rubin (1886–1951), who had been working in G. E. Müller's laboratory at the time (Rubin 1915/1921).

Gottschaldt (1926/1938a; 1929/1938b) famously demonstrated that even if a participant has viewed a distinctive figure several hundred times, so that it must have been in some sense "overlearned," the figure would not be spontaneously identified if it were embedded in a novel context. The existence of camouflage in the natural world can be considered as proving the overriding power of the notion that a "constellation of stimuli" (the embedding context) is "organized" as a whole, so that the participant's "reaction to the results of that organization" is that the embedding context is also judged as a whole, with the consequence that the embedded figure is simply not noticed.

Wertheimer (1925/1938b) wrote a monograph on problem-solving which was followed 20 years later by

a (posthumously published) book entitled *Productive Thinking* (Wertheimer 1945). Wertheimer insisted that an S-R account of problem-solving was too restrictive to deal with those moments of sudden insight or "Aha experience" that frequently accompany a solution. Insight experiences involve seeing the problem in a new light (a process Wertheimer subsumed under the label of a "restructuring" of the problem). Any attempts at solutions that remain "in a rut," as we might say, or that fail to consider that the elements in the problem might be utilized or reorganized in novel or unconventional ways, will work against the likelihood that a productive restructuring of the problem will be attained. The classic Gestalt demonstrations of "functional fixedness" in problem-solving were those described in the English-language monograph of Karl Duncker (1945), though it had actually been written in German 10 years earlier. Also carried out in Germany shortly before Duncker's research were the investigations reported, in English, by Norman R. F. Maier (1930, 1931, 1945) on functional fixedness.

Duncker and Maier, like Wertheimer, were refugees from the Nazi period; Duncker emigrated to work with Bartlett at Cambridge before moving to the USA, where he joined Köhler at Swarthmore College in Massachusetts; Maier had moved from Berlin to the University of Michigan; and Wertheimer went from Frankfurt to the New School for Social Research in New York City. A detailed account of the "intellectual migration" of Gestalt scholars from Germany to the USA and other English-speaking countries has been provided by Mandler and Mandler (1969). An account of the contributions of the Gestalt psychologists to the study of problem-solving, along with an account of later events that took place during the cognitive revolution, when Michael Wertheimer (1985) criticized Newell and Simon's (1970) book entitled *Human Problem Solving* for not having allotted sufficient consideration to Gestalt views on restructuring, will be found in Murray (1995, Chap. 5). Simon (1987) himself, however, remained unpersuaded; he believed that insight experiences could be modeled using appropriate computer programs.

Kurt Koffka

We now turn the clock back to 1903, when Koffka spent a year in Edinburgh, studying Anglo-American

literature; he was the first of the major Gestaltists to emigrate to the USA (to Smith College in Northampton, Massachusetts, in 1925) and the first to write a summary of Gestalt principles in English (Koffka 1922). His early research was on color vision, a topic that allowed him to work as an assistant to J. von Kries (1853–1928), to whom we owe the “duplicity theory” of how the rods and cones determine visual processing. Koffka’s Ph.D. research was on the effects of grouping among visual stimuli presented in such a way that one could, for example, beat out a rhythm by tapping one’s foot in time with those visual stimuli; this investigation was an extension of the work of Carl Stumpf on the role of rhythm in musical perception. Following a short stay at Würzburg, where Koffka would have absorbed the emphasis that faculty members placed on the role of set in determining the course of the successive mental experiences involved in problem-solving and in introspective activity, he joined Wertheimer and Köhler at Frankfurt in 1910, but for only a brief time; he received a faculty appointment at the University of Giessen in 1911. It was here that the neobehaviorist E. C. Tolman visited him as a graduate student between 1911 and 1913, and where Tolman clearly absorbed many of the Gestalt concepts that would characterize his purposivistic neobehaviorism; a particularly useful account of the influence of the Gestalt movement on Tolman’s ideas is given by Malone (1990, Chap. 7). Koffka’s move to the USA in 1925 was a major event that paved the way for the reception of, and the controversies surrounding, the writings of the Gestaltists in North America.

While at Giessen, Koffka had become embroiled in a polemic literature with Vittorio Benussi (1878–1927), who had argued that a stimulus aroused a constellation of sensory impressions, but had also contended that the constellation had not been organized as part of the perceiving process, but was an outcome of various psychological associations to which the stimulus had given rise. Benussi was by no means the only person to assert that it was unnecessary to postulate that Gestalt organization was intrinsic to the very initial stages of perceptual processing; several individuals insisted that the traditional processes of mental associations sufficed just as well as did Gestalt processes to account for the immediacy with which a large number of simultaneous receptor inputs could be “simplified” by our brains in

such a way as to let us “make sense” of our experiences of the external world. Others included G. E. Müller and E. Brunswik (1903–1955), as already noted, as well as E. Rignano (1870–1930), K. Bühler (1879–1963), and M. Scheerer (1900–1961). Scheerer (1931) complained that the focus on the Gestalt organization of a perceived figure “disembodied” that figure from the viewer’s own active self. As Hartmann (1935) phrased it, “A curve drawn on a piece of paper is a physical process, a symbol of some trigonometric function, an aesthetic ornament, or a religious symbol” (p. 284). Koffka (and, of course, Wertheimer and Köhler) devoted considerable efforts to fending off criticisms like these, and Koffka’s (1935) magnum opus, the book written in English entitled *Principles of Gestalt Psychology*, epitomizes, in its inclusion of armchair theorizing along with an amazing array of experimental findings, the defensive stance that the Gestalt psychologists felt obliged to adopt when confronted with the claims, initially of traditional associationists in Germany, and, later, of Hullian neobehaviorists in North America. These German claims have been eloquently summarized by Ash (1995, Chap. 18).

Koffka was among the first to extend the use of the word “configuration” from a perception context to an action context. He believed that very young children learned to respond not just to what the behaviorists had called individual “stimuli” (whether unlearned or conditioned), but to a total situation in which a combination of stimuli that, together, had aroused an emotional association in the past, are judged *as* a combination, that is, as a “configuration.” Watson and Rayner’s (1920) “conditioned emotional responses” served the same purpose, but Koffka’s configuration phraseology allowed for combinations of stimuli to exercise one emotional effect if they were combined in one particular way, but a different effect if the stimuli, despite remaining identical when considered in isolation, were combined in a different way. Koffka’s view was most clearly expressed in his book on child development entitled *The Growth of the Mind*, originally written in 1921 in German, but made available in English at just about the same time as Koffka began his career at Smith College in the USA (Koffka 1921/1925). Murray and Farahmand (1998) have claimed that Koffka’s use of “configurations” prefigured many of the concepts of the late twentieth-century “dynamic

systems theory” that has been so influential in present-day developmental psychology. Elsewhere, Murray wrote that:

- ▶ Koffka ... described the growth of the child’s mind over the first few years of life in terms that were not behavioristic: children were assumed to have goals that directed their actions, to be adaptive and versatile in their learning of motor skills and language, to be selective in what they attended to particularly with respect to their observations of other persons, and to be capable of ‘ideation’, including image-formation. These images permitted them to form a mental representation of reality. (Murray 1995, p. 36)

To these remarks, Murray added that Koffka laid considerable emphasis on the importance of the imitation, by the child, of actions, gestures, and vocalizations carried out by other persons.

Wolfgang Köhler

Köhler’s Ph.D. thesis, obtained under Carl Stumpf at the University of Berlin, was designed to test Stumpf’s theory that vowel quality is associated with particular combinations of overtones. Köhler’s findings, which were obtained using a novel apparatus for measuring the response of an eardrum to incoming sounds, instead seemed to show that vowel quality depended on the frequency of individual tones, rather than on combinations of tones. He argued that the human ear had evolved for the purpose of conveying information to the brain about the sounds of nature (including animal vocalizations and human speech) rather than about individual tone frequencies; he used this hypothesis to explain why musical ability varies so widely from individual to individual. A more detailed summary of Köhler’s neglected theory of the evolution of human audition is given by Murray and Farahmand (1998); the theory itself was published in German in three parts (Köhler 1909, 1910, 1915). It was a predecessor to a similar theory put forward later by Yilmaz (1967, 1968), who, however, may not have known about Köhler’s hypothesis.

In 1913, Köhler was appointed Director of a research station for the study of anthropoid behavior. It was located on the island of Tenerife (off the Atlantic coast of North Africa), where he stayed for many years, partly because the outbreak of World War I in 1914

prevented him from returning to Germany. It was not until 1919 that he was able to return, briefly, to the University of Göttingen, before moving to the University of Berlin in 1920, where he succeeded Stumpf as the Director of the Psychological Institute. His tenure there lasted from 1922 to 1935, when, as Koffka and Wertheimer had already done, he emigrated to the USA. Hopes that he might be hired at Harvard were not realized (Sokal 1984), so he spent the remainder of his life at Swarthmore College in Pennsylvania, where he influenced a new generation of Gestalt-oriented psychologists that included the learning theorist David Krechevsky, the acoustician J. C. R. Licklider, the historian Mary Henle, and the prominent spokesman for the cognitive revolution Ulric Neisser.

On Tenerife, Köhler was responsible for at least three major contributions to Gestalt psychology, namely, his discovery of relational responding by animals in discrimination tasks (Köhler 1918/1938a); his observations on how chimpanzees solve problems (Köhler 1917/1925); and his theoretical book (Köhler 1920/1938b), in which he used his background in physics to show how parallels could be drawn between physical Gestalten (as when a current charges a medium *en masse*) and psychological Gestalten (as when a visual pattern is interpreted as a “whole”).

In relational responding, chickens that had elected, given a choice between gray and black, to choose gray for a food reward, would, when given a new choice between gray and white, choose the white twice as often as they would choose the original gray. For Köhler, the co-presence of the two original stimuli, gray and black, constituted a Gestalt rather than a twosome; the chickens perceived the two stimuli in a “togetherness” relation at the time of choice. In everyday words, the chickens were choosing the “lighter” rather than the “gray” cue on the earlier trials, and transferred their preference to the “lighter” cue, namely, the white, on the trials with the new choice.

Köhler’s work on problem-solving by chimpanzees made him world famous. Essentially, his goal was to offer an account of anthropoid behavior that would contrast with Thorndike’s (1898) theory of cat behavior that was currently dominating animal learning theory. According to Thorndike, a cat in a puzzle box tries to escape from the box by random attempts to open it until one of the attempts is successful, and the

movement(s) that led to the escape were “reinforced” by the ensuing state of satisfaction. Köhler felt that it was unfair to expect that cats, limited to a partial viewing of the various latches that, when manipulated, would open the cage door, would solve the problem in ways other than by trial and error. Using his chimpanzees as subjects, Köhler claimed that an animal must be able to see all the elements of a problem in an overview, and that solutions would not necessarily come about by trial and error, but by the chimpanzee’s viewing the elements of the problem in a new light that would lead to the successful solution of the problem. For example, seeing, in one visual sweep, a banana suspended from the cage’s ceiling (too high to reach or jump for) plus two large wooden crates side by side on the cage’s floor could lead the chimpanzee to stack one box on top of the other and clamber up them till the banana *could* be grasped. A “good error” consisted of stacking the boxes slightly askew, with the result that chimpanzee’s early reaching-attempts were unsuccessful because the stack tipped over under the chimpanzee’s weight. Köhler also reported that the chimpanzee often accomplished the stacking smoothly, rather than in a haphazard “trial-and-error” fashion. Because the smooth sequence of stacking movements often followed a few moments’ silent contemplation of the visual field, Köhler claimed that the chimpanzee could experience an “Aha solution” to the problem.

But Pavlov (1935/1957, pp. 592–599) argued that those few moments were simply the animal’s way of resting, rather than of meditating; and he added that an ape studied by Pavlov himself, not only took 2 months to learn to stack boxes on top of each other, but did so by the “method of trial.” Later, Birch (1945) demonstrated that the speed of a solution varied directly with the degree of experience a chimpanzee had previously had with the elements of the problem (in Birch’s study, sticks). Köhler also claimed that he had evidence that his chimpanzees could learn by imitating others, whereas Thorndike (1898) had claimed that his cats could not learn, by imitation, to escape from their cages’ confines.

Once back in Berlin, Köhler began to study human memory from a Gestalt perspective. He demonstrated that the apparent forgetting of a “brightness” over time could be ascribed not to a passive decay process, but to the mental assimilation of the memory of the

brightness to the brightness of the ongoing background (Köhler 1923). That is, in memory tasks involving the reproduction or identification of nonverbal stimuli, each to-be-remembered stimulus was retained *as* a part of the whole spatiotemporal context. When the to-be-remembered stimuli are verbal, each stimulus is the better recalled, the more it is isolated from the “crowd” of other to-be-remembered items in the sequence of verbal stimuli (von Restorff 1933; see Hunt 1995, for an English translation). In recognition tasks, the more a nonsense shape differs from the nonsense shapes surrounding it, the more accurate the recognition performance (Köhler and von Restorff 1937). A detailed examination of the influence of this crowding/isolation approach upon later interference theories of verbal learning has been provided by Murray (1995, Chap. 4). It might be noted that Hedwig von Restorff (1906–1962), after having studied philosophy and having obtained her Ph.D. in psychology with Köhler in Berlin, transferred into medical studies after Köhler’s departure, and eventually became a family doctor practicing in Freiburg in Southwest Germany.

After he had arrived in North America, Köhler was asked to give a series of lectures at Harvard, which were subsequently published as a book entitled *The Place of Value in a World of Facts* (Köhler 1938c). This work drew attention to the way in which feelings of mental incompleteness and indecision can be resolved by the finding of a solution one somehow “knows” to be correct; Köhler gave the special name “requiredness” to that property of the mind that seems to understand when a problem has been satisfactorily solved, or when a thought is “fitting” in a semantic context. In memory theory, a similar emphasis had been placed by G. E. Müller on the importance of the resolution of feelings of “vagueness” during memory search (on this, please see Murray and Bandomir 2000). A summary of Köhler’s 1938c book has been offered by Murray (2005).

Köhler’s final years were occupied with developing a theory of how brain processes that did not necessarily involve synaptic events could explain figural aftereffects in vision (Köhler and Wallach 1944). This theory has rarely attained favor among neurophysiologists, even though he maintained it steadfastly right up to his final lecture series, and published posthumously as *The Task of Gestalt Psychology*. His final words in that book were:

- ▶ ... why do brain-processes tend to produce perceptual organizations of remarkable clearness of structure? At least this part of nature, the human brain, seems to operate in a most selective fashion. It is the *direction* of its operations which is truly remarkable. (Köhler 1969, p. 164)

The Present-Day Relevance of Gestalt Psychology

After Köhler's death in 1967, Gestalt psychology continued to be practiced in both Europe and North America. Many of the graduate students who had known Wertheimer, Koffka, Köhler, and, we wish to add, Tolman established prominent academic careers (Ash 1995, Appendix 2; King and Wertheimer 2005, p. 370; Mandler and Mandler 1969). The influence of Gestalt psychology continued to be strong in the experimental psychology of sensation and perception, memory, and problem-solving; a detailed account of this influence was provided by Murray (1995). Under the influence of Kurt Lewin (1890–1947), who, like his colleagues Wertheimer and Köhler at Berlin, had studied under Carl Stumpf, and who had emigrated to Stanford University in 1932, both social psychology and child psychology were immeasurably supplemented by Lewin's holistic approach, which was so broad as to consider a person's lifetime as a "whole." A useful introduction to Lewin's work is given by Sahakian (1975, pp. 213–222).

The persistence of Gestalt psychology in Europe was attested to in the works of Wolfgang Metzger (1899–1979), who was Catholic and had stayed on in Germany during the war years. Metzger's adaptive responses to political changes have been authoritatively described by Ash (1995, pp. 346–354). Instead of repeating what is readily available in these secondary sources, I wish here to offer a perspective according to which the contributions of Gestalt psychologists, both during and after Köhler's lifetime, are related to a picture of contemporary psychological science that includes some recently discovered evidence on genetically determined aspects of the development of the human brain.

As noted in the above discussion of his book, *The Growth of the Mind* (Köhler 1921/1925) introduced into experimental psychology a verbal notation for

the description of learned habits by animals, human children, and human adults that stressed the inadvisability of divorcing the raw sensory constituents of a perceptual experience from the emotional feelings that accompany them. This new kind of "behavioral whole" was called a "configuration," and its value in psychological learning theory has been attested to by its adoption in the hands of cognitive psychologists developing a model of human long-term memory (Anderson and Bower 1974), and in the hands of child psychologists developing models of learned emotional responses during the first few years of life (Lewis 1995). A distinction can be made here between two kinds of configuration: configurations that refer to inanimate objects and configurations that refer to animate objects. The reason for making this distinction is that new discoveries in neuroscience include an innate component to the responses given by an observer's brain to the behavior patterns of other individuals conspecific with that observer.

Discrimination Responses to Inanimate Configurations

Very simple inanimate sensory inputs (such as a drawn line, or a patch of color of a given brightness, or a pure tone of a given intensity) are typically used in psychophysical tasks concerned with establishing, and possibly measuring, absolute and differential thresholds. For example, two adjacent patches of white might differ so little when viewed together that an observer judges them to be "equal" in subjective brightness even though it is the case that they are not equal in physical luminance as measured by a photometer. Lipps (1905/1926) argued that the two patches are not judged as "two" patches, but as one unitary sensory whole which may or may not appear equally bright within its constituent parts. If the subjective brightness appears to vary within the totality, the observer judges that the total experience involves "different" subjective brightnesses; otherwise, he judges the total configuration to possess the "same" subjective brightness all over. A same/different judgment, according to Lipps, is made on the basis of processing the two patches as if they constituted a single entity.

On the other hand, the ease with which a same/different judgment can be made is not necessarily reflected in the ease with which a "different" judgment

can be measured, that is, assigned a numerical magnitude that is an index of the subjective magnitude of the difference in subjective brightness between the two patches. Such a judgment of the size of the difference depends on the observer's being mentally capable of conceptualizing each patch as an agglomerate of "units" of subjective magnitude. How this can be achieved – if, indeed, it can – is the question at the heart of all psychophysics. In his editorial introduction to Lipps's (1905/1926) book, Knight Dunlap described Lipps's hypothesis as having "... an importance demonstrated by the recent rise in interest in the "Gestalt" theory, on which Lipps' discussion bears to a considerable extent, although written before the promulgation of that theory" (p. 7).

Choice Responses to Inanimate Configurations

If organisms were to respond relationally at all times, life-threatening errors of response could occur. If it were *only* the "louder" of two spatially or temporally contiguous sounds that were to elicit a defensive reaction, a thunderclap might be attended to by a small forest animal instead of the quiet crackle of a twig that betrayed a nearby predator. For effective adaptation to a world in which survival is sustained by a steady regimen of feeding and of seasonally appropriate breeding, some cognitive device had to evolve that permitted particular sense data to be interpreted as being the most "salient" at any given moment (given the organism's need state), and not merely as the most "physically intense."

In animals, it would appear that the salience of a cue can be signaled by the fact that a memory reproduction of that cue can be linked, via neurons in the animal's hippocampal formation, with individual places the animal has visited. The extraordinary ability of animals to remember "what" happened "where" has been well documented (Paivio 2007). Historically, however, the first book-length account of the role of the hippocampus in aiding animals (such as rats or mice) to learn which arm of a radial maze it should choose in order to attain a food reward if it is hungry was that of O'Keefe and Nadel (1978). Not only do these authors acknowledge their indebtedness to Tolman, they also contend that Immanuel Kant (1724–1804) was the first major thinker of modern times to have appreciated that there

would almost necessarily *have* to be a brain mechanism for organizing the sensory contents stimulated by one's spatial surround, a mechanism that operated in such a way that orientation in space was not a skill subservient to the hazards of chance experience, but was contingent upon an unlearned understanding of how to orient in space. By linking each incoming sensation to the animal's retention of previous events that had happened in the same spatial environment, animals can learn to discriminate between sensations that savor of danger and those that harbingers safety; and the dominance of relational responding is replaced by experience-based responding.

In humans, not only is place memory used as a device for determining whether some classes of sensory input are harmless as compared with harmful, but a particular kind of auditory-verbal-linguistic memory has also evolved that adds to our repertoire of experience-based responses. It is not difficult to conceive that an event might have occurred in the evolution of human speech that facilitated the transformation of articulated phonemes into carriers of salience information in a world where inter-human communication would have included warnings about what places were dangerous, what plants were good to eat, and so on. It has been discovered that a particular mutation, known as the FOXP2 gene, may have been associated with the elaboration of the anatomy of the larynx and oral cavity of protohumans in such a way that the number of distinct speech sounds that could be vocalized by humans vastly outnumbered the number of distinct vocalizations that could be vocalized by the great apes (Corballis 2004).

If this theory, only framed broadly at the present time, should receive confirmatory support, not only would an increase in survival strategies ensue as a consequence of the evolution of language; it would also mean that planning for the future would be vastly improved because of the existence of linguistic memory representations of the past that could be conceptually remolded in the mind so as to represent a possible future event. Not only would Köhler's assimilation of chimpanzees' problem-solving abilities with those of humans be vindicated, but so would the views of Koffka on how language is acquired in young human children by associations between the sounds of particular articulated responses with particular perceived objects,

associations that become so tightly bound that, when the child hears a word, the word and its meaning form a “configuration” that can activate an appropriate linguistic or behavioral response, on the part of the child, to whatever is referred to by that word.

Considerable plausibility was given, by the work of Kendler and Kendler (1968), to an explanation of the usefulness of language for determining experience-based degrees of salience in childhood. These authors had been trained in the Hull–Spence tradition, but were clearly intrigued by the need to integrate relational responding (as exemplified by Köhler’s chickens and apes) into the corpus of information about learning in human children. They showed that very young children, like Köhler’s animal subjects, will choose the “brighter” of two grays (selecting gray over black, and then white over gray); but when the children are old enough to enunciate words like “black,” “gray,” and “white,” they can learn to go against relational responding because they can learn to select gray over black by naming the former “gray,” and then continuing to identify the gray by the word “gray” when the choice is between gray and white.

Grouping Responses to Inanimate Configurations

Any drawing is necessarily two-dimensional; much of the history of figurative art has to do with the learning of techniques (the laws of perspective) that make the viewer of a drawing respond to it as if it represented an event taking place in three dimensions (Gregory 1970, Chap. 6). The pervasiveness with which two-dimensional drawings can be interpreted (sometimes involuntarily) as if they were in three dimensions, can be illustrated, according to Tausch (1954), by studying well-known two-dimensional visual illusions.

For example, the Müller-Lyer illusion shows two equal-length lines one above the other; but outward-stretching fins are added at each end of the top line and backward-reaching fins are added at each end of the bottom line. The top line gives the illusion of being longer than the bottom line. According to Tausch, the total configuration presented by the top line is that presented, in real life, by the line representing the junction of a wall with a ceiling, with each fin looking like a corner of the wall. The total configuration presented by the bottom line is that presented, in real

life, by the spine of a book held close-up, with the fins looking like the pages of the book receding from the viewer. A mechanism called “size constancy” then operates in such a way that the top line (apparently far away) is made to seem longer in order to compensate for the small size it apparently possesses because of its distance. The bottom line (apparently close to the viewer) is made to seem shorter in order to compensate for the large size it apparently possesses because of its proximity.

Tausch bolstered his arguments with photographs of real-life scenery, including train-tracks that seemed to converge in the distance although the tracks were objectively parallel; some well-known illusions could be explained if two straight lines that were slanted so as to nearly converge at the top were mentally interpreted as being lines that, in three-dimensional space, would normally be parallel. Crucial to Tausch’s interpretation is an acceptance of the existence of size constancy, whose presence is more likely to be established when there are cues to distance than when there are not (Holway and Boring 1941). A detailed account of Gestalt views on size constancy was presented by Koffka (1935, Chap. 6).

When two static configurations are presented in succession, the phi phenomenon (Wertheimer’s term for the neuronal events presumed to underlie any apparent movement that is perceived) ensures that the configuration of the first display “moves” to the visual location represented by the second display. But Ternus (1926/1938) showed that when two configurations of six dots each are successively displayed, what the apparent movement “looks like” is determined by the way the first configuration of six dots was mentally organized. For example, the six dots might be mentally organized into the pattern of a regular hexagon; alternatively, they might be mentally organized into the pattern of an irregular quadrilateral on the left, flanked on the right by a straight line. When the organization was that of a hexagon, the hexagon seemed to shift en bloc toward the right when the second display was illuminated; when the organization was that of a quadrilateral flanked by a line, the line seemed to stay still, and the quadrilateral seemed to “flip” over the line toward the right. This illustration of the effect of *Einstellung* on the interpretation of an incident of apparent movement is a good example of what

Pylyshyn (1984) meant when he asserted that certain aspects of cognition were “cognitively penetrable,” whereas others, because they were part of the “functional architecture” of the brain/mind system, would not be influenced by any mental attitude or predisposition to respond.

Discrimination Responses to Animate Configurations

Whereas much of the “art” exhibited in galleries attempts to represent nature, nature does not always provide material that is good for art. Imagine a toad concealed on a forest floor, its skin coloration melding so perfectly with the subdued hues of the leaves and earth on which the toad sits that it is almost invisible to a predator. A photograph is of scientific value as a representation of the adaptive usefulness in nature in camouflage; but few artists would present for exhibition a painting in which the toad could hardly be discriminated from its background. In the post-Köhler era, the book by Metzger (1936/2006) entitled *The Laws of Seeing* made its mark particularly by its photographic demonstrations on the usefulness of camouflage for the protection of potential prey from their potential enemies.

But camouflage is only effective as a defense in the natural world because both animals and humans perceive in terms of figures and grounds, and, within figures, in terms of wholes rather than parts. As noted above, the experimental support for this assertion had been produced by Gottschaldt (1926/1938a; 1929/1938b). A neurologist raised in the Gestalt tradition, Lauretta Bender (1897–1987) devised a Hidden Figures test, now known as the Bender–Gestalt test, that requested participants to draw pictures that contained embedded figures; poor performance on the test was interpreted as a sign of the early onset of certain brain disorders, including dementias (Bender 1938; see also King and Wertheimer 2005, pp. 83, 372–373).

Natural camouflage can be disrupted if a camouflaged animal or object is moved. A photograph of a white Dalmatian dog with black spots can show the dog as being almost invisible if the dog is lying still on a white floor covered with black spots of the same size as those of the dog. But if the tail of the dog is then moved even slightly, and the nose of the dog is lifted slowly, the “whole” of the dog is clearly perceived; even

those parts of the body that are not moved are judged by a viewer to be part of the dog rather than part of the floor. The reduced visibility of a stationary animal can explain why many species are as capable of standing stock-still as they are of running very quickly; movement can be as important a cue for figure-ground organization as are brightness contrast, color contrast, or the presence of clear contours (Koffka 1935, pp. 380–405).

Choice Responses to Animate Configurations

In *The Growth of the Mind*, Koffka had stressed that perhaps some configurations require so little in the way of repeated experiences if they are to be responded to appropriately, that there may be an innate tendency for certain configurations to trigger reflex-like responses. Koffka singled out the mother’s face as an example of a configuration that seemed to be almost immediately attractive to a neonate. Other researchers have emphasized, however, that exposure to the sound of the mother’s voice in the womb might have primed the baby’s auditory system to respond to the voice after the birth, and that very few pairings of voice and face need then be required for the mother’s face to attract the baby’s attention (Murray and Farahmand 1998).

When a child is old enough, he or she might respond to their own reflection in a mirror as if they “recognize themselves” (the classic criterion for self-recognition is whether they try to wipe off a spot from their own forehead that had been put there beforehand unbeknownst to the child). The development of the idea of a “self” goes hand in hand with the learning of personal pronouns like “I” and “you”; it might even be that the breakdown of a unified conceptualization of the world-and-me-are-one can be precipitated by, say, a household accident that forces the child to separate, in his mind, the “world” from the “me” (Romanes 1888; Murray 1995, pp. 177–182). In Gestalt psychology, the most extensive treatment of the origination of self-consciousness will be found in Koffka (1935), who used the term “Ego” to characterize a whole field of retained experiences. Coming out of a state of coma and/or concussion can be like going from a world of inchoate sensations to a world where a “me” is “looking at” those sensations (Koffka 1935, pp. 323–324).

In discussing the case of a patient with Korsakoff's psychosis and who, therefore, was very unlikely to retain any new information for more than a few seconds, Claparède (1911/1951) reported that, when he first met this patient and shook her hand, he administered to her hand a minor pinprick. The next day, when normally she would have shown no sign of recognizing that Claparède was the doctor who had seen her the day before, she actually flinched as if remembering the pain of the pinprick. Claparède ascribed this forgetting to a dissociation between the memory representation of the pinprick and the huge complex of memory representations sharing the common element of being part of the patient's "self"; the pinprick was remembered, but not recalled because of the dissociation.

Koffka (1935, pp. 591–604) reported that, when he had been younger, he had dismissed Claparède's account of a failure of recognition as being the failure of a connection between a stimulus and its memory representation in the *moi*. But later, as he developed Gestalt theory, Koffka found himself forced to return to Claparède's theory and finally came to admit that theories of recognition failure ought to include failures of repeated stimuli to leave memory representations that had made contact with the Ego. In particular, the role of recency in determining recognition accuracy could not be ascribed entirely to a "law of proximity" in time and to a "law of similarity" that operated to "group" memory representations that had been set up at different times; recency effects were related, by Koffka, to the order in time when the original representations had each been associated with the Ego, because what is most recent is usually what is most important in a person's interpretation of what is happening in the here and now.

Late twentieth-century research on memory has devoted little time to accounts of amnesia that emphasize the "self," despite Tulving's (1983) distinction between episodic memory (storing self-related incidents) and semantic memory (storing abstract memory for words and facts) and despite Baddeley's (1986) conceptualization of a "central executive" in working memory theory. Yet in working memory theory, the role of a "central executive" in determining memorizing activities is almost impossible to separate from the role played by "oneself" in determining what will be voluntarily rehearsed during a memorization

process. The best-known exponent of the modern physiological account of memory has written that he originally became interested in the topic as a result of asking "where" in the brain Freud's Ego and id might be located (Kandel 2006, pp. 53–59). But after describing his life's work on the cellular aspects of memory storage, Kandel wrote that

- ▶ Cellular and molecular approaches . . . cannot by themselves unravel the secrets of internal representation in neural circuits or the interactions of circuits . . . we will need to determine how neural networks are organized and how attention and conscious awareness regulate and reconfigure the actions of the neurons in those networks. (Kandel 2006, p. 423)

Nothing in this quotation need lead us to turn away from a Koffka-like approach to human memory that includes an "Ego" as a crucial component of the memory system.

Even more challenging to a purely associationistic account of infant behavior, whether in animals or humans, is the evidence that certain so-called mirror neurons in the premotor cortex, neurons with strong synaptic connections to the emotional centers of the amygdala, respond to the seeing, by monkey A, of an action made by monkey B, by activating the neural processes needed for monkey A to imitate that action even though that action may be new in monkey A's repertoire of motor actions. Neuroimaging techniques have also made it possible to show that a 5-year-old human child can use their mirror neurons in the processes of categorizing the emotions expressed, facially or gesturally, by another child. These apparently innate determinants of learning by imitation and of learning by interpreting the emotional expressions of others are sure to add fuel to any urge the reader may have felt to once again consult Koffka's *The Growth of the Mind*. The roles played by the imitations of the actions of others, and of the understanding of the emotions expressed by others, are currently the object of intense investigation, for two reasons. First, cooperation between individuals is increasingly being viewed as a corrective to the brutality of hierarchical animal groups in which "community spirit" is in a sense coerced by the existence of competition between the young males and the older and larger "alpha" males at the head of the hierarchy (de Waal 2009). Second, there

is growing evidence that the family of autistic disorders might involve disturbances in the normal functioning of the mirror neurons.

The second generation of Gestalt psychologists, many of whom had escaped the authoritarian horrors of Fascistic countries, naturally sought to understand why, when applied to human communities, social psychology, instead of being mainly about cooperation, was mainly about coercion. Experimental and statistical works on the authoritarian personality Adorno et al. (1950), on the way people will lie in order not to seem at odds with a consensus of a group of people who are immediately in their presence (Sherif 1935), and on the ways in which cognitive dissonance can lead to seemingly irrational conclusions (Festinger 1957), dominated much of the academic psychological literature of the post-World War II period (King and Wertheimer 2005, pp. 373–375).

Grouping Responses to Animate Configurations

The recognition of faces is clearly an important component of one's everyday social life, and plays an important role in eyewitness testimony. An interesting development in the area is the incorporation of the word "configural" into several current theories of face recognition. Experimental evidence has shown that, for a given individual who has to recognize whether or not he has seen a (photograph of) a given face before, increased accuracy of performance depends on that individual's personal judgment of the internal features of a face (eyes, nose, and mouth) seen, however, not as individual features, but in relation to each other; that is, the accuracy of recognition that two pictures are of the same face (even when photographed from different angles) depends on a "configuration" that unites the eyes/nose/mouth features into a Gestalt. The more the photographs belong to a group familiar to the individual, the more valuable are the configural cues for the accuracy of "same" judgments. Exterior features of a face, for example, the hair, the shape of the face, and the ears only appear to become important as retrieval cues when the ensemble of to-be-recognized faces belongs to a group well removed from, or novel to, that individual. Evidence for all the above assertions has been collated by Hanley and Cohen (2008).

Standing back from the above, we can see more clearly how Anderson and Bower's (1974) characterization of the Gestalt movement as being "rationalistic," rather than "associationistic," has been validated. The movement was *nativistic* in its emphasis on the innate nature of figure-ground organization, and of the laws of perceptual grouping that are sometimes considered themselves to be examples of figure-ground organizations. Koffka's suggestions that some response patterns given by human babies are not learned have received surprising support from recent work on mirror neurons. The movement was *holistic* in the sense that ambiguous visual patterns and many difficult intellectual problems are judged by participants to be "wholes" that sometimes needed reorganizing or restructuring if they were to be understood or solved. Even a list-learning task has to be treated as a "whole" for which any part has to be ascertained as belonging to a particular list; this approach has led to a fruitful understanding of retroactive inhibition. Lipps (1905/1926) argued that many psychophysical tasks should be regarded as dealing with the Gestalt constituted by two stimuli perceived together, rather than as cases where one stimulus was compared with a (nearly identical) second stimulus. The movement was *intuitionistic* because the solutions of problems were often arrived at by a combination of deductive logic and a sudden "intuition" of how the problem should be restructured; Köhler's work on problem-solving by chimpanzees gave a strong impetus to this research area. And the movement was *purposivistic* because almost all activities, human or animal, were goal-driven; the more evolved an animal's ability to use mental representations of reality, the more successful would be the attainment of goals and purposes envisaged to take place in the near future. Without Tolman's Gestalt-influenced research on "cognitive maps," we might not have arrived at an understanding of the important role of the hippocampal formation in mediating place memory both in animals and humans (Kandel 2006, pp. 136–143, 280–294). More generally, new research on the functions of individual brain cells in mediating how humans and animals interpret reality is bound to have a favorable influence on the value placed upon Gestalt psychology by future historians of science.

The Secondary Literature on Gestalt Psychology

The one book that must be acquired by anyone researching the history of Gestalt psychology is that of Ash (1995). Of particular archival interest is Ash's Appendix 2 listing all German-language dissertations supervised by Stumpf, Wertheimer, Koffka, Köhler, and other Gestaltists. The book goes into admirable detail on the philosophical issues that were the soil from which the Frankfurt/Berlin Gestalt school arose, and contains a wealth of material on the survival of Gestalt psychology in Europe during and after World War II. For an evaluation of how Gestalt accounts of perception have had a sustained long-term influence on the contemporary neurophysiology of sensation and perception, an article by Westheimer (1999) and King and Wertheimer's (2005, pp. 380–388) abridged translation of articles by Spillmann (1999) are strongly recommended. Murray (1995) gives an account, rather technical in places, of how Gestalt ideas about memory and problem-solving can be shown to make connections with some ideas arising from the late twentieth-century “cognitive revolution” on those topics. An older work, still useful for its information on German critiques of the Gestalt movement, and for reports of neglected Gestalt experiments, is that of Hartmann (1935). Ellis's (1938) collection of abridged translations of key Gestalt articles should be a component of any English-language collection of primary sources concerning Gestalt psychology.

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Gibson, Eleanor J.

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Basic Biographical Information

Born: December 7, 1910, Died: December 30, 2002

Eleanor Jack had an unremarkable middle class childhood in Peoria, Illinois, then followed family tradition to Smith College where she discovered her love for experimental psychology. Eleanor met her future husband, James J. Gibson, who would later become well known for his ecological theories of perception, at a graduation garden party at Smith when he was a professor and she was a junior. Taking his advanced experimental psychology class the next year was influential in Eleanor's decision to pursue psychology; after graduating from Smith in 1931, she stayed on for graduate studies under James Gibson's supervision. They married in 1932, and Eleanor completed her master's degree the next year (Gibson 1980).

Eleanor Gibson was interested in learning and comparative psychology, so after a few years teaching at Smith, she took a year's leave to get her Ph.D. at Yale University's Institute of Human Relations where she hoped to work with Robert Yerkes and his chimpanzees. However, Yerkes flatly refused to have women in his laboratory, so Gibson worked under Clark Hull, although she did not entirely agree with his behaviorist project. Her dissertation was on stimulus generalization and differentiation in verbal learning, but her

functional perspective had to be disguised by behaviorist vocabulary in order to gain Hull's approval (Gibson 2002).

After receiving her Ph.D. from Yale in 1938, Gibson returned to teaching at Smith where the Gibsons remained until 1942 when James Gibson was recruited by the Air Force to do perceptual research to create pilot selection tests. This military research was influential in the formulation of James Gibson's ecological psychology views; during this period, Eleanor served as a homemaker, taking care of their two young children.

Soon after the war the Gibsons left Smith when Cornell University recruited James Gibson. Since the Cornell's antinepotism rules prevented Eleanor from obtaining a faculty position, Eleanor became a research associate at Cornell, which meant she was largely unpaid and had to manufacture her own research opportunities. For 2 years, she worked at Cornell's Behavior Farm, and later ran distance judgment experiments outdoors with military recruits, creatively working to overcoming her lack of lab space and subjects (Caudle 1990). Even the experiment for which Gibson became famous, the Visual Cliff Experiment, took place in 1957 while she was still a research associate and had to partner with another Cornell professor for laboratory space. After her visual cliff research, Gibson spent the following 12 years on another project that also did not require her to have a lab, researching reading as a part of an interdisciplinary project on the subject, which resulted in the 1975 book *Psychology of Reading* (Gibson and Levin 1975). It was not until 1965, after 16 years as a research associate at Cornell, Gibson was made a full professor and was able to freely conduct research.

Major Contributions

The Visual Cliff Experiment, for which Gibson is best known, originated when Gibson and Richard Walk, a young Cornell professor, began a series of experiments testing whether being reared in an enriched environment would enhance rats' later discrimination (Gibson and Walk 1960). One experiment called for dark-rearing, and the invention of the visual cliff research was the serendipitous result of Gibson and Walk's attempt to get more use out of painstakingly dark-reared rats. To their surprise, the dark-reared rats avoided the glass-covered drop off portion of the cliff,

showing that they could perceive depth despite their lack of visual experience (Gibson 1991). Gibson and Walk expanded on the initial study, testing a variety of animals and experimenting with details of the cliff apparatus, which provided a significant advance over prior methods of testing depth perception that required animals to jump down from a height. Gibson and Walk found that a variety of species could discriminate depth by the time they could locomote, so precocial animals like chicks and goats could perceive depth at birth. Eventually, Gibson and Walk tested crawling babies on the cliff, using the presence of the babies' mothers to motivate the infants to crawl on the cliff. Like the animal subjects, most babies tested avoided the apparent drop off, demonstrating depth perception. The research, featuring compelling photos of the babies on the cliff, was published in *Scientific American* and covered in the popular press, including a feature in *Life* magazine. It quickly became one of psychology's most famous experiments, recounted in numerous introductory textbooks.

Over the course of her career, Gibson's research interests converged on perceptual learning, and in 1969, she published *Principles of Perceptual Learning and Development*, in which she argued for her differentiation theory of perceptual learning, in contrast to the traditionally dominant associationist theories (Gibson 1969). This pioneering book laid out what Gibson believed to be the essential characteristics of perceptual learning: increasing specificity of discrimination, optimization of attention, and increasing economy of information pickup and search for invariance (Pick 1992). At the time of the book's publication, accurate methods for studying perceptual development in infants were a relatively recent development and therefore there was a limited body of relevant research. Gibson's review of the field and methodological suggestions in *Principles* thus served to galvanize the field and to define perceptual learning as a distinct research focus. The book received that year's Century Award and was later named a citation classic.

Gibson's emphasis in *Principles* on infants' active search for invariants and structure showed the influence of James Gibson's ecological theorizing on her thinking. She and James had an active intellectual relationship, each influencing the other's thinking throughout the course of their careers. Aware of

common assumptions about husband–wife scientific teams, they both took pains to emphasize that their ideas were distinct and they only occasionally collaborated. However, both consistently opposed an associationist account of perception and learning, taking a functionalist, and later, as James Gibson articulated the theory, ecological psychology approach.

Once Gibson had a lab of her own, she conducted the type of research she had called for in *Principles*, for example, investigating infants' differentiation of the rigidity or flexibility of real objects or their detection of the affordances of surfaces, such as a rigid versus a deforming walkway. In 2000 she reviewed the field again, taking an even more explicitly ecological perspective in *Perceptual Learning and Development: An Ecological Approach* (Gibson and Pick 2000). Gibson saw the perceiving infant as active in its environment, intrinsically motivated to discover the information, or affordances, available to it in the environment.

Today Gibson's achievements are remembered in the context of the persistent institutional sex discrimination she experienced. Gibson was a second-generation woman in psychology, and her struggles with antinepotism rules and her nonconfrontational, yet stubbornly persistent response to these obstacles exemplify both the challenges and attitude of the second generation. Although Gibson was for much of her career not allowed to sign forms for the students she advised, her influence in developmental psychology lives on in the graduate students she mentored, notably developmental psychologists Elizabeth Spelke and Karen Adolph. Despite the delay in her career, in her later life Gibson received frequent recognition for her accomplishments, culminating in her receiving the National Medal of Science in 1992, an honor rarely bestowed on psychologists.

See Also

- ▶ [Gibson, James J.](#)
- ▶ [Perception](#)

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Gibson, James J.

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Basic Biographical Information

James J. Gibson was born on January 27, 1904, in McConnellsville, Ohio, and he spent most of his childhood years in Wilmette, Illinois, near Chicago. After attending Northwestern University for 1 year (1921), he enrolled in Princeton University, where he was an undergraduate philosophy major, graduating in 1925. Gibson took his first psychology course in his senior year and stayed on at Princeton for graduate studies, which he completed under H.S. Langfeld in 1928. In the fall of that year, Gibson accepted his first academic position at Smith College, where he remained for much of the next two decades. Among his outstanding students at Smith was Eleanor Jack, whom he married in 1932.

In 1941, Gibson joined the Army Air Force to help develop selection procedures for pilots, and during that time, he conducted groundbreaking research in perception that would shape the remainder of his career. Returning briefly to Smith College after the war, Gibson then joined the psychology faculty at Cornell University (1949). Soon after, he published the acclaimed *The Perception of the Visual World* (Gibson 1950), much of which grew out of his perceptual research during the war years. Over the ensuing decade

at Cornell, Gibson spent a semester (1954) as a visiting Professor at the University of California at Berkeley, and a year (1955–1956) as a Fulbright Fellow at Oxford University. By the early 1960s, his thinking began to shift toward what would eventually become his ecological approach. The groundwork for that perspective appeared in his landmark book, *The Senses Considered as Perceptual Systems* (Gibson 1966), which was followed in 1979 by his final book, *The Ecological Approach to Visual Perception*. Gibson died on December 11, 1979, at the age of 75.

Major Contributions

James Gibson was an innovative twentieth century experimental psychologist whose research on visual perception culminated in an original theoretical perspective, the *ecological approach to perceiving*. By offering a rich account of the visual information available for perceivers at an ecological level of analysis (*ecological optics*) and a reconceptualization of perceiving as the operation of perception–action processes (*perceptual systems*), the ecological approach provides theoretical grounds and empirical support for the epistemological position of *direct realism*. This position holds that the environment is perceived without the intervention of mediating mental representations or other constructive processes (*indirect realism*). Moreover, what is perceived most immediately are the functionally significant (meaningful) properties or *affordances* of the environment.

The dominant intellectual influences on Gibson during his graduate studies at Princeton were H.S. Langfeld, who had worked with the experimental phenomenologist Carl Stumpf, and the philosophical behaviorist E.B. Holt, a student of William James as well as a central figure among the New Realist philosophers (Heft 2001; Reed 1988). Holt's writings fused the non-dualistic metaphysics of James's philosophy of radical empiricism and James' emphasis on selectivity, with a molar and purposive behaviorism. At Smith College, Gibson's colleagues included the émigré Gestalt psychologist Kurt Koffka and the Austrian-trained psychologist Fritz Heider, who was at a nearby school for the deaf. Koffka's focus on organization in perceptual experience heightened Gibson's sensitivity to higher-order relations in patterns of sensory stimulation. Heider's landmark paper "Thing and Medium,"

which argued that that the structure of the object is *preserved* in the medium for perceiving, was to play a foundational role in Gibson's later ecological approach. Throughout his career, he shared an intellectual partnership with his wife, the experimental psychologist Eleanor J. Gibson.

During the war years, while working in a perceptual psychology research unit concerned with pilot selection, Gibson came to realize that measures based on *static* visual displays, as dictated by standard theories of perception, were inadequate for this purpose. In the process of utilizing *dynamic* displays (films) instead, Gibson became sensitized to the distinction between *form perception*, which involves static two-dimensional displays, and *object (shape) perception*, which results when the object, the perceiver, or both, are in motion. This work laid the foundation for Gibson's insight that the perceptual information specifying object shape is *invariant structure under transformation*. Moreover, Gibson's attention to perceptual experience from the vantage point of a pilot, as well as his attention to more mundane experiences such as driving a car, made him aware of the fact that as perceivers move through the environment, they generate an *optical flow* or streaming of surface layout that serves as information for self-movement. Concurrently, the point of outflow from which these streaming patterns originate specifies the direction of heading, and Gibson proposed that animals *guide* their locomotion by maintaining this point of expansion on the intended target. That the information for both object perception and optic flow is available in the optic array points to the possibility of direct perception.

After the war, Gibson began writing *The Perception of the Visual World* (1950), which further explored the possibility that there are higher-order structures in visual stimulation corresponding to environmental properties. Notably, he addressed the related problems of the perception of distance and of object-size constancy with reference to the ecological fact that surface textures tend to be stochastically regular, with the density among texture features increasing as the surface extends away from the perceiver. He demonstrated that these *texture gradients* correspond to perceived distance along a surface, and that the *ratio* of object size to surface texture background remains

invariant, independent of the object's location relative to the perceiver.

After moving to Cornell University in the early 1950s, Gibson collaborated with E. J. Gibson in offering an original account of *perceptual learning* as a process of differentiating structure available in the perceptual array. Furthermore, separate investigations by the Gibsons revealed that *meaningful* properties of the environment are available to be perceived in the perceptual array. E.J. Gibson and R.D. Walk demonstrated that newly crawling babies are sensitive to depth at an edge (the visual cliff experiments), and James Gibson found that animals perceive an expanding form in the visual field as a looming surface affording impending collision. Jointly, these investigations show that the functional significance of environmental features is available to be perceived over time in the course of object motion or self-generated motion.

By the early 1960s, Gibson fully abandoned the traditional (psychophysical) stance that stimulation is *imposed* on receptor surfaces in favor of an ecological approach. This reconceptualization, introduced in *The Senses Considered as Perceptual Systems* (1966), required two critical and innovative steps. First, drawing on Heider's distinction between object and medium, Gibson began to develop the program of *ecological optics*, which considers how surface properties can structure reflected light, giving rise to an array of structure specific to the environmental layout. Second, he proposed that perceiving is an activity of an embodied agent whose *perceptual systems* play an exploratory role in detecting structure (information) in the optic array.

Gibson's analysis was further refined in his last major work, *The Ecological Approach to Visual Perception* (1979). This book begins by addressing the question, "what is the environment to be perceived?" occasioning a more thorough analysis of ecological optics in relation to an active perceiver. Two other features of this book are especially noteworthy: (a) *occluding edge* phenomena – As a perceiver moves in relation to an object, the surfaces once hidden behind an object in the field of view are revealed over time at one edge, while once visible background surfaces are occluded at its opposite edge. From a perception–action perspective, this phenomenon demonstrates that perceiving is *temporally extended* rather than being an assemblage of discrete retinal snapshots. (b) *Affordances* – What is

perceived through the detection of perceptual information are the affordances of the environment, which are its functionally meaningful properties taken with reference to an individual. Affordances are *relational properties*, and conceptually, they suggest that meanings originate within the dynamics of an organism–environment system.

See Also

- ▶ [Gibson, Eleanor J.](#)
- ▶ [Holt, E. B.](#)
- ▶ [Koffka, Kurt](#)
- ▶ [Langfeld, Herbert Sidney](#)
- ▶ [Lewin, Kurt](#)
- ▶ [Neisser, Ulric](#)
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Gilbreth, Lillian

CHER THOMAS

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Basic Biographical Information

Lillian Moller Gilbreth, the eldest of nine children, was born on May 24, 1878 in Oakland, California. A strong student, her father finally let her attend college only if she remained living at home. She attended the University of California at Berkeley, where she received a B.A. in English literature in 1900. She had an outstanding academic record and was the first woman to be invited to speak at Berkeley's commencement ceremonies. She continued her studies in New York City at Columbia University but an illness brought her home where she completed her M.A. in English literature at

U.C. Berkeley in 1902 and began a doctoral program in English with a minor in psychology. Her studies were altered after her marriage to Frank Gilbreth in 1904. Frank, the owner of a successful construction business, was becoming well known as a contributor to the emerging field of scientific management. Lillian began working with her husband and became as passionate as he was in addressing the problems of industrial management and productivity. Convinced of the importance of the human factor in this work, she switched her doctoral major to psychology. Due to her failure to fulfill a residency requirement for a doctorate at U.C. Berkeley (her dissertation had already been accepted), she was not granted her degree. The family moved to Rhode Island, and in 1915 she was granted Brown University's first doctorate in industrial psychology. Her four children were at her graduation ceremony, eight more would follow. Two of her children wrote of their experiences growing up in *Cheaper by the Dozen* (1948) and *Belles on their Toes* (1950). Both books were made into popular motion pictures in the 1950s, and *Cheaper by the Dozen* was remade in 2003.

When Frank Gilbreth unexpectedly died in 1924, Lillian carried on with their consulting business as best she could, given the era's prejudices against women. The quality of her work and her international reputation as an outstanding teacher of managerial techniques eventually overcame the general reluctance to utilize a woman's abilities in industry. She worked not only in the private sector, but applied scientific management techniques to home economics, physical therapy, agriculture, and various government functions. In 1935, she was appointed full professor at Purdue University in the management and the engineering schools. During her career, she also taught at the University of Wisconsin, Newark College of Engineering, Bryn Mawr, and Rutgers. She retired from Purdue in 1948 at age 70, but did not retire from professional pursuits until 1968. She died January 2, 1972 in Phoenix, Ariz (Kelly and Kelly 1990; Perloff and Naman 1996).

Major Accomplishments/ Contributions

Lillian Gilbreth was a pioneer in scientific management and one of the first to recognize the synergy of

combining a psychological analysis of individuals and groups with an engineering approach to develop truly effective management techniques. Along with her husband, she helped create job standardization, incentive wage plans, job simplification, and scientific production measurement techniques. She contributed to the development of the field of personnel management and career assessment through her promotion of the importance of identifying the behavioral qualities of effective managers and matching workers with suitable work. She initiated the study of the effects of worker stress and fatigue on productivity. She laid the groundwork for the humanistic revision to Taylor's scientific management system by recognizing the importance of involving workers in the redesign of their workplaces.

Lillian Gilbreth broadened the field of applied psychology. She demonstrated through her consulting and writing that the methods she had developed for improving the workplace were also effective in areas such as government, medicine, agriculture, and especially rehabilitation of the handicapped. Lillian was a leader in addressing the issue of balancing work and family. She and her husband applied the time and motion study methods they developed for industry to the management of their large family and Lillian's consulting work resulted in the redesign of kitchen appliances. She also wrote extensively on the management of the home and family for popular audiences.

An outstanding teacher, Lillian shaped the curricula of business and engineering schools throughout the country. Her workshops for managers were internationally renowned. She was one of the founding members of the International Academy of Management in 1954, and for years was its only female member.

Lillian Gilbreth received numerous awards for her accomplishments, among which were 20 honorary degrees. She was named a Fellow of the American Psychological Association in 1921, in 1924 she was the first woman elected to the American Society of Mechanical Engineers, in 1931 she was awarded first Gilbreth Medal for distinguished contributions to management by the Society of Industrial Engineers, in 1944, she was awarded the Gantt Gold Medal along with her husband posthumously by the American Society of Mechanical Engineers and the American Management Association, and in 1966, was the first

woman to receive the Hoover Medal of the American Society of Civil Engineers. In 1984, she was honored on a commemorative postal stamp, the first psychologist to be so honored in the USA (Gale 2000, 2009; Kelly and Kelly 1990; Perloff and Naman 1996).

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Goldstein, Kurt

DAVID C. DEVONIS

Graceland University, Lamoni, IA, USA

Basic Biographical Information

Born: November 6, 1878; Died: September 19, 1965.

Kurt Goldstein was born in Kattowitz, Silesia (now Katowice, Poland) and trained as a physician and neurologist under Carl Wernicke at Breslau. He began his career as a postgraduate assistant to Ludwig Edinger at Frankfurt and then moved in 1906 to the Psychiatric Clinic of the University of Königsberg. In 1914, he returned as Edinger's first assistant at Frankfurt and

then, in 1916, established the Institute for Research on the Aftereffects of Brain Injury, which due to the prevalence of brain injury due to the First World War was a rich source of case material. There he began a collaboration with the Gestalt psychologist Adhémar Gelb. Together they created a unique program blending insightfully designed psychological tests of perceptual and cognitive function with exacting correlative neurological assessment. Goldstein's published account of this work in book form (Goldstein 1919) along with several joint articles with Gelb established the reputation of their research program around the world. During the 1920s, Gelb turned to specifically perceptual research and teaching, while Goldstein focused on the neuropsychology of aphasia and anxiety. He became allied with other Gestalt psychologists and joined them in founding the *Journal Psychologische Forschung* (Psychological Research) in 1921. Goldstein moved to the University of Berlin in 1929, and Gelb moved to Halle 2 years later. But Goldstein and Gelb, like many others, were in mortal danger in Germany beginning in 1933 and each fled Germany for the Netherlands. In 1935, Goldstein was able to leave Europe for the USA where he was active as a teacher and writer at Columbia and for a time, between 1940 and 1945, at Tufts University.

Major Achievements/Contributions

While in the Netherlands, Goldstein published his magnum opus *Der Aufbau des Organismus* (Goldstein 1934). This work expanded Goldstein's clinical observations of the integrated and interconnected nature both of brain injury and of the recovery process into a philosophy of the optimal development of human potential in transaction with its environment. In a sense this work was overdetermined both by Goldstein's close connection to Gestalt psychology and also by his deeply philosophical background. Goldstein was related to the Cassirer family, a source for the philosophical underpinnings of his clinical characterization of the relation of the brain to intellect, specifically of the relation of the brain's wholistic ability to symbolically represent the world (Metraux 1999). The *Aufbau* was issued in English in 1939 as *The Organism* with a foreword by Karl Lashley and was well received. His William James Lectures in 1938 at Harvard led to a second very influential philosophical book, *Human Nature in Light of Psychopathology*

(Goldstein 1940). This was followed by several more books and articles, including the reissue in English of his earlier clinical work on brain injuries, and also a comprehensive account of the relation of language and the brain as revealed by aphasia (Goldstein 1948). Within 10 years of his arrival in the USA, he had become a central figure in the development of modern clinical neuropsychology (Goldstein 1990). Among many others, he collaborated with Eugenia Hanfmann and Maria Rickers-Ovsiankina on their study of the sequelae of cortical injury *Case Lanuti* (Hanfmann, Rickers-Ovsiankina and Goldstein 1944), and with Jacob Kasanin and Martin Scheerer, a student of Wilhelm Stern and Fritz Heider, on language in schizophrenia. Goldstein was one of the first major figures in America to sound a warning against the use of lobotomy as a psychiatric treatment (Goldstein 1950). During the 1940s and 1950s, ideas of wholism and connectedness began to infuse parts of personality study and clinical psychology, and Goldstein's widely read philosophical work served as a programmatic background. Although the idea of "self-actualization" as the unfolding of purpose from within the self is much older than Goldstein, many writers have cited Goldstein as the first to employ this term in the context of the development of American "third force" psychology, and many of the major figures in the development of humanistic psychology acknowledged a debt to him (Pickren 2000). Goldstein's continuing popularity is attested by the reprinting of *The Organism*, with a new foreword by the neuropsychologist Oliver Sacks, in paperback as recently as 2000.

See Also

► [Lashley, Carl](#)

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Great Plains Student Psychology Convention

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Basic History of the Institution

The Great Plains Student Psychology Convention was initiated to provide a forum for undergraduate students in Kansas to present their research and interact with fellow psychology students and faculty, and thereby enhance their professional development. Dr. Ann Froese of Sterling College and Dr. Stephen F. Davis of Emporia State University began to discuss the establishment of an annual conference in the wake of the participation of a group of psychology students from Sterling College in Kansas at a lecture presented at Emporia State University.

The first Great Plains Student Psychology Convention was held on April 24 and 25, 1981 at Emporia State University in Emporia, Kansas, where 19 papers and one roundtable was presented. The keynote speaker was Dr. Jeffrey Seybert from the University of Missouri at Kansas City. It was again held at Emporia State for five of the next 6 years, from 1982 through 1987, and in 1985 was hosted by Pittsburg State

University. The convention has since been held at 15 other institutions, including the University of Nebraska at Kearney four times (1992, 1997, 2003, and 2009), and Missouri Western State University three times (1990, 2000, 2010). This conference is significant as it was the first such conference initiated for undergraduate psychology students in the middle and plain states. The 2011 Great Plains Student Psychology Convention will be held at Washburn University in Topeka, Kansas on March 18 and 19 (Davis 2000).

The Great Plains Student Psychology Convention continues to convene undergraduate presenters and participants for a 2-day program, held on a Friday and Saturday each year. There are generally five concurrent poster and paper sessions. Approximately 300 people attend each year, and the majority of presenters are undergraduates. A first and second place prize is awarded in each session to the best paper and poster, judged with high standards for excellent scholarly research. A keynote speaker presents on the Friday afternoon or Saturday morning of the convention, and the awards luncheon is held on Saturday. In 1999, it was decided by faculty organizers that the keynote speaker each year would be designated as the Stephen F. Davis Distinguished Speaker, named after the founder of the conference. There are no specific criteria for choosing the distinguished speaker, and the host institution each year is responsible for selecting the speaker.

The institutions whose students attend the conference each year generally make small donations to help offset costs, though the host institution provides the majority of financial support. Psi Chi, the National Honor Society in Psychology, often provides funding, as does the Nebraska Psychological Society (NPS) and the Association for Psychological and Educational Research in Kansas (PERK).

Significance

During the fourteenth meeting of the Great Plains Student Psychology Convention in 1994 at Rockhurst College in Kansas City, faculty members impressed by the quality of undergraduate research presentations at the conference proposed that a journal be established that would allow students to publish their work to help develop their communication skills and make them more competitive candidates for graduate study.

After meetings in the springs of 1994 and 1995, a group of graduate students and faculty established guidelines for the journal, and the first volume was published in 1996 (Ware 1996). All manuscripts submitted to the *Journal of Psychological Inquiry* must have an undergraduate listed as first author, although graduate students may submit papers they wrote as undergraduates. Papers written by undergraduates with coauthors who are faculty or graduate students can also be submitted to the journal. Manuscripts will only be submitted if they are written by students who attend an institution sponsoring the Great Plains Student Psychology Convention, or if the paper has been accepted for presentation at meetings of either the Great Plains Student Psychology Convention, the Nebraska Psychological Society, the Arkansas Symposium for Psychology Students, the ILLOWA Undergraduate Psychology Conference, or the Association for Psychological and Educational Research in Kansas (PERK).

Born in 1942 in Rochester, New York, Dr. Stephen F. Davis, founder of the Great Plains Student Psychology Convention, is now Roe R. Cross Distinguished Professor Emeritus at Emporia State University, Visiting Distinguished Professor at Texas Wesleyan University, and Distinguished Guest Professor at Morningside College. He received his bachelor's and master's degrees in psychology from Southern Methodist University in 1964 and 1966, respectively. In 1969, he received his doctorate from Texas Christian University. He has published over 300 articles and has presented over 900 conference papers. He is an APA fellow in four divisions and received the 1988 Distinguished Teaching of Psychology Award from the American Psychological Foundation (Buskist 2009).

See Also

► [Social Psychology](#)

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Guthrie, Edwin

DAVID O. CLARK

Independent Scholar, Lincoln, NE, USA

Edwin Ray Guthrie Jr. (1886–1959) was a professor of psychology at the University of Washington in Seattle. Guthrie introduced his theory of psychology during the 1930s as psychology continued to develop from the analysis of the consciousness to the study of the more environmental and biological determinates of human activity. He based his psychology on learning, where learning was understood as the lawful functioning of the individual's mechanism of adjustment. Adjustment was manifest in newly constituted habits, where habits were considered organized behavior exercised in response to the demands of the environment. In 1945 Guthrie was the president of the American Psychological Association. In 1959 he received Psychology's prestigious Gold Medal Award for his contributions toward making psychology a science.

Guthrie was born in Lincoln, Nebraska, and he received both his bachelor's and master's degrees from the University of Nebraska. The early influences on his development can only be speculation, but at Nebraska Guthrie was a student of Harry Kirke Wolfe (1858–1918), who received his Ph.D. in 1886 from Wundt at the University of Leipzig, and it is probable he was a student of Thaddeus Bolton (1865–1948), who received his Ph.D. in psychology in 1895 from Clark University. Guthrie found Wolfe interesting, and he learned to hate psychophysics from the laboratory course he took in experimental psychology. During Guthrie's master's program, he taught high school mathematics. His master's thesis reflected his interests in mathematics, classical languages, and philosophy. It was a review of the Greek origins, and subsequent historical stages, of methods of demonstration in philosophy; Guthrie argued the current style logical argumentation evolved from early geometry proofs. Mathematics influenced a systematic proof in arguments in Western discourse. Guthrie's master's thesis at Nebraska foreshadowed the dissertation he completed in philosophy at the University of Pennsylvania.

In anticipating possible prejudices of Guthrie's education in philosophy, a comment on his education is necessary: Although his graduate degrees were in philosophy, the education he received had advanced beyond the classical education of the trivium and quadrivium. Often, his philosophy courses were natural philosophy, otherwise science. At the University of Pennsylvania, Guthrie's Ph.D. supervisor was Edgar Arthur Singer Jr. (1873–1954). Singer was a student of George S. Fullerton's (1857–1952). Fullerton was an early president of the American Psychological Association, and he participated in establishing the psychology laboratory at the University of Pennsylvania. Singer's dissertation addressed the debate to establish an object of study for psychology occasioned by the publication of William James's "The Principles of Psychology." As a post-doctor, Singer became William James's instructor for the psychology laboratory at Harvard during Munsterberg's sabbatical. If it was uncertain how much influence either Wolfe or Bolton had on his development, Singer's epistemology for psychology provided the foundation for Guthrie's career in psychology. However, Guthrie's dissertation was a critical review of Russell's paradox. In addition to his master's thesis and publications on logic, this suggests that Guthrie's focus was analytic philosophy. This answers to Guthrie's continued theoretical bias against empiricism, and his belief that a structural, or systematic, understanding of objective reality in science was the proper foundation for a scientific psychology.

Guthrie's theory of learning appeared in its nascent stage in 1930. It was published in the *Psychological Review* as "Conditioning as a Principle of Learning." His theory emerged as Guthrie observed psychologists divided into various dogmas, where allegiances and talking about psychology had replaced research. Behaviorism had offered some statements that the public was interested in, but there is no consensus about the facts. Guthrie's goal was a research paradigm that would give psychology the unity characteristic of the established sciences. The development of his theory can be observed in his journal publications of the early 1930s, and many of these articles were incorporated in his classic textbook *The Psychology of Learning* (Guthrie 1935).

Guthrie's psychology was based on the observation that individuals were able to adjust their characteristic

behavior patterns to meet changes in the environment. Darwin's influence was apparent. Conditioning as the principle of learning was construed as the individual reacting to the environment in a continuous struggle for survival, and the essential human mental activity was represented, and more importantly observed, in learning. The learned response was manifest in existing habits and the creation of new habits. Habit was the tendency of individuals to respond in similar ways under similar circumstances – this being necessary for sustaining life. In this sense, Guthrie proposed habits as the unit for psychological analysis. And in so far as his generalization served prediction, it answered to the essential characteristic of scientific knowledge for Guthrie. He argued that prediction was necessary to sustain life. Guthrie also turned to physiology for his theory. In Guthrie's reasoning, the term "conditioning" pointed to the importance of the reflex arc hypothesis and Pavlov's condition reflex. Consistent with these influences, Guthrie used the terms "stimulus" and "response" in his analysis and interpretation of the received facts of psychology.

Guthrie's principle of the conditioned response was deceptively simple; he stated that if you observe someone doing an activity of interest, note the circumstances in which it occurred. Upon the reoccurrence of the circumstances, the activity of interest could be anticipated. This assumption was supported. Guthrie intended this principle as a warrant for research. There exists scientifically supported reason to believe that people have a tendency to repeat their characteristic behaviors in the context of specific circumstances. The familiar expression has been: The best predictor of future behavior is past behavior. Often overlooked, this general principle served psychology for scientific prediction, and perhaps equally important, it provided the researcher with a control, that is a comparison condition for an $N = 1$ experimental paradigm.

Guthrie cleverly demonstrated the utility and power of this principle by presenting plausible alternative interpretations for Thorndike's law of effect and Pavlov's analysis of the conditioned reflex. Guthrie

also demonstrated the utility of the conditioned response by demonstrating how it could be used in applied settings for interventions to correct maladaptive behaviors. His solution to the problem of intervention was based on Charles S. Sherrington's (1857–1952) neurological research. Guthrie used Sherrington's concept of reciprocal innervation. In reciprocal innervation one muscle group relaxes allowing an opposing group to contract. In Guthrie's adaptation of reciprocal innervation, significant features present in the reoccurring situation for the behavior eventually become the stimuli for a new habit that was incompatible with the undesirable activity. This loss of the associative connection between the environment and the habit to be corrected was also called negative adaptation. Guthrie proposed three conditions for establishing inhibitory conditioning: one, maintain the relevant stimulus below the subject's threshold of awareness; two, maintain the situation and eliminate the unwanted response through the use of fatigue; three, the unwanted behavior could be inhibited by training an incompatible behavior to the specific circumstances.

For most of his career, Guthrie was involved in the practical concerns of teaching, and his style of explanation reflects his desire to communicate with a general audience. He emphasized a democratic spirit of science, and the necessity for psychology to address public concerns with understandable and useful explanations. Despite the fact that other learning theories have been more popular, Guthrie was able to demonstrate plausible alternative interpretations to many established facts in learning research. His practical approach to science, with his theoretical roots in a structural epistemology, was probably the reason for a modest but continued interest in his theory.

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H

Hall, G. Stanley

JOHN D. HOGAN

St. John's University, Jamaica, NY, USA

Basic Biographical Information

Born: February 1, 1844; Died: April 24, 1924.

Granville Stanley Hall, a pioneer American psychologist, who is usually identified as the father of developmental psychology, was born on February 1, 1844, in Ashfield, Massachusetts. His parents were farmers who were descended from the earliest European settlers to the USA. Hall attended nearby Williams College, graduating in 1867. He then moved to New York City where he enrolled at Union Theological Seminary – his mother had always hoped he would become a minister. He traveled to Europe on borrowed money, and stayed for more than a year, returning to the seminary to complete his degree in 1870. By this time, he was certain that he was not destined for the ministry and, instead, planned to teach philosophy (Ross 1972).

Eventually, Hall was offered a teaching position at Antioch College in Yellow Springs, Ohio. Although he was popular and successful, he felt his future with the college was uncertain. He resigned from Antioch with the intention of studying in Europe again. He traveled as far as Harvard University, where he met William James, who only the year before had begun teaching the “new” psychology at Harvard. Hall enrolled in the philosophy program there in 1876, and graduated 2 years later with a doctoral degree. Although his degree was from the Department of Philosophy, he was given a degree in psychology because the subject matter of his dissertation, the muscular perception of space, was consistent with the new psychology. His

degree is often regarded as the first doctoral degree awarded in psychology in the USA, perhaps the world.

After receiving his degree, Hall left for Europe where he studied with a variety of people. He spent a brief period at the University of Leipzig with Wilhelm Wundt, the founder of experimental psychology, but he never took any formal courses with Wundt nor published anything with him. He met a former student from Antioch College, Cornelia Fisher, who had been studying in Europe, and they were married in Berlin. When he returned to the USA, he had no job prospects and his wife was expecting their first child (Ross 1972).

On his return, Hall presented a series of lectures on pedagogy and psychology. Before long, he had become the leader of the child-study movement, a social movement that had been gathering strength. Hall promised that psychology could show parents and educators the most scientific way to raise a child. Although there was little evidence to back up his claim, his words were welcome. Hall himself contributed some research to this movement, including a paper titled “The contents of children’s minds” (Hall 1883). The paper is considered one of the founding papers of developmental psychology.

Hall was offered a full-time position at Johns Hopkins University in 1884, where he began a psychology laboratory and later founded the *American Journal of Psychology* (1887) the first journal for psychology in the USA. In 1888, he was approached by Jonas Clark, a wealthy native of Worcester, Massachusetts, who was planning to fund a college in Worcester, and asked Hall to be the first president. Hall accepted and remained president of Clark University until 1920, when he was 76 years old. His tenure at Clark was often tumultuous, but it was also during these years that Hall did much to organize early psychology in the USA, and to promote and organize developmental psychology. Hall died on April 24, 1924, at the age of 80.

Major Accomplishments/ Contributions

Many of Hall's theoretical contributions grew out of his belief in evolution. He was drawn to the topic very early in his career and it dominated his thinking throughout his life. His approach, derived from the work of Ernst Haeckel, a German evolutionist, is usually referred to as "recapitulation theory" and its basic tenets are summed up in the phrase "ontogeny recapitulates phylogeny." Hall believed that individual human development goes through a reenactment of the evolutionary development of the species. For instance, he regarded adolescence as necessarily a time of storm and stress because it corresponds to a time when mankind was first becoming civilized.

Hall's most important work was his two-volume book on *Adolescence* (Hall 1904). For all practical purposes, he invented that period of life. The term "adolescence" was an archaic and little used word before the publication of his book. Afterward, the period was recognized as a separate stage of life. Toward the end of his life, Hall wrote a book titled *Senescence: The last half of life* (Hall 1922), establishing his credentials as an authority over the entire life span.

Hall contributed to the early growth of U.S. psychology in other important ways. In 1892, he sent out invitations that resulted in the establishment of the American Psychological Association, the first such national association in the world, and he became its first president. In 1909, he hosted a celebration for the 20th anniversary of the founding of Clark University. Among the distinguished guests invited to speak at that celebration were Carl Jung and Sigmund Freud, the latter in his only visit to America.

Hall's recapitulation theory was not readily accepted by his contemporaries, his questionnaire method also raised eyebrows, and his personal qualities often led to conflict among other notables of the period. But his impact on the development of psychology in its pioneer days cannot be minimized. More than anyone, Hall established the organizational groundwork for the new science, as well as creating the first scientific form of developmental psychology. In addition, many of his students, notably Lewis Terman, Henry H. Goddard, and Arnold Gesell, had a significant impact on the discipline (Hogan 2003).

See Also

► [Terman, Lewis M.](#)

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Hamilton, G. V.

DAVID C. DEVONIS

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Basic Biographical Information

Born: 1877; Died: 1943.

Gilbert Van Tassel Hamilton was born in Ohio and after finishing college at Ohio Wesleyan in 1898 went to Philadelphia, where he studied at Jefferson Medical College with Francis X. Dercum, an innovator in the treatment of nervous diseases, including hysteria and other psychosomatic problems (Wozniak 1994). After obtaining his M.D. in 1901, Hamilton worked at hospitals, including one of the Pennsylvania state mental hospitals. There he conceived the idea to go to Boston to study the relation between psychology and mental disease, much against Dercum's recommendation. He found a position at McLean Hospital, where the chief psychologist was then Shepherd Ivory Franz, who had a background in neuropsychology, having done some of the earliest studies on brain lesioning's effects on learned behavior. They collaborated on a study on exercise and relief of depressive retardation, Hamilton's first published research (Franz and Hamilton 1905). Hamilton also attended Harvard and worked with Holt, Münsterberg, and most importantly R. M. Yerkes,

whom he credited as the source of his behavioral and comparative approach. Also at McLean, Hamilton befriended a very rich patient, Stanley McCormick, heir to the McCormick reaper fortune, who was by all accounts schizophrenic. McCormick's wife, Katherine McCormick, the first female student to graduate from MIT with a science degree (in Biology) desired to find a biological basis for her husband's condition, found Hamilton's treatment salutary, and together they invited him to McCormick's California estate, Riven Rock, near Montecito in Santa Barbara County, California as McCormick's personal physician. There Hamilton lived between 1908 and 1917, supported by grants from McCormick that allowed him to set up a laboratory and to conduct research on animal behavior as an independent investigator.

Major Accomplishments/ Contributions

Hamilton did some early comparative experimentation. Utilizing dogs, cats, monkeys, humans, and one horse (Hamilton 1911) he set up a situation in which he varied the escape procedure from a room with four exits in order to produce frustration. Hamilton described five different response patterns that he claimed cohered into classes based on the reaction to the frustrating situation: rational inference, searching, stereotyped searching, searching combined with motor impulse, and perseveration of both action and inhibition. Hamilton was also able to establish a primate colony, the first of its kind in the USA, which by 1913 contained 16 monkeys, 3 baboons, and an orangutan (Magoun and Marshall 2003). While Hamilton himself published little primate research – significantly in light of his later work, he did publish a detailed examination of sexual behavior in the colony (Hamilton 1914) – his invitation of Robert Yerkes for a 6-month stay there in 1915, after Yerkes was prohibited from working at Tenerife with Köhler's colony due to the First World War, was pivotal for the development of future comparative psychological research involving primates. Yerkes took advantage of the stay to conduct several studies culminating in several studies on learning and ideation in apes and monkeys (e.g., Yerkes 1916): this opportunity reinforced Yerkes's intention to establish his own laboratory several years later at Orange Park, Florida (Wozniak 1994). Hamilton had a disagreement with other psychiatrists

involved with McCormick's treatment, including Smith Ely Jelliffe, and was dismissed from their service in 1916, which led to the dissolution of the primate research. After military service in the First World War, he returned to the Midwest in 1921 where he engaged in the practice of psychotherapy and composed *An Introduction to Objective Psychopathology* (Hamilton 1925). In this work, Hamilton advanced a theory compounded of psychosexual ideas drawn from Freud, whom he had encountered during his McLean stay, and behavioral ideas of reaction tendencies and behavior under frustration derived from his earlier comparative work. It contains many case studies illustrating what Hamilton termed typical modes of reaction leading to maladaptive behavior: in some ways, Hamilton anticipated current learning-based theories of psychopathology, for instance learned helplessness. The layout of the book, with its very large number of illustrative cases matched to combinations of reaction tendency or behavioral style is reminiscent of Meehl and Hathaway's original MMPI casebook. After 1925, Hamilton moved to New York and was associated with diverse psychoanalytic and psychotherapeutic activities. He may have played some role in the literary community, as did many other psychotherapists at the time, and may have been an influence on the work of Eugene O'Neill (Silver 2001). One common theme woven into Hamilton's career and the careers of those around him was sex: Kathleen McCormick became, in the time that she and Hamilton worked to restore her marriage, a feminist activist and a birth-control advocate (later, she also funded the research leading to the first viable birth-control pill). Hamilton published one of the earliest precise descriptions of sexual behavior in an experimental primate group, and many of the case studies in *Objective Psychopathology* have a pronounced sexual dimension. After his move to New York he continued to focus on sex, publishing, with Kenneth Macgowan, the producer of several of O'Neill's plays, an article in *Harper's* on love affairs and sexuality (Macgowan and Hamilton 1928), and a survey study of marital sex problems issued by a popular trade publisher (Hamilton 1929). He also published on gerontological sexual issues in the later 1930s (Hamilton 1939). *Riven Rock*, a 1998 novel by T. Coraghessan Boyle, provides a fictionalized account of the events surrounding Hamilton's time in California (Boyle 1998).

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Harlow, Harry

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Basic Biographical Information

Born Harry Frederick Israel in Fairfield, Iowa (1905–1981), and a member of the Methodist church, he was persuaded by one or more of his Stanford University professors to change his last name to avoid the anti-Semitic bias that plagued hiring in universities during the 1930s (Suomi and Leroy 1982). Beginning his college education at Reed College, Harlow transferred to Stanford University where he earned the B.A. (1927) and Ph.D. degrees (1930). In 1930, he accepted a position at the University of Wisconsin where he

remained until retirement in 1974. Thwarted initially in his effort to be a comparative psychologist studying rats, owing to the University closing the rat laboratory, Harlow soon turned to studying monkeys at the local zoo and soon thereafter converted a house near the campus to be a primate learning laboratory. Later he converted a former cheese factory into a large primate breeding and research facility.

Other positions held by Harlow included being a Carnegie Fellow in Anthropology at Columbia University and serving as Chief of Human Resources Research for the US Army during the Korean War. Among many forms of recognition and honors, Harlow became a member of the National Academy of Science (1951). And he received the National Medal of Science (1967). He led the Division of Anthropology and Psychology of the National Research Council (1952–1955). He received the American Psychological Association's (APA) Distinguished Scientific Contribution Award (1960), and he served as President of APA in 1957–1958 (Anonymous 1960). Harlow supervised 36 Ph.D. students, many of whom had distinguished careers within research areas for which Harlow was known. Perhaps his most distinguished student, Abraham Maslow, took a different career direction; however, Harlow's influence was clearly present in Maslow's development of his famous hierarchy of needs.

Major Accomplishments/Contributions

Harlow is best remembered for his research in learning set formation (LSF) and developmental psychobiology. The former was the focus of his research during the early and larger portion of his career, but both overlapped considerably as the latter focus grew out of his pioneering methods associated with primate husbandry. The developmental research included studies of attachment and love formation as well as familial relationships in rhesus monkeys. In recent times that research has come under severe criticism for its alleged cruelty associated with rearing infant monkeys in isolation and via artificial surrogate mothering devices that offered different degrees of contact comfort. Nevertheless, many aspects of social development were investigated that could never have been studied systematically using human infants as subjects.

Arguably, Harlow's most enduring theoretical legacy will be associated with learning set formation (LSF) and that will be emphasized here. Using his well-known Wisconsin General Testing Apparatus, designed to prevent inadvertent experimenter cues to the subject regarding correct choices among discriminanda, Harlow began studies in the 1930s–1940s that led to his ground-breaking presentation and publication on LSF in 1949. Harlow characterized LSF as “learning to learn,” a conceptualization for which he is usually credited with but which he was ably preceded (e.g., Gregory Bateson in a detailed explication in 1942 and Robert M. Yerkes in a lesser explication in 1943). To Harlow's credit, he showed how LSF could be measured, whereas Bateson thought it was experimentally difficult if not impossible to demonstrate. Harlow used different procedures, but the prototypical one involved presenting a series of two-object discrimination problems. After six trials, a new pair of objects was introduced, etc., until the subject showed LSF or seemed to be doomed to failure. Evidence for LSF involved learning what has been verbalized as a “win-stay, lose-shift” solution. The correct object for the six trials was chosen randomly before trial 1; thus, each subject's first trial choice occurs by chance. If the subject “wins” (food reward) on trial 1, the optimal solution to gain the most rewards is to “stay” with that object for the remaining five trials; if it “loses” on trial 1, the optimal solution is to “shift” to the other object for the remaining five trials. When subjects become near-perfect on trial 2 and subsequent trials, it is concluded that LSF has occurred.

A significant contribution was Harlow's theory that LSF depended on what he termed “error factor theory” (Harlow 1959). He meant that the animal must learn to eliminate response strategies that do not work (e.g., basing its choices on cues that prove to be irrelevant such as position preferences, color preferences, size preferences, etc.). LSF has been characterized variously as involving “concept learning,” “hypothesis learning,” “rule learning,” etc., but Thomas (in press) has offered a cautionary view of such. Harlow (1959) also wrote, “all concepts such as triangularity, middle-sizedness, redness, number, and smoothness evolve only from LS formation” and that “insightful learning through LS formation is a generalized principle . . . [that] . . .

appears in . . . oddity learning . . .” (p. 510). Thomas and colleagues have shown that LSF and oddity concept learning can be differentiated within the same experiment, so the relationship between LSF and oddity concept learning remains unresolved. The theoretical issues pertaining to LSF and conceptualization are sufficiently important that further research might prove to be invaluable.

See Also

- ▶ Behaviorism
- ▶ Comparative Psychology
- ▶ Evolutionary Psychology
- ▶ Klüver, H.
- ▶ Maslow, A. H.

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Hebb, Donald O.

ROBERT W. RIEBER

Fordham University, New York, NY, USA

Canadian psychologist. Born in Chester, Nova Scotia, July 22, 1904. Educated at Dalhousie University, Halifax, Nova Scotia, B.A. 1925; McGill University, Montreal, M.A. 1932; University of Chicago, 1934; Harvard University, Cambridge, Massachusetts, Ph.D. 1926. Married Marion Isabel Clark; Elizabeth Nichols Donovan in 1937; Margaret Doreen Wright in 1966; two daughters. Fellow Montreal Neurological Institute, 1937–39; Lecturer and Assistant Professor, Queen's University, Kingston, Ontario, 1939–1942; Research Associate, Yerkes Laboratory, Orange Park Florida,

1952–1947; Professor of Psychology, 1942–1972, Chancellor, 1970–1974, and since 1975 Professor-Emeritus, McGill University; since 1977, Honorary Research Associate in Psychology, Dalhousie University. President, Canadian Psychological Association, 1952, and American Psychological Association. 1960. Recipient: Medal.

Society of experimental Psychology, 1958; Award, American Psychological Association and Association for Research in Nervous and Mental Disease, 1962. Honorary doctorate: University of Chicago, 1951; University of Waterloo, Ontario, 1963; North-eastern University, Boston, 1963; Dalhousie University, 1965; York University, Toronto, 1966; McMaster University, Hamilton Ontario, 1967; Queen's University, 1967; University of Western Ontario, London, 1968; McGill University, 1975, Member, American Academy of Arts and Sciences, and the Royal Society of Canada. Address: RR 1, Chester Basin, Nova Scotia, Canada.

D.O. Hebb received his Ph.D. from Harvard in 1936. In his thesis, he compared the perceptions of rats raised in darkness with normally reared rats. In two papers published in 1937 based on this research, Hebb came to the conclusion that perceptive ability was not based on experience, that it was innate. From 1937 to 1939, he worked at the Montreal Neurological Institute with Wilder Penfield, where he studied the status of Penfield's patients following brain surgery. There he found that large lesions may in some cases have little effect on intelligence-test performance. Eventually he began edging toward the conclusion that intelligence itself, and not just the ability to do well on intelligence tests, was result of experience. This was a conclusion that ran counter not only to Hebb's own assumptions, but also to the general theories of the time. Yet he remained baffled about how to explain this matter neurologically.

In 1942, Hebb joined K.S. Lashley, with whom he had studied at the University of Chicago, at the Yerkes Laboratories of Primate Biology in Florida. Lashley's original plan was to train chimpanzees in a set of habits and then make brain lesions, conducting pre- and postoperative examinations to determine the effects of the lesions. The plan was seriously delayed, however, when they discovered that the initial training of the monkeys took an extremely long time. But this time spent training the chimpanzees proved useful to

Hebb, for it led him to consider the nature of emotion and behavior in them and, by extension, in people. Hebb also considered the matter of recognition of emotion in the monkeys by the staff members at the laboratories. Eventually he came to the conclusion that this recognition involved perception of the present behavior informed by that which had been usual in the past.

In 1944, he returned to the problem of thought and the brain which he had earlier considered while working with Penfield. Recent work by Rafael Lorente de Nó led Hebb to formulate the neurological explanation of a concept, which he had earlier been lacking. According to Hebb, a concept is "a group of cortical neurons exciting and re-exciting each other."

Hebb was now looking at thought as a sequence of brain events, each excited jointly by the preceding event and by the sensory stimulation of the moment, and approaching the conclusion that experience was an important factor in the nature of thought and behavior. This conclusion seemed to imply, however, that thought would be disrupted in a strange environment with unfamiliar contingencies. But as Hebb put it, even things should fall up rather than down, would it not still be possible to think clearly about what was going on? At this point, he remembered how the chimpanzees would become terrified at seeing a model of a portion of chimp anatomy. He concluded that such disturbances resulted from the lack of the usual contingencies (a head without a body) rather than conflict.

In 1947, Hebb was appointed Professor of Psychology at McGill University. It was during this time that he worked on his book *The Organization of Behavior*, which was published in 1949. The book was an immediate – and, for Hebb, an astonishing – success. Through certain physiological aspects of the book were inexact, the overall theory – that experience, among other things, played a key role in determining behavior, a refutation of the conclusion he had some 12 years earlier – remains fairly stable.

During the 1950s and 1960s, Hebb continued to produce important work, such as studies of the early environment of children that were instrumental in persuading psychologists that IQ was not innate, which was a major factor in the founding of the Head Start program.

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Helson, Harry

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Basic Biographical Information

Born: November 9, 1898; Died: October 13, 1977.

Harry Helson, son of Ukrainian immigrants, began psychological studies at Bowdoin College and then went to Harvard as a graduate student during the early 1920s. His mentor was E. G. Boring, who at first resisted Helson's proposal to write a Ph.D. thesis on Gestalt psychological theory but in the end relented. The product, published in installments in the *American Journal of Psychology* in 1925 and 1926 was an important source of information about Gestalt theory to American psychologists. In a later article, Helson collected and organized over 100 Gestalt laws (Helson 1933). After obtaining the Ph.D., Helson went to Cornell in 1924 where he formed a close relationship with Karl Dallenbach and began a long and varied experimental career. After Cornell, he was at Illinois for 1 year and at Kansas for 2 years, where it is said he was instrumental in converting Raymond Wheeler, chair of the UK Department, to the Gestalt perspective which Wheeler then advanced during the early 1930s. In 1928, Helson went to Bryn Mawr where he stayed for 21 years, and after that spent a short time at Brooklyn College. He then joined Dallenbach in Texas for 10 years, and then went to Kansas State, to York University in Toronto, and to the University of Massachusetts at Amherst before retiring to California in 1971.

Major Accomplishments/Contributions

Helson's main experimental interest, which he developed at Cornell and pursued for the next 2 decades, was in the appearance of color. With Deane B. Judd, later to become a very influential color scientist, and other collaborators, Helson studied the effect of sensory context on color constancy, and advanced a theory which he termed color conversion. This theory states that color perception is the result of the combination of a number of factors specific to the stimulus (hue, saturation, lightness), factors external to the stimulus such as background illumination and reflection, and the perceiver's state of adaptation. Helson provided exact measurements of the amount of effect that contextual factors had on the perception of primary dimensions of color and of other color phenomena. Helson also studied the dynamics of changes in perception, and isolated an effect that he called Tau in which the distance between two cutaneous stimuli appeared longer or shorter based on the time interval between their presentations. Based on his many studies of color appearance plus his observations of the conditions under which change is observed, Helson then proposed, in 1948, a generalized psychophysical theory accounting for the effect of contextual factors on perception which, according to Helson's student, the theorist of intelligence and creativity J. P. Guilford, brought relativity into psychology (Helson 1948; Guilford 1979). Briefly, adaptation-level theory, the name by which it became known, states that perception in a field is the result of a comparison between the stimulus and a subjective neutral point, which is a geometric mean of characteristics of a reference stimulus, effects of background stimuli, and internal factors such as memory or expectation. Stimuli at the neutral point will eventually fade from consciousness due to adaptation or be perceived as neutral or indifferent, while stimuli above and below the adaptation level will be perceived as contrasting. The subjective adaptation level may shift quite far, and this will result in sometimes surprising perceptual results. For instance, perceivers who adapt to a cold-water bath will perceive slightly less cold water as warm water, which would be perceived as icy had they adapted to warmth. Helson extended the theory to anything psychologically assessable by a bipolar scale, including subjective preferences.

Further, he suggested that perceptions consequent on changes in adaptation level might explain larger social phenomena, for instance the rate and violence of major social change. The generality of this theory contributed to its wide acceptance as a conceptual tool across virtually all regions of psychological research, where it has been used as an explanatory construct for job satisfaction, the perception of happiness, economic perception, perception of aversive behavior, optimality in environmental design, self-regulation of emotion, and social perception, and in many other areas. Later in life, Helson contributed several historical memoirs on the fate of E. B. Titchener's psychology, on the success of Gestalt psychology against its competitors, and also, sympathetically, on the process by which E. G. Boring changed from an experimentalist to a historian in the 1920s (Helson 1970). The widespread acceptance of adaptation-level theory is in a sense the scientific legacy of E. G. Boring, who started Helson on the path of research in both classical psychophysics and Gestalt theory, which he transformed into the language of modern mainstream of experimental psychology.

See Also

► [Boring, E. G.](#)

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Herbart, Johann Friedrich

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Basic Biographical Information

Herbart, widely known for his philosophy, psychology, and pedagogy, was born on May 4, 1776, in Oldenburg, Germany and died on August 11, 1841, in Göttingen.

He received his doctorate from Göttingen in 1805 and taught there until 1809 when he was called to Königsberg to take the chair earlier held by Immanuel Kant (1724–1824). In 1833, after his unsuccessful application to succeed Georg Wilhelm Friedrich Hegel (1770–1831) at Berlin, he returned to Göttingen. He began his university studies at Jena while Johann Gottlieb Fichte (1762–1814), Johann Gottfried Herder (1744–1803), Johann Wolfgang Goethe (1749–1832), and Friedrich Schiller (1759–1805) were still there. He was not a disciple of Fichte, for he adopted philosophical realism when the dominant fashion was idealism.

Major Accomplishments/Contributions

Sometimes described as an associationist, Herbart was one of the first to formulate psychology as a science. His psychology was neither experimental nor physiological. It was an empirical psychology based on observation and experience that can be seen as the transition between the speculative psychology of Kant, Fichte, and Hegel and the experimental psychology of Gustav Fechner (1801–1887), Herman von Helmholtz (1821–1894), and Wilhelm Wundt (1832–1920). He rejected faculty psychology, arguing that individuals only experienced thoughts and feelings. In 1816, he published *Lehrbuch zur Psychologie* (translated as *A Textbook in Psychology: An Attempt to Base the Science of Psychology on Experience, Metaphysics, and Mathematics*), the first textbook on psychology. In it, he attempted to apply mathematical formulations to mental life. He developed conceptions of the threshold of consciousness, the unconsciousness, and the apperceptive mass. His theory of apperception was his attempt to formulate a mathematical psychology and was likely the first such attempt. He also devoted significant effort toward applying psychology to education.

The theory of apperception held that when mind was presented with sense data (a series of “presentations”), they were attached to or interacted with those already there. Through what was essentially a mechanical process, elemental ideas were “perceived.” Once the new idea or experience was related to the already existing apperceptive mass, it was “apperceived.” The apperceptive process was the process whereby one's knowledge was created. Only those elemental ideas that crossed the threshold of consciousness contributed

to the building up of one's apperceptive mass. Thus, for Herbart, mind was not an active agent that produced changes in the world. Rather, mind was defined by its contents, by the assemblage of the manifold of self-preserving ideas or concepts that were representations of the impressions made upon individuals by the natural world. How mind functioned depended on its contents and how its contents were configured.

Herbart has been identified with Pestalozzi and Friedrich Daniel Ernst Schleiermacher (1768–1834) as one of the “founding fathers of modern educational theory” (Biesta and Burbules 2003, 1). He is of special interest to theoreticians of education, for as John Dewey (1916, 83) observed, Herbart was the first to demonstrate that education was an activity that could be studied directly. For Herbart's predecessors as well as his contemporaries, consideration of educational theory and educational practice (pedagogy) was an amateur endeavor. Educational theory and prescriptions for educational practice were based on the opinion of any learned and accomplished person whose authority derived from his or her achievements in some field other than education. Educational theory was not then scientific, not based on observation. Herbart held that: “the more education appears in the daily round of experience, the more necessary it is to bring our thoughts about it into more definite order and to fix them lest they be lost in the stream of opinion” (DeGarmo 1895, 181).

Like Fichte, Herbart was impressed by the educational work of Johann Heinrich Pestalozzi (1746–1827). He visited Pestalozzi in 1799 at Burgdorf after his 3-year tenure as tutor to the three sons of Herr von Steiger, Interlaken's governor. The five letters he wrote to Herr von Steiger about his children's progress, the works he subsequently published on Pestalozzi, and his subsequent work show that his long-standing interest in education, including the school he established in Königsberg, was an integral part of his agenda that included philosophy, psychology, and pedagogy.

Herbart changed how educational questions were framed and addressed. Dewey (1916, 83) clearly recognized Herbart's contribution when he wrote: “Herbart's great service was to take the work of teaching out of the region of routine and accident, and make it into a conscious business with a definite aim and procedure, instead of being a compound of

casual inspiration and subservience to tradition.” How Herbart addressed the relationships among philosophy, psychology, and pedagogy is different from current conceptualizations. The clear distinctions that now exist among them manifested in institutional arrangements, and professional organizations did not exist for Herbart. Psychology and pedagogy were then topics that belonged to philosophy, and institutional arrangements reflected that conceptualization. For example, when Dewey accepted his appointment at the University of Chicago in 1894, it was an appointment as chair of the department that included philosophy, psychology, and pedagogy.

The psychology Herbart developed and applied to education focused not on groups but on the individual. He was interested in the tutorial relationship and not on anything like modern classroom instruction. He was interested in how the individual became a moral person as opposed to educating citizens for the modern nation state, and experience was essential to the development of the individual. Education as a deliberate undertaking was the process whereby the right content was selected and organized into the proper configuration as well as the process that enabled teachers to control the human relationships under their charge, to present appropriate content, and to direct the student's interest. Interest led to learning. Besides primary interest, that which the student shows on his or her own without any encouragement from others, there was secondary interest, that which was to be created by the teacher.

Herbart maintained that his philosophy and psychology were related to his inquiries into education. Significantly, his pedagogy and psychology can be said to have issued not, as was then the fashion, from his metaphysics, but rather were possibly based on his experience and observations while tutoring the Steiger children. It has also been suggested that Herbart probably “developed his psychology out of his pedagogy rather than basing his pedagogy on psychology” (Dunkel 1970, 140).

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Herbert Spencer and Introduction of Evolution into Psychology

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Herbert Spencer (1820–1903) was the English philosopher-scientist principally responsible for the introduction of evolutionary thinking into scientific discourse. While Charles Darwin's treatment of evolution was limited to its role in biology, Spencer saw the process manifesting itself in all domains of nature. Though he wrote more than a dozen books during his lifetimes, Spencer did not have a literary background. He was taught at home by his father and never attended a university. His first employment was with the railroads, serving in the role of a civil engineer. In 1843, Spencer moved to London where he began his literary career in an editorial capacity with several journals. His first book, *Social Statics*, was published in 1850.

Spencer's first involvement with science was with geology when he examined fossils removed from railroad cuts during the course of his work. His interest in geology and paleontology thus aroused, he began reading Charles Lyell's *Principles of Geology*, which had recently appeared. It was this book that first made

him aware of the debate surrounding evolution, an interpretation of how animal species came to differ from each other, a theory which was at odds with the doctrine of special creation, then all but universally accepted. Describing the effect Lyell's book had on him, Spencer wrote:

- ▶ I had during previous years been cognizant of the hypothesis that the human race has been developed from some lower race; though what degree of acceptance it had from me, memory does not say. But my reading of Lyell, one of whose chapters was devoted to a refutation of Lamarck's views concerning the origin of species, had the effect of giving me a decided leaning to them. (Spencer 1926, I:176)

In 1851, while reviewing W.B. Carpenter's *Principles of Physiology* for the *Westminster Review*, Spencer had an experience which started him on his lifelong career as an expounder of evolution. This momentous turn of events he described as follows:

- ▶ In the course of such perusal as was needed to give an account of its contents, I came across von Baer's formula expressing the course of development through which every plant and animal passes – the change from homogeneity to heterogeneity. . . . [T]his phrase of von Baer expressing the law of individual development, awakened my attention to the fact that the law which holds of the ascending stages of each individual organism is also the law which holds of the ascending grades of organisms of all kinds. (Spencer 1926, I:384–385)

Hitting upon evolution as a master principle was the decisive event of Spencer's life. As he later wrote, "Once having become possessed by the conception of Evolution in its comprehensive form, the desire to elaborate and set it forth was so strong that to have passed life in doing something else would, I think, have been almost intolerable." (Spencer 1926, II:460)

In 1858, Spencer conceived the grand scheme of surveying the various fields of nature from an evolutionary perspective. This scientific enterprise, to which Spencer eventually gave the overall title of the *Synthetic Philosophy*, came to encompass 10 volumes and took more than 30 years to complete. In 1862, as an introductory volume to the series, he wrote *First Principles*, a book intended to build up, stone by stone, the edifice of evolution as a general conception. Spencer's

characterization of the evolutionary process as described in this book culminated in his classic definition: *Evolution is a change from an indefinite, incoherent homogeneity, to a definite, coherent heterogeneity; through continuous differentiations and integrations* (Spencer 1862:216).

This introductory volume to the *Synthetic Philosophy* was followed by *The Principles of Biology* (2 vols, 1864–1867), *The Principles of Psychology* (2 vols, 1870–1872), *The Principles of Sociology* (3 vols, 1876–1896), and *The Principles of Ethics* (2 vols, 1879–1891). In these works, Spencer showed how tracing the growth of these fields along evolutionary lines illuminated the course of their development. In an earlier article, “Progress, Its Law and Cause” (1857), Spencer had already painted a panoramic picture of the world seen from an evolutionary perspective:

- ▶ The advance from the simple to the complex, through a process of successive differentiations, is seen alike in the earliest changes of the Universe to which we can reason our way back, and in the earliest changes which we can inductively establish; it is seen in the geologic and climatic evolution of the Earth; it is seen in the unfolding of every single organism on its surface, and in the multiplication of kinds of organism; it is seen in the evolution of Humanity, whether contemplated in the civilized individual, or in the aggregate of races; it is seen in the evolution of Society in respect alike of its political, its religious, and its economical organization; and it is seen in the evolution of all those endless concrete and abstract products of human activity. (Spencer 1857:465)

Spencer’s interest in psychology appears to have begun in the 1840s with phrenology, a pseudo-science then very much in vogue. In 1843, he submitted two articles to the *Phrenological Journal*, both of which were rejected (Duncan 1908, I:51–52). In 1852, having turned away from phrenology, Spencer decided to write a treatise on psychology proper, in preparation for which he started reading John Stuart Mill’s *System of Logic*, which had appeared in 1843 (Spencer 1926, I:391). In August of the same year, he began the actual writing of *The Principles of Psychology* (Spencer 1926, I:456). Work on the book continued into the following year, and in October, 1853, he wrote to his father enthusiastically: “I am making further important

discoveries in psychology” (quoted in Duncan 1908, I:96). He continued working on the book into the following year, and in December 1854, he again wrote to his father, reporting that “[t]he theory of reasoning is working out beautifully” (Spencer 1926, I:461).

At this time, Spencer was in his mid-thirties and already imbued with the principles and objectives of science, as evidenced by his stated desire to treat psychology “after the spirit and methods of physical science” (quoted in Duncan 1908, I:115), unlike the way in which the subject had previously been dealt with.

Earlier – in 1852 – Spencer had published in *The Leader* (a new journal of liberal views) an article entitled “The Development Hypothesis” in which he rejected the idea of special creation, arguing instead for the gradual transformation of animal species by entirely natural means. In comparing the two alternate ways in which organisms could have obtained their present form he wrote:

- ▶ Which, then, is the most rational hypothesis? – that of special creation which has neither a fact to support it nor is even definitely conceivable; or that of modification, which is not only definitely conceivable, but is countenanced by the habitudes of every existing organism? (Spencer 1891:4)

In describing his progress on *The Principles of Psychology*, Spencer wrote, with the aforementioned article in mind, that “[a] large step was next made. The belief set forth in the early essay on The Development Hypothesis, implied that not only had bodily organization been naturally evolved, but [that] mental organization” had as well (Spencer 1926, II:10). The striking new idea that ran through the first edition of *The Principles of Psychology* was, of course, *evolution*. In the preface to his new book, which was finally published in 1855 – 3 years after work on it had begun and 4 years before the publication of Darwin’s *The Origin of Species* – Spencer boldly asserted that “Life under all its forms has arisen by a progressive, unbroken evolution . . . out of the lowest and simplest beginnings . . . and through the immediate instrumentality of . . . natural causes” (Spencer 1883, I:465n.).

Here, for almost the first time in his published writings, Spencer used the word “evolution.” It is worth noting that Darwin did not use the word in the first five editions of *The Origin of Species*, introducing it

only in the 6th edition (1872), 10 years after Spencer had carefully worked out its full meaning in *First Principles*.

Moreover, in his new work on psychology, Spencer proposed to go one giant step further and make an effort to follow “the successive phases of progressing Life,” exhibiting “that gradual differentiation of the psychic from the physical life which accompanies the evolution of Life in general” (Spencer 1883, I:viii). And in *The Principles of Psychology*, not only did Spencer propose to use evolution as an Ariadne’s thread in tracing the history of life and mind, he also chose to explore additional aspects of the evolutionary process itself. For instance, he would show that during the course of evolution, the nervous system had become more complex, developing greater means for adapting to and coping with the exigencies of living in an often hostile environment.

But in advocating this approach, Spencer met with stiff resistance, the emphasis on evolution proving to be distinctly premature. As Spencer later wrote, “The days were days when the special-creation doctrine passed almost unquestioned. Though for the interpretation of the structure of the Earth’s crust, miracle was no longer invoked, it was invoked for the interpretation of the fossils imbedded in the Earth’s crust.” And he added that even though “the evolutionary view of mind, though manifested throughout the whole argument of these chapters, was not put into the foreground,” it was salient enough to draw the fire of critics, and was “almost universally rejected and mostly ridiculed” (Spencer 1926, I:472).

Elaborating on the hostile reception accorded the evolutionary interpretations he had put forth in the first edition of *The Principles of Psychology*, Spencer later noted:

- ▶ In 1855, this view got scarcely any attention, and what little it did get brought upon me little else than vituperation. The tacit assumption, and towards the close of the work the avowed belief, that all organisms had arisen by evolution, and the consequent conception running throughout the whole work that the phenomena of mind were to be interpreted in conformity with that hypothesis necessarily, in 1855, roused not sympathy, but antipathy. It was only after the publication of Mr. Darwin’s *Origin of Species*, some 4 years

subsequently, and only after this work, drawing so much attention – causing so much controversy – began presently to affect deeply the beliefs of the scientific world, that the views contained in the *Principles of Psychology* came to be looked at more sympathetically.” (quoted in Duncan 1908, II:18)

Two more editions of *The Principles of Psychology* were to follow – the second in 1870–1872 and the third in 1880. In the preface to the second edition, Spencer commented on the sea change that had occurred in scientific opinion during the intervening years, and the effect that this shift had had on the reception given to his work:

- ▶ The great change of attitude toward the Doctrine of Evolution in general, which has taken place during the last ten years, has made the doctrine of Mental Evolution seem less unacceptable; and one result has been that the leading conceptions set forth in the First Edition of this work, have of late obtained considerable currency. (Spencer 1883, I:v)

The final edition of *The Principles of Psychology*, which appeared a quarter of a century after the first, was a work of impressive scope, its two volumes, 107 chapters, and 1,324 pages making it the largest and most comprehensive treatise on the subject attempted up to that time. In the second and third editions Spencer wove into his treatment of psychology a number of the elements he had previously worked out in his conception of the evolutionary process generally. He pointed out, for example, that in its evolution, mind had manifested an increase in heterogeneity, in definiteness, and in coherence, along with the integration of these elements – all characteristics prominently featured in his broadly encompassing definition of evolution.

In the third edition of *The Principles of Psychology* (1880), Spencer emphasized his regard for the study of psychology as a true science, like any other. Nonetheless, he noted that it was distinguishable from all other sciences in having an objective side and a subjective side. “Objective psychology,” he wrote, was “linked by [the] common element of consciousness, to the totally-independent science of subjective Psychology – the two forming together a double science which, as a whole, is quite *sui generis*” (Spencer 1883, I:141).

He further elaborated this distinction as follows:

- ▶ While, under its objective aspect, Psychology is to be classed as one of the concrete sciences, under its subjective aspect, Psychology is a totally unique science, independent of, and antithetically opposed to, all other sciences whatever. The thoughts and feelings which constitute a consciousness, and are absolutely inaccessible to any but the possessor of that consciousness, form an existence that has no place among the existences with which the rest of the sciences deal. (Spencer 1883, I:140)

The underlying feature of subjective psychology, Spencer held, was *mind*, the seat of consciousness, which he asserted would forever continue to be, if not completely inaccessible, at least enigmatic:

- ▶ Mind still continues to us a something without any kinship to other things; and from the science which discovers by introspection the laws of this something, there is no passage by transitional steps to the sciences which discover the laws of these other things. (Spencer 1883, I:140)

Intangible and elusive as its emanations might be, mind was, as far as its origins were concerned, still completely explainable. It had arisen out of a purely material substratum – the nervous system. “The form of life which we call mind,” Spencer wrote, “emerges out of bodily life” (1926, I:470). “Mind” he reiterated, “gradually evolves out of life” (Spencer 1908, II, 322). The purpose of both body and mind was clear enough: to adapt living organisms to their environment. This conception was in keeping with Spencer’s definition of life, which was “the continuous adjustment of inner relations to outer relations,” that is to say, the interaction of the organism with its enviring conditions (Spencer 1926, I:470).

Biology, then had laid the groundwork for psychology. Or, as Spencer put it, “The science of Life at large had to supply the data to the science of Mental Life” (Spencer 1908:347). Conspicuous among the elements that biology necessarily bequeathed to psychology was the “idea of adaptation as a universal principle of bodily life” (Spencer 1926, II:ii). And over countless generations of this adaptation there had resulted “an increase . . . in the complexity, of the adjustments of inner relations to outer relations,” so that “in tracing up

the increase we found ourselves passing without break from the phenomena of bodily life to the phenomena of mental life” (Spencer 1889, I:294). Evolution, then, had generated an uninterrupted flow, with no categorical breaks, only a rather striking degree of continuity. And seeing the nervous system as having been fully developed through this process, Spencer felt ready to tackle the specific elements of human psychology.

As previously noted, in several of his earlier articles Spencer had recognized evolution as a general process, manifesting itself in the various domains of nature. Now he saw it exemplified once again, this time in the field of psychology:

- ▶ The Law of Evolution holds of the inner world as it does of the outer world. On tracing up from its low and vague beginnings the intelligence which becomes so marvelous in the highest beings, we find that under whatever aspect contemplated, it presents a progressive transformation of like nature. (Spencer 1883, I:627)

Nor did Spencer ever tire of emphasizing this point. Searching for yet another way to portray the overriding evolutionary message he meant to convey in *The Principles of Psychology*, he wrote that “Mind gradually evolves out of Life. This was, I think, the thought which originated the book and gave its most distinctive character” (Spencer 1908:322).

It was all well and good to depict psychology as having revealed itself in the general features of evolution. Now, though, Spencer had to trace out these manifestations in their sequential developments. Thus he wrote that as “it is impossible truly to comprehend the organization of the body in general, or of the nervous system in particular, without tracing its successive stages of complication; so it must be impossible to comprehend mental organization without similarly tracing its stages” (Spencer 1883, I:292).

In studying the evolution of the nervous system, Spencer noted that “we see it advancing in integration, in complexity, in definiteness. If we turn to its functions, we find these similarly show an ever-increasing interdependence, an augmentation in number and heterogeneity, and a greater precision” (Spencer 1883, I:627–628). Summing up this process, he noted that “the development of Mind is fundamentally an increasing integration of feelings on successively-higher stages,

along with which there go increasing heterogeneity and definiteness” (Spencer 1899:191–192).

Applying this general framework to intelligence in particular, Spencer found that it showed “the *assimilation* of impressions. And the differences displayed in the ascending grades of intelligence are consequent upon the increasing complexity of the impressions assimilated” (Spencer 1897, II:299–300).

Spencer is often pictured as being “cerebral” to an inordinate degree, paying little heed to the emotions. This, however, is a mischaracterization of him. Indeed, we find him saying such things as, “But Mind is not wholly, or even mainly, Intelligence. We have seen that it consists largely, and in one sense entirely, of Feelings. And where Intellect is not present, or but little present, Mind consists of feelings that are unformed or but little formed. Intellect comprehends only the rational elements of Mind” (Spencer 1883, I:19–21). Years later, objecting to Auguste Comte’s views that “ideas govern and overthrow the world,” Spencer countered by saying that “Ideas do not govern and overthrow the world: the world is governed or overthrown by feelings, to which ideas serve only as guides” (quoted in Carneiro 1981:171).

Among the various aspects of human psychology that Spencer chose to explore at some length was *consciousness*, the various elements of which he found to be the “correlatives of . . . complex structures and functions” that had “arisen by degrees” in the nervous system (Spencer 1897:292) – meaning by this that they were clearly the product of a protracted evolution. And as with other products of evolution, “when we observe the correlative stages of consciousness, we discover that these, too, beginning as simple, vague, and incoherent, become increasingly-numerous in their kinds, are united into aggregates which are larger, more multitudinous, and more multiform, and eventually assume . . . [their] finished shapes” (Spencer 1883, I:628).

A necessary element of consciousness, Spencer argued, was that the ideas and feelings that comprised it were not static, but had to be continually changing. Change alone, however, was not enough. “If the changes are altogether at random, no consciousness, properly so called, exists. Consciousness is not simply a succession of changes, but an *orderly* succession of changes – a succession of ideas *combined and arranged* in special ways” (Spencer 1897:292).

Several chapters of *The Principles of Psychology* were devoted to the nature of intelligence, its development being traced from the simple reflex actions of the lower organisms to the highly complex powers of reasoning evinced by human beings. Here again, Spencer emphasized the evolutionary trajectory involved, showing how intelligence entailed successive adaptations of the organism to its many environmental demands. Over long stretches of time, Spencer asserted, the evolving mind had developed ever more refined ways to adjusting to its surroundings.

During the course of their history, Spencer argued, different groups of human beings had undergone different experiences and had adapted to them in a variety of ways. As a result of these varied experiences, he believed, such groups had developed different attitudes and responses, which in time had become part of their innate psychological makeup. Thus he was ready to entertain the belief that certain differences in intelligence existed among the various ethnic groups. He felt, however, that these differences were often overstated. Accordingly, he opposed the view of the “reigning school of mythologists,” led by Friedrich Max Müller, that there was “a fundamental difference in mode of action between the minds of the superior races and the minds of the inferior races” (Spencer 1901:693). On the contrary, he declared, “the laws of thought are everywhere the same: . . . given the data as known to him, the primitive man’s inference is the reasonable inference” (Spencer 1901:100). Thus he would have differed with the view expressed years later by the French psychologist Lucien Levy-Bruhl, in his book *How Natives Think* (1910), that in the workings of the mind of the simpler peoples one could see the operation of a “prelogical mentality.”

Still, that did not mean that Spencer was a firm believer in “the psychic unity of man.” Differences in the character and intelligence of the different races and ethnic groups, he thought, did in fact exist. For example, he thought that some tribal groups of India, such as the Todas, Santals, and Sowrahs, “have natures in which truthfulness seems to be organic” (Spencer 1890:234), and he argued that “the independence of the Greek nature” was “unlike Oriental natures,” and to this he attributed the fact that the ancient Greeks “did not readily submit to the extension of sacerdotal control over civil affairs” (Spencer 1900:265). Speaking

more generally, Spencer held that “the innate feelings and aptitudes of a race have large shares in determining the sizes and cohesions of the social groups it forms” (Spencer 1890:366). (In Spencer’s day, it should be noted, the purely cultural nature of ideas, beliefs, and attitudes had not yet become an established dictum of the social sciences.)

More defensible was the notion – which Spencer also entertained – that human sociality depended on certain biological and psychological predispositions. He argued that society itself was based on certain organic propensities on the part of its constituent units – human beings. And since the very nature and composition of society had as its basis the organic makeup of the society’s members, the science of society could not be considered an entirely autonomous one. It had to rely on the findings of the underlying sciences of biology and psychology. In this regard, Spencer wrote that “psychological truths underlie sociological truths, and must therefore be sought by the sociologist. . . . [W]ithout preparation in Mental Science there can be no Social Science” (Spencer 1886:382). And again he declared that “The Science of Life yields to the Science of Society, certain great generalizations without which there can be no Science of Society at all” (Spencer 1886:326). In his fullest expression of this view, he wrote:

- ▶ Society is made up of individuals; all that is done in society is done by the combined actions of individuals; and therefore, in individual actions only can be found the solutions of social phenomena. But the actions of individuals depend on the laws of their natures; and their actions cannot be understood until these laws are understood. These laws, however, when reduced to their simplest expressions, prove to be corollaries from the laws of body and mind in general. Hence it follows, that biology and psychology are indispensable as interpreters of sociology. (Spencer 1911:29–30)

Already in *Social Statics*, his first book, Spencer had written that “the very existence of society, implies some natural affinity in its members for such a union” (Spencer 1850:28) He returned to this theme more than 2 decades later in *The Study of Sociology*, writing that “the very possibility of a society depends on a certain emotional property in the individual” (Spencer 1886:52). Here and elsewhere, Spencer stood

staunchly by his contention that “the nature of an aggregate is determined by the natures of its units” (Spencer 1886:411).

Spencer maintained this position not only as a general proposition, but also as it manifested itself in specific instances. The particular attitudes, customs, and institutions of a society, he thought, sprang more or less directly from the particular organic properties of the group’s members. In keeping with this view, he wrote:

- ▶ We know that there are warlike, peaceful, nomadic, maritime, hunting, commercial, races – races that are independent or slavish, active or slothful; we know that many of these, if not all, have a common origin; and hence it is inferable that these varieties of disposition, which have evident relations to modes of life, have been gradually produced in the course of generations. The tendencies to certain combinations of psychical changes have become organic.

The more highly developed cultures could not have arisen just anywhere, Spencer argued. Such cultures required as a seedbed a society of individuals with “the constitutional energy needed for continuous labour, without which there cannot be civilized life.” Furthermore, this energy was not simply the happy gift of a few favored races, but “is an energy to be acquired only by inherited modifications slowly accumulated” (Spencer 1890:270).

Spencer thus did not see a society’s institutions as something static – once acquired, always retained – but as being involved in a continuous dynamic process. They were the result of “the increasing action and reaction of institutions and character, each slowly modifying the other through successive generations” (Spencer 1886:337). Moreover, the process took time to unfold, for “human nature, though indefinitely modifiable, can be modified but very slowly” (Spencer 1886:120). Accordingly, “before there arise in human nature and human institutions, changes having that permanence which makes them an acquired inheritance for the human race, there must go innumerable recurrences of the thoughts, and feelings, and actions, conducive to such changes” (Spencer 1886:402–403).

In the first instance, the mental and behavioral characteristics – indeed, the learning that Spencer believed was essential for this slow evolution to take

place – had been acquired through an individual’s own experience. However, because of Spencer’s adherence to the inheritance of acquired characteristics, he believed that the accumulated experiences of individuals had been transmitted to successive generations by those very individuals who had initially acquired them. The process by which this occurred he explained as follows:

- ▶ Though reflex and instinctive sequences are not determined by the experiences of the *individual* organism manifesting them; yet the experiences of the *race* of organisms forming its ancestry may have determined them. Hereditary transmission applies to psychical peculiarities as well as to physical peculiarities. While the modified bodily structure produced by new habits of life is bequeathed to future generations, the modified nervous tendencies produced by such new habits of life are also bequeathed.

This helped explain why, for Spencer, the various present-day branches of the human race were not all equally endowed, either intellectually or emotionally. There were indeed significant differences in the potentiality for cultural development among the existing ethnic groups. And from this assumption it followed that the institutions of a society reflected – and were limited by – the innate capacities of its members. Speaking specifically of the England of his day, Spencer expressed the view that “the existing type of industrial organization, like the existing type of political organization, is about as good as existing human nature allows” (Spencer 1886:252). Spencer was thus far from believing that Victorian England represented the highest summit to which the human race could ever rise. Indeed, not much improvement could be expected in the near term since “our existing industrial system,” being “a product of existing human nature, . . . can be improved only as fast as human nature improves” (Spencer 1886:254). Which, as we have seen, Spencer believed would be slow in coming.

But as much as human nature might vary from one ethnic group to another, it was not fixed and immutable. It could be modified. “[W]e have to get rid of the . . . belief,” Spencer argued, “that human nature is unchangeable.” “Man, in common with lower creatures, is held to be capable of indefinite change” (Spencer 1904:vi). The capacity to undergo the organic modifications required to reach the level needed to

produce civilization was thus not the unique possession of a single race, but was a potentiality present in all of them. This held out the prospect that, if subjected to the proper conditions for a long enough time, the inferior races might attain the same level as the highest ones among them. Subscribing in this way to the doctrine of human perfectibility took some of the edge off the racism with which Spencer is often charged.

The chapters of *The Principles of Psychology* covered many of the themes familiar to works on psychology: Instinct, Memory, Reason, Feeling, and the like. A particularly incisive chapter, for example, was devoted to the Will. In the nineteenth century – as it still is today – the issue of Free Will vs. Determinism was being warmly debated. Many persons found it a thorny issue, too difficult to resolve. One such individual was Charles Darwin, who wrote to his friend the American botanist Asa Gray, “I am in the same sort of muddle . . . as all the world seems to be with respect to free will” (quoted in Carneiro 2010:305). A thoroughgoing determinist, however, Spencer found himself in no such quandary. Free will, he asserted, was only an illusion, which was explainable in the following way:

- ▶ This subjective illusion in which the notion of free will commonly originates, is strengthened by a corresponding objective illusion. The actions of other individuals, lacking as they do that uniformity characterizing phenomena of which the laws are known, appear to be lawless – appear to be under no necessity of following any particular order; and are hence supposed to be determined by the unknown independent something called the Will. But this seeming indeterminateness in the mental succession is consequent on the extreme complication of the forces in action. The composition of causes is so intricate, and from moment to moment so varied, that the effects are not calculable. These effects are, however, as conformable to law as the simplest reflex actions. (Spencer 1883:502)

As the passage just quoted suggests, many of Spencer’s observations on psychology bordered on questions of philosophy. More than any writer before him – and quite possibly since – Spencer probed the intimate connection between the two fields. For instance, in a closely reasoned section of *The Principles*

of *Psychology*, he examined the polar opposites of Crude Realism and Absolute Idealism, deciding that his own position lay somewhere between the two, but tending more towards the realist end of the spectrum. The position he settled on he labeled Transfigured Realism (Spencer 1897:489–494).

Seeking to cut the ground out from under the idealist view of things, Spencer came to a rather striking conclusion. The world of everyday experience, he held, was too overwhelming a presence in the everyday life of even the most dedicated idealist for him ever to have really and truly maintained that philosophical position. “Anti-Realistic beliefs,” he boldly asserted, “have never been held at all. They are but ghosts of beliefs, haunting those mazes of verbal propositions in which metaphysicians habitually lose themselves” (Spencer 1897, II:500). Then, taking issue with those celebrated philosophers who purported to be steadfast idealists, he contended that, deep down, they never actually saw things in that light:

- ▶ Berkeley was not an Idealist: he never succeeded in expelling the consciousness of an external reality. . . . Hume did not in the least doubt the existence of Matter or of Mind: he simply persuaded himself that certain arguments ought to make him doubt. Nor was Kant a Kantist: that Space and Time are nothing more than subjective forms was with him, as it has been and will be with every other, a verbally-intelligible proposition, but a proposition which can never be rendered into thought, and can never therefore be believed. (Spencer 1897, II:500)

In 1901, near the end of his life, Spencer witnessed an abrupt, if temporary, about-face in the discipline to which he had contributed so substantially. The journal *Mind*, founded in 1876 by Alexander Bain, and long regarded as the leading journal devoted to scientific psychology and allied subjects – and to which Spencer himself had contributed a number of articles – suffered a sudden change of hands. It fell under the editorial control of English followers of Hegelian Idealism, a brand of philosophy which had recently been introduced into England from the continent and had become a dominant voice at both Oxford and Cambridge. With evident displeasure, Spencer wrote that those two great universities “have been captured by this old-world nonsense” (quoted in Duncan 1908, II:201).

And he commiserated with its founder, telling Bain, “I not unfrequently think of the disgust you must feel at the fate which has overtaken *Mind*. That you, after establishing the thing and maintaining it for so many years at your own cost, should now find it turned into an organ for German idealism must be extremely exasperating” (quoted in Duncan 1908, II:201).

Greatly displeased at this turn of events, Spencer canceled his subscription to the journal, justifying his decision to its new editor by arguing, “It cannot be expected that I should aid the survival of a periodical so largely devoted to the expression of views diametrically opposed to my own” (quoted in Duncan 1908, II:202).

What sort of reception did the various editions of *The Principles of Psychology* receive? We have seen that the first edition – published in 1855 – was roundly criticized. The intellectual climate of the day was simply unready to accept it. However, by the time of the second edition (1870–72) – and especially that of the third (1880) – prevailing opinions had shifted dramatically.

“Toward the end of the first edition of *The Origin of Species*,” wrote the historian John Fiske, Charles Darwin looked forward “to a distant future when the conception of gradual development might be applied to the phenomena of intelligence” (Fiske 1891:593). Darwin was then quite unaware that 4 years earlier Spencer had already taken the first steps in that direction. And by the time of the sixth edition of *The Origin* – 1872 – Darwin had greater reason to be optimistic, and accordingly could write that “In the future I see open fields for far more important researches. Psychology will be securely based on the foundation already well laid by Mr. Herbert Spencer, that of the necessary acquirement of each mental power and capacity by gradation” (Darwin 1958:449). John Stuart Mill, another leading figure of the day, was also favorably impressed by Spencer’s work. Writing to the psychologist Alexander Bain in 1863, he said that the first edition of *The Principles of Psychology* was “a remarkable one in many respects,” and that in “wide-reaching systematization of so many heterogeneous elements” it was “very imposing” (Mill 1910, I:273). Writing to Bain again 4 years later, Mill said he had been reading *The Principles of Psychology* for the third time and that “It is a satisfaction to find how closely his results coincide with ours” (Mill 1910, II:99). Addressing Spencer

himself, Mill observed that while he did not agree with everything in the book, “I cannot help expressing to you how much my opinion of it, though already high, has been raised” (quoted in Duncan 1908, I:150).

In his final appraisal of the volume, Mill noted that *The Principles of Psychology*, “in spite of some doctrines which he [Spencer] holds in common with the intuitive school,” the book as a whole was “one of the finest examples we possess of the Psychological Method in its full power” (Mill 1884:292).

For his part, William James, often a critic of Spencer, nonetheless, in evaluating the entire body of his works, wrote: “My impression is that, of the systematic treatises, the ‘Psychology’ will rank as the most original. Spencer broke new ground here in insisting that, since mind and its environment have evolved together, they must be studied together. He gave to the study of mind in isolation a definitive quietus, and that certainly is a great thing to have achieved” (James 1911:139–140).

Critics found various ways of emphasizing the originality of *The Principles of Psychology*, one of them saying that the book “was mainly written in the open air” (Saleeby 1906:167), meaning that, as George Henry Lewes expressed it, Spencer had “sat at the feet of no professors” (Lewes 1856:352). Years later, Harry Elmer Barnes echoed this verdict, declaring that Spencer had written the book “having read less formal psychology than the average elementary-school teacher” (Barnes 1921:295).

But of course, the book had not been written in a vacuum. Nor did it stand in splendid isolation. In the spectrum of views entertained about the nature of the human mind, Spencer’s position could be located somewhere between those labeled *intuitionism* and *sensationalism*. At one end of the scale were René Descartes and Immanuel Kant, who believed in the existence of innate ideas – as, for example, Kant’s notion of a “categorical imperative,” an inborn and insistent guide to right conduct. At the other end of the spectrum stood John Locke, John Stuart Mill, and Alexander Bain, for whom innate ideas did not exist, all knowledge being derived from personal experience. Their view was that the mind was a *tabula rasa* on which were inscribed only those things which the individual himself had experienced.

The question, then, was where Spencer was to be placed on this continuum? In his *History of English*

Rationalism in the Nineteenth Century, William Benn stated that Spencer “could not entirely agree with either party to the dispute” since he believed that each disputant saw only one side of the truth. On the one hand, Spencer agreed that all knowledge came from experience – indeed, it could have no other source. So on this point Spencer stood firmly with Mill and the empiricists. But experience, Spencer held, was of two kinds. There was the experience of the individual himself, to which he owed most of his ideas. But there was also the experience of the human race, to which he was heir and to which he owed a certain proportion – small though it might be – of his ideas as well (Benn 1906, II:171–172). As we have seen, the ability of Spencer to accept the latter view was due to his belief in the inheritance of acquired characteristics – a doctrine he thought applied to ideology as well as to anatomy. Accordingly, someone alive today, Spencer would argue, could be said to encapsulate within himself the accumulated experiences of untold generations of his forebears.

Despite this false notion, when Spencer’s *The Principles of Psychology* is viewed in its totality, it can be seen as playing a major role in transforming psychology from the narrow, limited discipline it had been, to a vigorous, far-ranging, and generalizing science. Foremost among his contributions to this science was the fact that, as William McDougall observed, “Herbert Spencer was the first to make a thoroughgoing attempt to describe the evolution of mind” (McDougall 1925:336–337). Spencer’s book was, in fact, a distinct forerunner of the naturalistic era in psychology. Surveying historical trends in the discipline, James Mark Baldwin declared at the end of the nineteenth century that “[i]n this matter of naturalism, our ship has had to change her course one hundred and eighty degrees,” adding that “it was Spencer who set the compass true in the new direction” (Baldwin 1897:554). Summarizing Spencer’s influence on psychology, Robert Thomason, another historian of the discipline, wrote that “Many of his original ideas have been absorbed and transformed in the general thinking of psychology” (Thomson 1968:103).

Despite the general decline suffered by many of Spencer’s views following his death in 1903, and the fact that, if remembered at all, he is known today primarily for his conservative political philosophy, his contributions to psychology have not been entirely

forgotten by that profession. Among more nearly contemporary psychologists, Gardner Murphy has pointed out that “Spencer was the first to elaborate the conception that the mind is what it is because it has had to cope with particular kinds of environment” (Murphy 1930:114–115). And the experimental psychologist Edwin G. Boring, acknowledging that the first edition of *The Principles of Psychology* (1855) “never exercised great influence,” added that “Spencer’s real influence upon psychology dates from the two volumes of the second edition published in 1870 and 1872” (Boring 1929:231), emphasizing that “the really important novelty in Spencer’s psychology,” and the one “gaining for him an undying reputation, was “his *evolutionary doctrine*” (Boring 1929:233).

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Herschel, J. F. W.

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Basic Biographical Information

John Frederick William Herschel, born at Slough, England, on March 7, 1792, became a British scientist of large reputation across many fields, including especially astronomy, photography, and natural philosophy. Herschel also became head of a large household, fathering 12 children with his wife, Margaret Brodie Stewart Herschel (married 1829). With respect to the history of psychology, Herschel’s main interests had to

do with human perception of brightness and color, as well as questions about whether mathematical and scientific discoveries are primarily “in nature” or “in the mind.”

Herschel was born the only son of the famous astronomer William Herschel, who was 55 at the time. Herschel’s mother, Mary Pitt Herschel, was 42 at the time. People came from distant lands to visit the Herschel estate, primarily to stand in the shadow of William Herschel’s forty-foot telescope. Though John Herschel began his formal education at Eton College (for boys up to age 18) when he was 8 years old, he was soon removed from the academy in favor of private tutoring at home. In 1809, at age 17, Herschel enrolled at St. John’s College, Cambridge, where he received the mathematical instruction for which Cambridge was famous. For his mathematics performance in 1813, Herschel won the highest academic distinction, graduating as senior wrangler. He published a mathematics paper the same year, and was also elected as a fellow in the Royal Society of London in that same year. Herschel went onward to an extraordinarily productive career in science, including the winning of many prizes; in fact twice he was named recipient of the famed Copley Medal. He performed outstanding work to improve our understanding of the orbit of Halley’s Comet, when it passed in 1835. Herschel was stunningly prolific in publishing in many fields of science over a long career. Some important books he published were *Outlines of Astronomy* (1849) and *Familiar Lectures on Scientific Subjects* (1872). Herschel died at his home at Collingwood, Kent, on May 11, 1871 (Buttmann 1970).

Major Accomplishments/Contributions

Herschel’s first researches of finer distinction were his mathematics papers of 1813 and 1814, in which he communicated new applications of mathematical analysis. Although he had some fleeting intention of being called to the bar, Herschel quickly took up the life of science. In 1820, he completed the construction of a new telescope that would be a major scientific instrument for the rest of his life.

By the 1820s Herschel was interested in a particular problem associated with the use of telescopes, which is a matter that closely intersected with the human mind – specifically, with questions about the sensation

and perception of fine differences between brightness and color. In 1819, Herschel published a short paper to clarify something he believed should be possible based on some data obtained by his father, who had attempted over 35 years to compare the brightness differences of all stars in the northern hemisphere. Herschel’s father had recognized by 1817 that (in the father’s words) “the principle of the visibility of the difference in brightness would have less influence with the gradually diminishing lustre of the stars” (Herschel 1817). William Herschel further emphasized this important empirical finding, calling it the principle of “the distinguishable difference of brightness becoming gradually less as the stars are smaller.” The son, in a short paper of 1819, looked at his father’s work and concluded how it seemed “that a single star of the first magnitude would be just lost to the naked eye if removed to 12 times its distance” (Herschel 1817; Buttmann 1970).

Fourteen years later, in a chapter on the stars in his *Treatise on Astronomy* (1833), Herschel made an explicit call for a research project when he wrote that, “by setting aside all such arbitrary subdivisions, a numerical estimate should be formed, grounded on precise photometrical experiment, of the apparent brightness of each star.” (1833, pp. 373–375) Herschel included his improved reestimation of a complete scale of six “stellar magnitudes,” based on visual empirical measurements.

Something else Herschel did, also back in 1819, was discover the solvent power of hyposulphite of soda on the otherwise insoluble salts of silver – a discovery that would, in time, help to develop a fixing agent in photography. Twenty years later, Herschel invented (simultaneously with William Henry Fox Talbot) the process of photography on sensitized paper, and in the process became the first person to apply the terms “positive” and “negative” to photographic images (Crowe 1998).

Another of Herschel’s research projects of some importance for the history of psychology is his investigations and writings on color perception and color blindness. Modern studies of color perception and color blindness trace their origin to 1794, when legendary British chemist John Dalton announced his initial efforts to carefully study his own color blindness, which he discovered while flower gardening with a friend; the phenomenon in fact became known, for a time, as “Daltonism.” But it was Herschel (soon followed by

George Wilson) who, by the 1840s, turned the study of color blindness away from anecdotal reports and toward standardized, statistical testing. The aim was to discover laws – even causes – behind the vision anomaly. In terms of methodology of science, study of color blindness was an important episode, not only because of the role of “anomalies” in science, but because studying color blindness involved movement past inductive case work and toward identification of quantitative laws. Herschel wrote about his researches on color perception in 1845, in an essay on “Light” (Musselmann 2000).

Another line of Herschel’s work with some bearing on psychological theory was his writings in natural philosophy, most notably his 1830 volume for “Dionysius Lardner’s Cabinet Cyclopaedia,” titled *A Preliminary Discourse on the Study of Natural Philosophy*. The book systematically explores the relationship between theory and observation. The reader of the book discovers Herschel describing nature as governed by laws which, though difficult to state mathematically, can be understood through the inductive power of the human mind to find a single unifying explanation for a cluster of observed phenomena. The book even begins with a section in which Herschel describes “Man regarded as a Creature of Instinct, of Reason, and Speculation.” While there is no substantial contribution to new ideas about human nature and the human mind, this short section is interesting reading for learning what a scientist of the 1830s identified as dividing lines between “bodily appetites” and “conscious wants.” Potentially noteworthy is the way in which Herschel seems to describe a point between the “instinctive” appetites and “learned” wants, which is that “the senses . . . experience these pleasures and these pains in any degree of intensity.” And there is that phrase: “degree of intensity” (Buttmann 1970).

Sir John Frederick William Herschel (knighted in 1831) was a scientific hero when he died. Great Britain decided his remains should be interred at Westminster Abbey, in close proximity to the tomb of Sir Isaac Newton.

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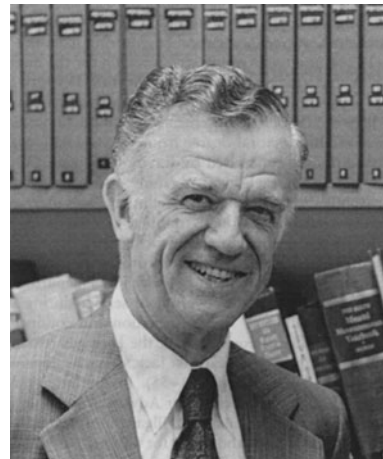
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Hilgard, Ernest R.

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Basic Biographical Information



Birth date/date of death – July 25, 1904/October 22, 2001

Birthplace/nationality – Belleville, IL/American

Education

Born to a doctor and his wife, Hilgard earned his own doctorate in 1930 and, in 1931, married Josephine Rohrs, who also held a doctoral degree. Hilgard went to Yale Divinity School and studied social ethics, turning to psychology for his doctoral studies with a dissertation on conditioning. Yale was where Hilgard met

Rohrs – then a budding developmental psychologist who later made her own contributions to the research and writing on hypnosis, including *Hypnosis in the Relief of Pain*, which was a husband and wife collaboration (Alexander 2001).

Professional Development

Early Career: Hilgard's post-doctoral work was also done at Yale, where he became an instructor. He joined the Psychology faculty at Stanford University in California in 1933. Hilgard developed a technique for photographically recording eyelid responses, which earned him the Warren Medal of the Society of Experimental Psychologists in 1940. He became a professor and chairman of his department by 1942. In 1946 he advised General MacArthur on changes in the Japanese educational system as a member of a mission to Japan (Bower n.d.). He published *Theories of Learning* in 1948, which described major learning theories of the century to date; analyzed shortcomings in various areas; and recommended further research. He then served as dean of Stanford's graduate division from 1951 to 1955, and became emeritus in 1969, the year he won a Distinguished Scientific Contribution Award.

Later Career: Hilgard was president of the International Society of Hypnosis from 1973 to 1976 and earned their Benjamin Franklin Gold Medal in 1980. He had won the American Psychological Foundation's Gold Medal Award in 1978 and was president of the Society for Clinical and Experimental Hypnosis from 1979 to 1981. His fourth revision of *Theories of Learning* was also published in 1981, and by the sixth edition it was co-authored with Gordon Bower. Hilgard additionally served as president of the American Psychological Association (APA). Its publication, *The American Psychologist*, recognized him in 1991 as one of the top ten most important contemporary psychologists. In 1994, the APA awarded him for his outstanding lifetime contribution to psychology. The APA further named a Division One lifetime achievement award after him for general psychology career contributions that integrate various areas of study. Hilgard was 97 when he died in Palo Alto (American Psychological Association 2010).

Major Accomplishments/Contributions

Specifically Related to the History of Psychology

Hilgard is remembered for hypnosis experimentation, medical hypnosis (i.e., children facing cancer, pain control, smoking control), co-development of the Stanford Hypnotic Susceptibility Scale, his 1977 neodissociation theory of hypnosis (allowing for both a "hidden observer" and unconscious actions to occur simultaneously), psychology and hypnosis textbooks, professorship, and organizational service (Kihlstrom 2003).

Major Publications

Hilgard's major publications are as follows: *Psychology in America: A Historical Survey* (1978), *Divided Consciousness: Multiple controls in human thought and action* (1977), *Hypnosis in the Relief of Pain* (1975, Josephine Hilgard, co-author), *Hypnotic Susceptibility* (1965), *Introduction to Psychology* (1953), *Theories of Learning* (1948), *Conditioning and Learning* (1940, Donald G. Marquis, co-author)

Impacts on History and Theory in Psychology

Hilgard's *Introduction to Psychology* was the most popular academic best-seller from the mid-1950s through the 1970s. To this day, it is the standard by which other psychology textbooks are measured. Since its fourth edition, the book took on co-authorship, and by 2003, it was in its 14th revision, now entitled *Atkinson and Hilgard's Introduction to Psychology*. The book had been so successful that the publisher agreed to publish thereafter any book of which Hilgard was an author. The resulting follow-up was *Psychology in America: A Historical Survey*, which was unique in detailing psychological subfields as Hilgard himself witnessed their development. He saw psychology as a "Hegelian synthesis" between science (particularly chemistry) and religion, thus showing his ability to connect various arenas of inquiry (Kihlstrom 2003). He helped create the Center for Advanced Study in the Behavioral Sciences at Stanford University. Hilgard contributed greatly to the understanding of learning processes and

the ability to bring under control what were once thought to be conditioned or automatic, unconscious responses – such as eye blinking. His co-authored work in this field, *Conditioning and Learning*, became a standard in classrooms, and it was in this book that the term “classical conditioning,” as opposed to operant or instrumental conditioning, was coined. Hilgard’s *Theories of Learning* anticipated the so-called “cognitive revolution” that overtook both functional and radical behaviorism as a favored psychological theory (Kihlstrom 2003). Central courses and full psychology curriculums were developed from this book in the 1950s–1960s. Hilgard also improved the usability of his textbooks’ indices, setting the standard for editorial practice in scholarly books. Late in his career, he threw out most of his previous lecture notes to focus only on courses previously untaught by him, including abnormal psychology and motivation. His hypnosis studies tested psychodynamics in the laboratory, centering on the relationship between conscious and unconscious processes. This work was a forerunner to current studies in automaticity. Thus, Hilgard became a leader in hypnosis research. His collaboration with Andre Weitzenhoffer led to the Stanford Hypnotic Susceptibility Scale and its three editions. This made a quantifiable science of hypnosis, thereby aiding replicability of experiments. The scales remain the standard today for performance-based measurement of individual differences in ability to experience hypnotic effects (Piccione et al. 1989). Hilgard also studied hypnotic analgesia extensively, making major contributions to the understanding of perception and sensation. For example, he empirically confirmed that subjective pain ratings covaried with stimulus intensity more stringently than physiological response ratings did. It was in this research that Hilgard developed his technique of using the “hidden observer” to study covert awareness of phenomena (Kihlstrom 2003). His laboratory at Stanford was funded by a grant from the National Institute of Mental Health for more than 20 years. It became a magnet for research, most particularly to replicate dissertation studies. The lab held its “valedictory year” in the 1977–1978 academic term (Kihlstrom 2003). Overall, the lab produced at least 100 papers on hypnosis plus a competing number of *Hypnosis Research Memoranda* on methodology,

data analysis, and preliminary findings. All lab work was documented in the final report entitled, *A Saga of Hypnosis: Two Decades of the Stanford Laboratory of Hypnosis Research, 1957–1979*. In 1994, *Psychological Science*, the American Philosophical Society’s journal, featured Hilgard for his 90th birthday, an honor matched by no other psychologist.

See Also

- ▶ [Comparative Psychology](#)
- ▶ [Consciousness and Embodiment](#)
- ▶ [Hypnosis](#)

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Høffding, H.

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Basic Biographical Information

Harald Høffding (1843–1931) was professor of philosophy at the University of Copenhagen from 1883 to 1915. Høffding experienced an initial desire to be a priest, followed by a period of doubt after which he finally settled on psychology as his main interest. In this

context, Høffding (1932) described Kierkegaard as being as profound an influence on him as on the Danish people as a whole. His studies in philosophy and psychology were deeply concerned with the “mutual relations between science and religion” (p. 197). As a teacher, Høffding always “treated his students with great respect and was always ready to listen to them, react to their views, and counsel them” (Pind 2009, p. 37). Høffding became generally regarded as one of the most important figures in Danish culture, a role that was acknowledged when he was made the first resident of the Carlsberg Academy.

Major Accomplishments and Contributions

Consistent with his wide-ranging interests, Høffding (1900/1955) authored both a history of philosophy as well as a textbook in psychology (Høffding 1891/1919). The former included sagacious evaluations of the philosophical import of the work of such important figures in psychology as Herbart and Fechner. Høffding became a scholar of international repute, whose work still had a heuristic value well into the latter part of the twentieth century. Perhaps his most famous contribution was his description of what he believed to be a necessary relationship between perception and memory. He drew out the implications of the fact that the same object never presents itself to us in exactly the same way twice. For example, when you perceive someone for the second time, you may see them from a different angle and at a different distance than you ever have seen them before. All the same, you may still recognize them, and then recall their name. How is such recognition possible? To illustrate the problem, let us call the initial perception of the person “A” and the name “B.” A and B are experienced together and so must be associated in memory in order for you to be able to recall B when you see A again. However, in order to recall B, you must first recognize A. Høffding (1891/1919, p. 157) put it like this:

- ▶ [E]very association . . . presupposes . . . an immediate recognition. In order that A may excite the ideas of B, C, D, with which it usually arises simultaneously in consciousness, it must first, so to speak establish its identity.

The hypothesis that recognition precedes recall is called the *Høffding function* or *Høffding step*. For Høffding, recognition occurred on the basis of *similarity*. An event will be recognized if it is sufficiently similar to a previously experienced event. Of course, similarity had long been thought to play an important role in memory. However, before Høffding’s work, the law of similarity had not been regarded as a fundamental principle of memory.

The importance of the Høffding function was emphasized by Wolfgang Köhler (1887–1967; 1940/1960, pp. 126–130) who made it a central feature of the Gestalt theory of memory. Köhler suggested that it was necessary for a perception to be “distinctively similar” to previous experiences in order to facilitate accurate recognition. Thus, events that are highly similar to each other are unlikely to be individually recognized, although they may seem familiar. An object will elicit recognition to the extent that it is not only similar to a previously experienced event but also somewhat different from other events. For example, any one person’s face is similar in some ways to any other person’s face: They all have a mouth, nose, two eyes, and so on. However, it is the distinctive relations between the parts of a face that facilitate recognition.

See Also

- ▶ [Herbart, Johann Friedrich](#)
- ▶ [Köhler, W.](#)

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Basic Biographical Information

Edwin Bissell Holt was born in Winchester, Massachusetts in 1873 and died in Rockport, Maine in 1946. He received a doctorate from Harvard in 1901, remaining at Harvard until his resignation in 1918. From 1926 until 1936, Holt taught at Princeton during the spring term. Holt was both a psychologist and a philosopher and is known principally as a theorist. Significant publications include, in order of publication, “The Program and First Platform of Six Realists” (1910), *The New Realism: Cooperative Studies in Philosophy* (1912), *The Concept of Consciousness* (1914), *The Freudian Wish and Its Place in Ethics* (1915), *Animal Drive and the Learning Process: An Essay Toward Radical Empiricism* (1931), and “The Whimsical Condition of Social Psychology, and of Mankind” (1935).

Major Contributions

This entry will address *The Freudian Wish and Its Place in Ethics* (1915) and *The New Realism*, Holt’s most noteworthy theoretical contributions. It will conclude with an outline of what remains to be done regarding Holt. Looking at Holt this way leaves out a number of noteworthy aspects of Holt, including translating Hugo Munsterberg’s *The Americans* (1905) from German into English and the many years he spent running Harvard’s Psychological Laboratory.

The Freudian Wish and Its Place in Ethics

Holt’s views on psychoanalysis appeared in *The Freudian Wish and Its Place in Ethics* in 1915, an early popularization of psychoanalysis (Hale 1971). It included “Response and Cognition” which also appeared in the *Journal of Philosophy* in 1915. *The Freudian Wish* presented a mixture of psychoanalysis, behaviorism, and a naturalistic approach to ethics. Holt took from psychoanalysis what he wanted, largely the notion of the wish, and interpreted it within his

own theoretical framework (Shakow and Rapaport 1964). The wish, for Holt, meant purpose. Holt opposed introspection, proposing a methodological behaviorism which was nevertheless a purposive psychology, mind being seen as a relation (to the outside world), not a substance. Freud thought it a “strange” book (Freud 1993); for Freud, behaviorism and psychoanalysis were in conflict, behaviorism ruling out the study of mind (Freud 1935). John Watson objected to Holt’s praise of psychoanalysis; Watson wanted to do away with psychoanalysis rather than praise it. He noted that Holt’s wish was not Freud’s wish, but was, instead, compatible with behaviorism, criticizing Holt’s methodological behaviorism for not going far enough in excluding the mind from psychology (Watson 1917). Despite this, Joseph Jastrow wrote Holt that he, Jastrow, was very much in favor of Holt’s take on psychoanalysis in *The Freudian Wish* (Rieber 1998). Jastrow had just published *The House that Freud Built* (1932) which was very critical of psychoanalysis.

Holt’s praise for psychoanalysis was not uncritical or without reservations. Herbert Langfeld tells us that Holt refused to write an article on Freud for the *Psychological Review* because there were serious problems with psychoanalysis that Holt did not wish to discuss (1946). What is lacking is a thorough presentation of Holt’s beliefs regarding psychoanalysis.

Also lacking is what led Holt to psychoanalysis. Holt attended Freud’s lectures at Clark University in the summer of 1909. In a letter to Robert M. Yerkes, dated September 13, 1909 (Holt 1909), Holt wrote that he was very much in favor of psychoanalysis. Holt taught psychoanalysis in courses at Harvard (Franklin 1916; Wilbur 1943) and gave several lectures on psychoanalysis in November, 1910 (“Professor Holt” 1910). This dates Holt’s views on psychoanalysis to Freud’s lectures at Clark University in the summer of 1909, but whether those views preceded the summer of 1909 or were fully developed in the summer of 1909 and what led up to them remains to be determined.

The New Realism

The New Realism arose as a response to the idealism of Josiah Royce, specifically *The World and the Individual* (1900), by Ralph Barton Perry (1901–1902) and

William Pepperell Montague (1902). It began as a movement at the December 1909 meeting of the American Philosophical Association in New Haven, Connecticut. Originally, The New Realists included Perry from Harvard, Montague and W. B. Pitkin from Columbia, E. G. Spaulding from Princeton, and W. T. Marvin from Rutgers. They were later joined by Holt; F. J. E. Woodbridge from Columbia did not join, but gave the New Realists access to the *Journal of Philosophy*. They met over the next 4 years in New York, Cambridge, Princeton, Woods Hole, MA, and Dover, NJ. Their two publications were “The Program and First Platform of Six Realists” (1910) and *The New Realism: Cooperative Studies in Philosophy* (1912) (Perry 1954).

Methodologically, the model for The New Realism was science, particularly the emphasis on cooperation and agreement. Philosophically, The New Realism held to the independent existence of outside objects and a view of perception as direct and unmediated (Harlow 1931/1970; Heft 2001). The problem was to account for mistakes in perception such as visual illusions. Holt, in his contribution to *The New Realism* (1912), tried to do so. He held that mistakes occur, not in the perceiver, but in the interaction between the perceiver and the outside world. Visual illusions are then real, to be explained by the conditions of observation (Heft 2001).

For a few years, The New Realism had a central role in American philosophy, issues raised by the New Realism dominating the 1910 and 1911 meetings of the American Philosophical Association (Harlow 1931/1970). Then, after 1914, philosophy journals turned from discussion of The New Realism to critical realism (Werkmeister 1949).

The New Realism was successful as a critique of idealism (Schneider 1964), but much less so as a philosophical position. There were both agreements and disagreements among the six (Montague 1930/1962, 1937; Werkmeister 1949; Hill 1961; Robischon 1967; Heft 2001). “The Program and First Platform of Six Realists” (1910) and *The New Realism* (1912) included both a shared contribution with which all agreed and individual contributions with which there was both agreement and disagreement; for example, *The New Realism* (1912) had different views on mistakes in perception by Holt and Montague. And The

New Realism did not provide an adequate account of perception, not being able to explain mistakes in perception (Harlow 1931/1970; Werkmeister 1949; Robischon 1967).

What Remains to Be Done Regarding Holt

As things stand today, Holt is known for his influence on others, specifically the psychologists Floyd Henry Allport (Parkovnick 2000), James Gibson (Reed 1988; Heft 2001), and E. C. Tolman (Smith 1986), or his role in psychoanalysis gaining a foothold in America (Hale 1971), Harvard’s philosophy department (Kuklick 1977), or The New Realism. What needs to be done is, as much as possible, to rediscover Holt as a person in his own right and to regain Holt’s voice. Regarding the latter, the discussion of The New Realism is based on the reflections of Perry and Montague, not Holt. One problem in doing so is the lack of archival information. What remains of Holt’s correspondence appears not in a collection of Holt’s papers, but in the papers of others, William James, Hugo Munsterberg, R. M. Yerkes, and Ralph Barton Perry, among them. A second problem is intellectually disentangling Holt from Perry, particularly before Holt’s resignation from Harvard in 1918.

Intellectually, Holt’s positions regarding behaviorism, psychoanalysis, and The New Realism have to be fully explicated. For example, what did Holt see as problematic about psychoanalysis? This would involve dating Holt’s beliefs and indicating who influenced Holt and how. It would begin with William James. It would also involve trying to integrate Holt’s beliefs into a comprehensive philosophy (what Holt was trying to do) which would constitute a metatheory for psychology.

Regarding Holt’s life, Langfeld (1946) came close to but did not explicitly state that Holt was homosexual. Harry Heft (2001) indicated that James Gibson knew of Holt’s homosexuality at Princeton. Holt’s sexuality needs to be explored as part of the larger story of homosexuals in academia (D’Emilio 1992; Blount 2005). Of interest is whether it influenced his intellectual positions, something which seems in general to be doubtful as Holt was addressing the dominant intellectual currents of the time, though it may have been true regarding psychoanalysis where views in many cases

seem to be a matter of individual idiosyncrasy. Also of interest is whether it influenced Holt's life decisions, which seems probable. For example, Heft (2001) argues that it influenced, at least in part, his decision to leave Harvard in 1918.

Another story that should be told concerns the Wicht Club, largely composed of younger faculty at Harvard who met monthly beginning in 1902 to talk about their research. The meetings were very much social occasions and were quite irreverent. Members included Holt and Perry, the psychologist Robert M. Yerkes, the physiologist Walter B. Cannon, the neurologist Elmer Ernest Southard, the physicists George W. Pierce and Henry M. Morse, the chemist Gilbert N. Lewis, and E. V. Huntington from mathematics and Arthur O. Norton from education. There were many close friendships among members (Langfeld 1946; Hilgard 1965). Holt had members' publications bound; titled *Was Wichtiges*, volumes dated 1903 to 1911 can be found at the Harvard University Archives. Bruce Kuklick (1977) has noted the importance of male groupings to Holt, both the Wicht Club and The New Realists, something that has to be further developed. And Herbert Langfeld (1946) has argued that the intellectual influence of the Wicht Club on Holt was significant, again something that has to be further developed.

See Also

- ▶ Behaviorism
- ▶ Psychoanalysis
- ▶ Tolman, E. C.

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Holzkamp, Klaus

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Basic Biography

Klaus Holzkamp was an eminent German theoretical psychologist, born on November 30, 1927, in Berlin, where he also died on the November 1, 1995. He worked at the Freie University Berlin, where he developed in collaboration with students and colleagues the school of German Critical Psychology.

Major Contributions

Holzkamp strongly rejected the paradigmatic claim that research was supposed to be objective, neutral, and value free. Not only his idea of research but also his concept of the subject deviated from the traditional psychological approach. He opposed any objectivistic preconceived notion of humans according to which preexisting psychological functions only had to be discovered by the researcher. A concept which turns human subjects into objects, which could allegedly be understood once one had identified the forces which determine human. Instead, he stressed passionately that the so-called object of psychological research only becomes constituted through

the research process itself (1964, 1968). He was already an established professor of social psychology at the Psychological Institute at the Freie University Berlin, specialized in theoretical psychology and methodology, when he began to engage with the student movement.

And a crucial influence on German Critical Psychology can be traced back to the impact of the student movement during the 1960s. The majority of students were not only well organized but also very political. This was also due to the exceptional situation Berlin was in. The division of the city via the so-called Berlin wall was a constant reminder and a powerful symbol for the state the country was in. And it was in this political climate that first internal academic debates regarding issues such as freedom of speech and questions of democratic structures at the university came up. These political debates developed further and led to protests against the Vietnam War in 1966 and later culminated in a radical critique of the German society from a Marxist perspective.

From then on, Holzkamp's main ambition was to create concepts which would help to interrogate relations of social control and power in a society. He understood these forces to be fuelled also by ideas of the realm of social sciences and considered (mainstream) psychology to have taken on the role of collaborating with the ones in power and to help maintaining the status quo. Hence, the analysis of relations of power and control had practical implications in the sense that critical psychology would derive its power from its potential to contribute to change. And the idea of change was supposed to go beyond the academic realm. Ultimately, it was about change in the sociopolitical realm (1970).

Holzkamp positioned his critical psychological theoretization explicitly as a utopian tradition of psychology, with the goals of research and theories being explicitly linked to the aim to contribute to social and political change. He defined it as a Marxist research program working toward an egalitarian society without class difference. This utopia was based on three ideals: (a) every individual should be able to fulfill their needs, (b) every individual should be given the opportunity to develop their capabilities, and (c) the relational webs in which individuals interact should not be determined by market forces.

Driven by the wish to develop knowledge which would serve individuals' interests to improve their lives, he developed a psychology from the standpoint of the subject. And in his magnum opus, he came up with a radically new understanding of the subject. According to Holzkamp (1983) humans are neither determined by external forces in the world nor are they bare respondents of internal conflicts. But according to him, the subject holds agency or "action potency" (in German: Handlungsfähigkeit): the potential for action available to a subject according to their position in society. The subject as an agent can always choose from multiple options within their particular social context. Hence, choices to perform a particular kind of action are neither randomly done nor determined; but these choices always have to be understood as being a reasonable choice according to the subject's standpoint. This does not necessarily mean that the subjective reasons appear to be "reasonable" from an outsider's perspective nor that these reasons can be fully explained or understood by the subject themselves. But it is through action which is guided by these subjective reasons that an individual achieves autonomy. And it is this radical subject-oriented approach to look at the relation between humans and how they engage with the world, what makes Holzkamp's contribution so unique: to link his critique of academic considerations to a critique of society.

As Holzkamp was mainly concerned to engage in debates with students and colleagues in Germany only a fraction of his work is translated into English. A complete bibliography of Holzkamp's publications is given by Jaeger and Osterkamp (1987). Some original contributions by German Critical Psychologists, including some essays by Holzkamp, were published in English translation by Tolman and Maiers (1991). Teo (1998) and Papadopoulos (2009) give a chronological overview of Holzkamp's major publications and in April 2009, the journal *Theory and Psychology* dedicated a special edition to Klaus Holzkamp. Tolman (1994) was the first book-length introduction to German Critical Psychology available in English. The second one will be available soon. It is edited by two colleagues he was also personally close with: his widow and a former student of his (Osterkamp and Schraube 2012). One bibliography of up to 2,000 listings of German Critical Psychology, with several full texts (in English) available

for downloading, is available at <http://www.critical-psychology.de/publikationen.html>.

See Also

► [Critical Psychology](#)

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Hooker, Evelyn

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Basic Biographical Information

Evelyn Hooker played a pivotal role in changing attitudes toward homosexuality primarily through a piece of research she conducted that became a classic in gender studies. Her research helped to change the view that homosexuality was – in and of itself – a form of mental illness.

Evelyn Gentry was born on September 2, 1907, on a farm in North Platte, Nebraska, the sixth of nine children. The family moved to Colorado when she was young and she was initially educated in a series of one-room school houses. Evelyn completed a bachelor's and master's degree in psychology at the University of Colorado at Boulder, and a doctorate at Johns Hopkins University (1932) in experimental psychology.

She taught briefly at the Maryland College for Women (1934–1936) when she was diagnosed with tuberculosis. During her long recuperation, her interests turned to clinical psychology and she was able to secure a fellowship to study at the Institute for Psychotherapy in Berlin for a year. When she returned to the United States, Evelyn accepted a teaching position at the University of California, Los Angeles (UCLA) where she remained for 30 years (Schneidman 1993).

Her interest in homosexuality began with a student, Sam From. Evelyn and Sam had become friendly and he was comfortable enough with her to reveal his sexual orientation. One day in 1945, Sam posed a challenge to her. He said that she must study gay men. From argued that homosexual men and lesbians were no more disturbed than the rest of the population. The problem, he argued, was that the homosexual men and lesbians usually seen by mental health professionals were a highly selective sample that often included people who were in hospitals or prisons, as well as individuals who sought professional help (Kimmel and Garnets 2000).

Evelyn made some preliminary efforts to begin a study but, in 1947, she divorced and her plans to conduct research were put on hold. She married again, in 1951, to Edward Hooker, a distinguished professor of English. The marriage lasted for 7 years until his sudden death. She never remarried, but during this period a study had begun to form in Evelyn's mind.

Major Accomplishments/ Contributions

Hooker's idea for the study had an elegant simplicity. She planned to compare a sample of "normal" homosexual men to a sample of "normal" heterosexual men on several psychological instruments. She did not argue that homosexual men were totally healthy, but rather that they were no more pathological than heterosexual men.

In 1953, she applied for a grant from the National Institute of Mental Health (NIMH). She not only

received the grant, it was renewed until 1961, at which point she was given a Research Career Award (Hooker 1993). She chose three "projective" tests to use in her research, that is, instruments designed to elicit projected feelings and thoughts from ambiguous stimuli. None of the instruments could be considered an "objective" measure of personality and this would later become one of the criticisms of Hooker's research.

Eventually, Hooker gathered a sample of 30 heterosexual men and 30 homosexual men who had been matched on such variables as IQ, age, and educational level. After the instruments were scored by experts, she pruned the data of obvious references to sexuality. Then she gave the material to three judges for their assessment. She asked two questions of the judges: (1) In each pair, which member is the better adjusted? (2) In each pair, which member is homosexual? Their answers were even more dramatic than she had hoped. The judges could not tell the difference between the two groups!

Hooker presented her findings at a meeting of the American Psychological Association in 1955 and she later published her results as an article in the *Journal of Projective Techniques* (Hooker 1957). One of the people who became convinced of the importance of her work was Judd Marmor, a psychiatrist, who would later become president of the American Psychiatric Association. Marmor argued successfully for a reclassification of homosexuality in the Diagnostic and Statistical Manual of Mental Disorders (DSM), published by the American Psychiatric Association. Before 1973, homosexuality was listed as a mental illness; after 1973, it was not.

Hooker retired from UCLA in 1970 but continued her private clinical practice. In 1989, she received a letter from a bank in Lincoln, Nebraska. One of the subjects in her original study, Wayne Placek, had established a trust fund to support research to increase the understanding of gay men and lesbians. Placek had designated Hooker to select the committee to decide how the funds should be distributed. When the fund was finalized 3 years later, it was valued at approximately a half million dollars. Today that fund is under the control and guidance of the American Psychological Foundation, and it dispenses annual grants for research related to gay and lesbian issues (Hooker 1993; Kimmel and Garnets 2000).

Hooker received many awards in her later life, including the APA Award for Distinguished Contributions

to Psychology in the Public Interest. A documentary movie was made of her life – Changing Our Minds: The Story of Dr. Evelyn Hooker (1992). The University of Chicago established an Evelyn Hooker Center for the Mental Health of Gays and Lesbians. She died on November 18, 1996, in Los Angeles at the age of 89. Most important for her, she lived to see her research help to remove the stigma associated with homosexual behavior, and have a positive impact on the individual lives of many gay men and lesbians.

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Hopkins, Charles Owen

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Basic Biographical Information

Dr. Hopkins was born in Paducah, Kentucky, on November 14, 1925. He served as an Army infantryman during World War II and earned two purple hearts fighting in the Battle of the Bulge (December 16, 1944–January 25, 1945). After the war, he received a B.A. in psychology from the University of Kentucky and a Ph.D. in experimental psychology from the University of Illinois in 1952. After graduation, he accepted a position as an assistant professor at Tulane University. Three years later he joined Hughes Aircraft Company. In 1964, he moved to the McDonnell Douglas Aircraft Company in Saint Louis, Missouri where he founded its human factors department. Dr. Hopkins returned to the University of Illinois in 1970 as a professor of psychology as well as aeronautical and

astronautical engineering and a professor at the Institute of Aviation, the latter from 1971 through 1977. In addition, he headed the Aviation Research Laboratory from 1973 to 1977. In 1993, Dr. Hopkins retired and was given the title of professor emeritus of psychology. Dr. Hopkins died on December 15, 2005, in his home in Monticello, Illinois. He was 80 years old.

Major Accomplishments/Contributions

While at Hughes Aircraft Company, Dr. Hopkins was part of a multidisciplinary team, conducting research in cockpit displays for aircraft. The research resulted in recommendations for control-display direction-of-motion, vertical flight path prediction algorithms, weather display design, and pilot decision-making modeling. The team also conducted the human factors engineering for the controls and displays in the Mercury and Apollo spacecraft. While at the University of Illinois, Dr. Hopkins helped define personnel psychology as well as aviation psychology. Dr. Hopkins was part of a team of human factors experts under contract to the Nuclear Regulatory Commission tasked to recommend changes to the Three Mile Island Nuclear Power Plant in response to the partial core meltdown in March 1979.

In addition to his research and design work, Dr. Hopkins was a charter member of the Human Factors and Ergonomics Society (HFES). He coauthored the HFES (at the time the Human Factors Society) constitution and bylaws, was secretary/treasurer and Finance and Budget Committee Chair during 1970–1971, Sustaining Memberships Committee Chair during 1972–1973, President during 1973–1974, Nominations and Elections Committee Chair during 1974–1975, Fellows Selection Committee member during 1978–1979, and editor of Human Factors Journal during 1983–1988.

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Hull, Clark L.

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Basic Biographical Information

Clark L. Hull (24 May 1884 to 10 May 1952), son of Leander G. Hull and Florence L. Trask, was born near Akron, New York. The family moved to a farm in Michigan in 1887. Despite having to help on the farm, Hull qualified as a teacher. He worked briefly as an engineer (qualifying from Alma College) before contracting poliomyelitis, which left him permanently impaired. In 1911, he married Berth Iuzzi and graduated with an A.B. in teaching from the University of Michigan in 1913. He taught normal school in Kentucky before becoming Joseph Jastrow's teaching assistant at the University of Wisconsin, thereafter gaining his M.A. in 1915 and his Ph.D. in 1918, becoming a Professor of Psychology at Wisconsin in 1925.

Major Accomplishments/ Contributions

Hull had performed his doctoral work on concept formation, publishing his thesis as *Quantitative Aspects of the Evolution of Concepts: An Experimental Study* (1920). He then turned his attention to psychometrics (publishing his work as *Aptitude Testing* in 1925) and to hypnosis, resulting in *Hypnosis and Suggestibility: An Experimental Approach* in 1933. However, during the 1920s Hull began to think seriously about behaviorism. He found John B. Watson's version of the doctrine unconvincing and, largely as a result of a year spent

co-teaching with Kurt Koffka at Wisconsin, was equally unconvinced by the Gestalt alternative. However, reading G. V. Anrep's translation of Ivan P. Pavlov's *Conditioned Reflexes* in 1927 inspired him to create an all-embracing behaviorist theory.

He moved, as a Research Psychologist in applied psychology, to Yale's Institute of Psychology in 1929, thereafter becoming a member of its Institute of Human Relations, a highly interdisciplinary group. There Hull was introduced to anthropology, and, above all to psychoanalysis. Despite his formal commitment to applied research he succeeded in creating a cadre of experimental psychologists who carried out a series of studies designed to test Hull's growing list of behavioral postulates. Although he was not one of Hull's doctoral students, Kenneth W. Spence became the dominant member of that group. In 1935, Spence moved to Iowa and started his own graduate program that was, in effect, an extension of Hull's work. Via the very detailed Hull-Spence correspondence and Hull's voluminous entries in his diaries (the *Idea Books*) and *Research Memoranda*, we can trace the development of his theory, which culminated in the publication of *Principles of Behavior* (Hull 1943).

Hull did not just reduce all mental life (even the complex and abstract) to behavior but construed it as a mechanism driven by chains of positive and negative reinforcements (Mills 1998; Smith 1986). He presented his theory as a set of linked postulates expressed in a purpose-made mathematical language (his version of Newtonianism). That mathematical rigor was his version of operationism. His diaries tell us, however, that his theory's main function was to act as propaganda to counter the allures of Gestalt theory and psychoanalysis. Despite its intractability, Hull's theory gained wide support but his reputation did not extend beyond his death.

See Also

- ▶ Skinner, B. F.
- ▶ Tolman, E. C.

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Human Factors Psychology

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Human factors psychologists design and test products such as computer systems, medical devices, automobiles, airplanes, cell phones, and even room arrangements such as positioning of light switches so that they can be used safely, efficiently, and in an enjoyable way. In 2000 the International Ergonomics Association composed the following formal definition of the field:

- ▶ Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and methods to design in order to optimize human well-being and overall system performance.

Through the years other terms such as applied experimental psychology, engineering psychology, ergonomics, human systems engineering, human systems integration, usability, and user experience have been used to describe closely related if not identical fields as discussed below.

Helping Many People, but Anonymously

The popular notion of a psychologist is someone who helps people. Students often enter the field of psychology because they want to help people. The field of human factors provides an incredible opportunity to do this. Some human factors practitioners save thousands if not millions of lives by performing the highest quality design work. Human factors is in many ways similar to developing a vaccine for preventative medicine or a preventative mental health program. Clearly, the number of people serviced by developing a vaccine or a great human factors design is far greater than the average clinician can serve once a problem is identified. Unlike the “helping professions” physicians or psychologists who can frequently identify the patients they have helped to overcome a problem, the human factors professional and the individual developing the vaccine may not know whose lives they may have saved.

They may have saved their own life. They may have saved yours. The vaccines prevent disease from happening. Human factors professionals prevent accidents from happening. An airplane crash might be prevented or a nuclear power plant explosion might be prevented through good human factors design. When mechanical and other system failures do occur, excellent human factors work performed during the design of a product or system makes it very easy to identify, diagnose, and fix the failure before the problem escalates into being catastrophic.

While human factors is unmistakably a part of psychology, there is one critical difference between this discipline and the better known “helping professions” of applied psychology such as clinical psychology and counseling psychology. This was recognized as early as in 1947 by Paul M. Fitts when he stated: “In most fields of applied psychology, and clinical psychology in particular, the interest is in changing the individual or in placing the individual in an environment or in a work situation where he can adapt successfully. Engineering psychology is concerned with adapting one important aspect of the environment, the machines of a technological society, to man’s own requirements” (Pew 1994). Thus, there is a different working model in the “helping professions” vs. “human factors.” In the “helping professions” there is an underlying assumption that society, the environment, and the community are “normal” and the patient needs in some way to change behavior or to further their understanding of themselves and the environment. In engineering psychology quite the opposite is true. Indeed, the human factors practitioner strives to change products, systems, and processes to better suit the human operator or user. If there is an individual who needs to change, for the most part, the human factors practitioner would argue that it is the system designer or engineer who needs to change, not the operator or end user. Just On occasion the human factors practitioner will successfully change human behavior in operators or end users through selection and/or training to bring people in line with the technology (Durso et al. 2010a). Selection is by definition limiting in who can use the system. Training is often less successful than designing for the human operator. Sometimes training will not work effectively causing accidents and inefficiencies.

Oftentimes, one of the most challenging parts of the human factors practitioner's job is to overcome the desire of their clients and colleagues to try to change the person.

Good Human Factors Design

Let us look at some every day examples in which good human factors work may save lives or prevent serious injury.

- A warning signal in a nuclear reactor signifies that the cooling system is not working properly. The operator takes the appropriate corrective action. None of the people in the nearby community realize that the effective human-machine interface may have helped to save their lives.
- An airplane (perhaps the one you were riding on yesterday) lands safely in spite of bad weather. The pilot follows the flight path through instrumentation and makes no errors.
- A pharmacist properly dispenses the correct, properly labeled prescription for you.
- A professional's work involves interacting with the same tool (e.g., a computer) all day long, but the professional's workstation is properly set up so they do not develop repetitive strain injury.
- A smoke-filled building needed to be evacuated quickly using the stairwells. Everyone ended up exiting the building without getting lost.
- A computer operator receives a message about a pending computer system failure. The operator ensures that the failure is corrected. The end user, a physician looking up critical information for a pending surgery on the computer, does not even know that the problem occurred and was fixed.

Following examples are some of the ways in which good human factors work may have made life easier.

- A guest just arrived in a dark hotel room, and was able to find the light switch immediately.
- A consumer took a new electronic device out of the box, plugged it in and was able to start using it immediately.
- Potential customers visited a Web site that they had never been to before and found what they were looking for in seconds.

Poor Human Factors Design

After having positive experiences such as those described above, good human interface design may seem to be "obvious." On the other hand, people have died because of errors which could have been prevented through better design of systems for people to use. Other people have worked inefficiently, decided that they could not do a task, developed a dislike for certain tasks, and returned consumer products to the store because of poor human-system design. Reviewing a few of these examples will illustrate that proper human-system interface is far from obvious much of the time.

- A motorist who is driving an unfamiliar car (perhaps a new one, a friend's car or a rental car) enters a dark tunnel. The motorist attempts to turn on the lights and instead washes the window. Thus, in addition to not seeing well in the dark, the motorist has a stream of water approaching their window. Obviously, a serious accident could result due to obscured vision in a dark tunnel.
- A motorist is attempting to drive a hybrid car for the first time. The rental agent handed them the "keys" along with an instruction card. The motorist got to the car and tried to figure out where to put the key. No luck. So, they read the instructions. The instructions say to insert the key into the key slot. The motorist cannot find the key slot. Upon returning to the rental counter the consumer is told that the car design was improved for the new model that year. The consumer merely needed to put the keys on the center console and push the start button. There is no slot.
- A tired hotel guest is sleeping in their hotel room. It is 3:00 AM and the alarm clock goes off. A previous guest set it for 3:00 AM. The clock was not designed to reset when the guest checked out. The hotel staff was not trained or forgot to reset the clock. The unsuspecting new guest did not expect the clock would be left turned on.
- A male patient receives a prescription medication (tablets) in a pharmacy bottle. There are four yellow warnings pasted on the bottle.
 - An unreadable message followed by READ LABELS. IF A WARNING SEEN, CALL DR.
 - TAKE OR USE THIS EXACTLY AS DIRECTED. DO NOT SKIP DOSES OR DISCONTINUE.

- MAY IMPAIR ABILITY TO USE MACHINERY. USE CARE UNTIL FAMILIAR WITH EFFECTS.
- And, finally, pasted partially obscuring the other labels BECOME PREGNANT.
- Just to summarize, typed in all capital letters (implying urgency) the patient was told to become pregnant!!! The patient was also been warned to do exactly what they were told. They have further been warned that their abilities may be impaired. The patient thus concludes that they are supposed to become pregnant immediately and then call the physician after their pregnancy becomes obvious. Had the prescription been for a female teenager is there at least a minimal chance that they might have taken the instruction seriously (or at least used it as an excuse for executing certain behaviors)!!!
- Exploring the label a bit further there were at least five design or system failures:
 - The labels were in all capital letters.
 - The computer system generated a label for an adult male dealing with pregnancy.
 - The label paper was not fed into the printer properly cutting off what may have been text saying something like “Notify physician if you” prior to the words “become pregnant.”
 - The individual filling the prescription (a pharmacy technician, possibly) most likely did not read the labels (possibly due to more prescriptions coming through the system than they could properly handle).
 - The pharmacist doing the verification most likely did not read the labels either (also possibly due to more prescriptions coming through the system than they could properly handle).

- A patient received two prescriptions. Unfortunately the labels and instructions were reversed.

For numerous additional examples illustrating human–system interface failure please refer to:

- Web site <http://www.baddesigns.com> by Michael J. Darnell which provides over a hundred simple examples of bad designs such as windshield wipers, coffee machines, doors, and staplers and explanations of how they could have been designed better.

- The book *The Psychology of Everyday Things* (Norman 1988b) also known as *The Design of Everyday Things* (Norman 1988a).
- Books by Steve Casey such as *Set Phasers on Stun* (Casey 1993) and *The Atomic Chef* (Casey 2006). Each of Steve’s books illustrates numerous serious design flaws. In the *Set Phasers on Stun* (the first case in the *Set Phasers on Stun* book) case, Steve explains, for example, how a patient was given a massive radiation overdose.

Comparing Good and Bad Human Factors Design

Following this review of numerous descriptions of potentially successful and unsuccessful human–system interaction, here is the review of some of the factors which differentiate well-designed systems which result in tasks being completed safely, efficiently, and enjoyably vs. poorly designed systems which result in errors and inefficiencies.

- Well-designed systems are easy to use without instruction. Poorly designed systems rely on the end user of a product to read the directions, interpret them as the writers intended, and follow them.
- Warnings in well-designed systems point the user to the source of a problem. In poorly designed systems warning lights are ambiguous or possibly even placed in an inappropriate location.
- Well-designed systems do not rely on a single display for more than one purpose. Poorly designed systems use modal displays, that is, the same display is used for multiple purposes.
- Well-designed systems have few, if any, well-placed warning labels. Poorly designed systems have many warning labels, some of which are of no real value, arbitrarily placed on a product.
- In well-designed systems, controls are easily differentiated and clearly labeled. In poorly designed systems labels are ambiguous.
- In well-designed systems, products and systems which are to be used by the same people or in the same environment are compatible. In poorly designed systems products which are to be used together have incompatible interfaces.
- In well-designed systems, the user has an optimal workload. Not too little (which may lead to, for

example, sleepiness) and not too much (which may lead to missing critical information). In poorly designed systems the user is encouraged or permitted to do too many tasks at the same time or allowed to become bored.

Relying on the End User of a Product to Read the Directions, Interpret Them as the Writers Intended, and Follow Them

The first concern is that users may not even read product instructions. Be honest. Do you read all of the assembly instructions before attempting to do a do-it-yourself project at home or at work? Do you read all of the instructions before using a new software product?

Second, the instructions may never have been tested for readability by the intended audience (or for accuracy in some cases). Possibly the product has been updated, but updating part (or all) of the instructions was overlooked.

Third, the instructions may be interpreted differently by the person receiving them than by the person delivering them. To take a very simple example, in my *Games to Explain Human Factors: Come, Participate, Learn and Have Fun!!!* Program (Shapiro 2008) I have a simple activity in which I ask a potential participant wearing a school ring, an engagement and/or wedding ring to participate. After blindfolding them I place some lotion on the hand without a ring and ask “*What is on your hand?*” They normally correctly respond by saying “*Lotion,*” “*Something wet,*” or a similar answer. I then touch the hand with a ring on it and ask the same question. The typical responses are “*Nothing,*” “*Lotion,*” “*Skin,*” “*I don’t smell or feel anything,*” or “*You didn’t put anything on my hand.*” No one has ever answered the question correctly by saying “*My ring*” on the first try. Very few answer correctly on the second try, and some require lots of hints to answer correctly. Clearly, the participants are applying their own interpretation to my question.

Placement of a Warning Light in an Inappropriate Location

One of the primary purposes of a military reconnaissance mission is to photograph or videotape a specific area from an aircraft for later examination. Obviously, in

videotaping to have a successful mission one needs to record the scene. When video recording was done on tape a few years ago it was necessary to change the tape periodically. Pilots sometimes forgot to do this, so that part of the mission was not recorded, limiting the usefulness of the mission. According to the keynote speaker at a recent HFES meeting without instruction to the pilots a big red flashing light was placed on the pilots console right next to the hydraulic indicator to remind pilots that the tape had run out. On one of the first missions flown after the light was installed, a video recorder ran out of tape. The red light began to flash. The pilot saw the red light next to the hydraulic indicators flashing, so he proceeded to bail out of the plane.

Use of Modal Displays

A modal display involves using the same display for multiple purposes. The display content and/or response buttons change by simply pressing a button. One example of this is an IV Pump made for hospitals in which one can shift from pediatric to adult dosing and displays. Unfortunately, the only discrimination factor is the presence of a small baby illustration in pediatric mode. This has led to giving babies adult dosages of medications. The simple fix to this is never use modal displays. Of course, this may make some equipment more expensive, but it will save lives.

Overuse of Warning Labels

Please see my example on pharmacy labels above.

Nonintuitive Labeling of a Product Interface

Microsoft placed a number of “File” commands under a symbol in the upper-left corner of the display rather than under the word FILE in Powerpoint 2007. I must have spent an hour trying to figure out how to save a file the first time I used it. I assume others may have had difficulty with this also, as the word FILE has returned to the 2010 interface.

Products Which Are to Be Used Together Have Incompatible Interfaces

The telephone and the calculator both evolved almost independently. The calculator, of course, is a successor product to the old adding machine. Adding machines

were big, bulky, heavy, and expensive. Gradually, they evolved into today's calculator which is small, light, and very inexpensive. Throughout the evolution the keyboard did not change though. Almost independently, the telephone company migrated from a rotary dial to buttons for their primary interface. The telephone company prepared the best possible layout of the keys for telephone use. Presumably, they were not concerned about being compatible with the adding machine which few people owned. Now, however, both are used at the same time by the same people. Indeed, some devices are integrated telephones with calculator chips. User errors may result because of the incompatibility of the two devices. Similarly, software products or equipment made by competing manufacturers may not have compatible interfaces. These incompatibilities may lead to errors. In hospitals equipment by different manufacturers may have different noncompatible interfaces.

End User of a Product or System Tries to Do Too Many Tasks at the Same Time

A driver engages in an intense conversation on a cell phone while driving (it does not matter if the phone is hand held or not); attention may shift from the primary task of driving to the conversation. As a result the driver may not notice that they are getting too close to the car in front of them or that a child or animal has run into the road. A serious accident may result. Similar consequences may result from eating or drinking while driving, texting, becoming distracted by the DVD or radio. Alternatively, an operator is asked to watch a screen for events which occur very rarely. The operator falls asleep.

Why Are So Many Errors Permitted?

The first reason for permitting errors to escape in designing systems is relatively simple – it is the name assigned to the errors: “User error.” The name implies that the error is made by the user, not the designers. If this “user error” is really due to the “users” then how could the designers possibly prevent it? Indeed, several years ago I asked my introductory psychology classes at a community college to define user error. They stated a number of reasons. The most common was the overuse of alcohol or drugs. While it is possible that if one overused substances errors would occur, the

nomenclature used may be confusing as a large number of user errors are actually due to flaws in the design of the product or system.

John Gosbee, M.D., a respected practitioner in the area of Medical Error, has pointed out that several years ago the main objective in the medical establishment was to place blame on some practitioner whenever a “user error” occurred. More recently the blame mentality has shifted to a “sympathy” mentality. In order to really fix the problems there needs to be a paradigm shift to “It wasn't your fault, there is a systems problem. Let us fix it before someone else gets hurt.”

There is also the misperception that it is expensive to design optimize systems for use by people. Indeed, there may be minimal upfront costs to do this. However, there are also great savings in service costs, injury, etc. which do offset the minimal investment in better design. Hal Hendrick (1996) in his Human Factors and Ergonomics Society (HFES) Presidential Address “Good Ergonomics is Good Economics” provided numerous examples of investing in human factors being the wise economic decision.

An Interesting Exercise

What does the color red mean? Sometimes it means stop routinely, as in a red STOP sign or traffic signal on the road. Sometimes the use of the color red means emergency. For example, the user driving by the road is supposed to pull over and STOP so that the red fire truck with red flashing lights can pass them. In a burning building the fire alarm handle is painted red. The user in the burning building is supposed to push or pull the alarm handle to START the alarm. The elevator emergency STOP switch is also painted red. Please write a simple set of instructions explaining how to use the color RED. (Remember as you write the instructions that you do not want to be caught between floors on an elevator in a burning building).

Now, assume that you are designing a control system, what color should you make the emergency off switch? What color should you make the switch to turn on the fire alarm? What about the color of the switch to turn on the emergency generator? What about the switch to turn off the emergency generator if it catches on fire?

To make the issues a bit more complex, remember that red-green color deficiencies occur in a substantial number of people.

In reality, usability testing with real users in a real environment would be highly recommended in this case.

What Do Human Factors Practitioners Do?

In an ideal environment human factors practitioners would learn about the objective of a new product or system. They would also learn about:

- The environment in which the product will be used
- The customer set who will use the product
- The existing methods of accomplishing the tasks (if any)

The practitioner would then find appropriate psychological studies, findings, and theory as well as product standards and guidelines to help design the new product or system. They would commission studies to fill in the gaps in our knowledge. The findings from such studies would be used along with input from the engineering team and the potential users of the system to prepare a series of prototypes illustrating the potential system. The prototype would be tested in a laboratory asking potential users to execute realistic test scenarios. Later, the prototype would be tested in a realistic environment. Problems would be found and fixed. The testing would be repeated. Once our testing cycle was complete, design and development of product internals would commence. Products would then be tested as they were developed.

Unfortunately, this ideal scenario frequently does not apply because of the need to bring products to market rapidly. Thus, there are compromises made such as using the best possible judgment in lieu of scientific studies. In worst case scenarios the human factors studies do not even begin until the product is completed and human factors input is often relegated to the documentation (which may not be read), warning labels (which may be ignored), and product design changes (which are expensive).

Human factors professionals use a wide variety of techniques for accomplishing their work. Durso et al. (2010b) provide examples of use of seven methodologies in their article on human factors research. They summarize usage of:

- Knowledge mining by interviewing experts to improve detection of land mines
- Naturalistic observation to improve cockpit communications (facilitating copilots by providing

input to important decisions, even if it is inconsistent with the pilot's thinking) and safety

- Designing an automation aid to support anesthesiologists to reduce the chances of error
- Painting lines on a roadway to make it appear that cars were accelerating so that the drivers would slow down
- Surveying elderly passengers to make busses safer for them
- Observing potential contestants playing video games to adjust the level of difficulty of the games
- Studying the anthropometry (physical characteristics) of workers to design better fitting protective wear

Exciting New Developments in Human Factors

Paul Green (Walls et al. 2004) at the University of Michigan Transportation Institute (and a past president of the Human Factors and Ergonomics Society (HFES)) has served as a member of a design team developing devices to facilitate parallel parking, and reduce "bumper touching" in parking a car.

Rani Lueder and Valerie J. Berg Rice (2008) recently facilitated the expansion of the human factors/ergonomics professions to making a safer, healthier, and more enjoyable life for children from toddlers to teenagers in their new book *Ergonomics for Children: Designing Products and Places for Toddlers to Teens*. Chapters in their book focus on, for example:

- How to design toys, environments, bookbags, preschool, daycare, stairways, neighborhoods, playgrounds, museums, furniture, computer interfaces, cities, etc. for children in various cultures
- How to set up a visual environment (e.g., lighting, computer monitor) for children
- Classroom acoustics and preventing hearing loss
- Considering children's growth in product design
- Appropriate physical education programs for children
- Preventing children's cocking and other injuries
- Developing assistive technologies
- Hazard Control
- Vehicle safety
- Farm safety

What Organizations Are Available for HF Professionals?

While there are many organizations globally, here is a sample:

- American Psychological Association Division (21) of Applied Experimental and Engineering Psychology. Integrates the practical and theoretical psychological bases of the field.
- Board of Certification in Professional Ergonomics. Certifying practitioners through credentials and examination. Developed a model of what the human factors practitioner is.
- Human Factors and Ergonomics Society. The largest society representing the field of human factors and ergonomics. Headquartered in the USA. Publishes *Human Factors* journal and *Ergonomics in Design* magazine as well as an annual meeting proceedings and a monthly Bulletin.
- International Ergonomics Association. The organization which various human factors professional organizations belong to.

What Are the Specialties in Human Factors/Ergonomics?

A complete listing of all of the technical groups (which represent major areas of specialization in the human factors field) may be found on the HFES Web site (<http://www.hfes.org/web/TechnicalGroups/descriptions.html>). The groups include:

- Aerospace
- Aging
- Augmented cognition
- Cognitive engineering and decision making
- Communications
- Computer systems
- Education
- Environmental design
- Forensics
- Healthcare
- Human performance
- Individual differences
- Industrial ergonomics
- Internet
- Macroergonomics
- Perception and performance
- Product design

- Safety
- Surface transportation
- Systems development
- Test and evaluation
- Training
- Virtual environments

How Can One Become a Human Factors Professional?

Since human factors is, by nature, interdisciplinary there are a variety of scenarios which a student might follow to become a human factors practitioner. In one scenario, a student might complete a course in high school psychology. In college the student might major in psychology studying as much as possible about human physiology (return to existing text at this point) cognition, sensation, perception, learning, and memory. The student might also do some basic research as an undergraduate student and possibly an industrial internship in a human factors lab. There are graduate programs that one can attend for masters and/or Ph.D. degrees: http://www.hfes.org/web/Students/grad_programs.html. Howell et al. (1987) specified an outline for an effective academic program in the *American Psychologist* in 1987 which is relevant today. The Human Factors and Ergonomics Society also provides accreditation for academic programs.

Alternatively, one may pursue a career in human factors/ergonomics through an engineering, medical, or other technical career path.

Major Milestones in the History of the Field

Hank Taylor's (1994) *Division 21 Members Who Made Distinguished Contributions to Engineering Psychology* provides insight into the origins of the field of human factors. While one could go back to the invention of the wheel and demonstrate that the wheel improved safety and efficiency Taylor's publication traces the field back to World War I and the use of psychologists in selection of military recruits for various positions.

I would attribute the first major success in identifying system flaws which needed to be fixed to Fitts and Jones (1947) who studied 460 pilot errors and found that they were really due to problems with the human interface in the aircraft rather than to pilot behavior.

Human factors research and development in the military continued to grow and prosper. Subsequently, the human factors research expanded to other branches of government including space exploration, transportation, and labor. Even today, military and government research is a primary focal point for human factors practitioners.

As computer systems began to develop and thrive, human factors found a home in the computer industry, initially with developing individual products, and eventually expanding to produce guidelines and standards for human–system integration. The first of these guidelines may be attributed to Steve Engel and Dick Granda (1975). Classic textbooks in the field have been developed by Ernest J. McCormick in 1957 and later revised by Mark S. Sanders along with Dr. McCormick (Sanders and McCormick 1987) and well as by Chris Wickens (1984).

More recently human factors has become more established in consumer goods, the medical profession, and is also emerging in design and development of products and systems for children. In January 2010 the entire issue of the *Ergonomics in Design* magazine was dedicated to human factors in medicine.

There has been increased interest in interpreting human factors for the general public in the past quarter century. One major milestone in this effort was Don Norman's (1988b) publication of *The Psychology of Everyday Things*. The Human Factors and Ergonomics Society launched National Ergonomics Month (NEM) in 2003, and the Usability Professionals Association launched World Usability Day in 2005. The program *Games to Explain Human Factors: Come, Participate, Learn & Have Fun!!!* which is targeted to explaining the profession to students from middle school to graduate school and to professionals as well was published for limited distribution to educators and human factors professionals by HFES for National Ergonomics Month 2008. A timeline of interesting events in the history of human factors is presented in Table 1.

Clarification of Our Name

The terms human factors and ergonomics were used interchangeably in the definition at the beginning of this article. Throughout the article the term human factors has been used wherever practical, but other

Human Factors Psychology. Table 1 Background of modern human factors psychology

The primary sources for much of the following information are the 2009–2010 Directory and Yearbook of the Human Factors and Ergonomics Society and the Web site for APA Division 21.
1898 – Frederick W. Taylor in a study for Bethlehem Steel showed that the optimum weight for shoveling productivity is 21.5 lb (Schultz and Schultz 1994)
1911 – Frank Gilbreth published <i>Motion Study</i> book. In his earliest work Gilbreth showed that by eliminating unnecessary motion a worker can triple the number of bricks he could lay in an hour from 120 to 350 (Schultz and Schultz 1994)
1945 – Engineering Psychology Branch of the Army Air Force Aeromedical Laboratory established
1956 – Human Engineering Society voted into existence on October 25. This society seems to have evolved into becoming the Human Factors Society of America
1957 – Human Factors Society of America voted into existence on September 25. First Annual Meeting of Human Factors Society in Tulsa, Oklahoma. Paul M. Fitts becomes first president of American Psychological Association Division 21: The Society of Engineering Psychologists. Ernest J. McCormick publishes classic textbook <i>Human Engineering</i>
1958 – Human Factors Society of America renamed Human Factors Society, Inc. Flagship journal <i>Human Factors</i> first published
1959 – HFS Bulletin first published. International Ergonomics Association founded (April 6)
1964 – HFS permanent headquarters established in Santa Monica, CA, where HFES is headquartered today. First International Ergonomics Association Council meeting Dortmund, Germany
1975 – Guidelines for Man/Display Interfaces. Published as IBM Technical Report by Engel and Granda
1981 – APA Division 21 renamed The Society of Engineering and Applied Psychologists
1984 – I/O (& Human Factors) psychologist Lillian Gilbreth is first psychologist be honored on US Postage Stamp
1990 – Board of Certification in Professional Ergonomics (BCPE) incorporated (July)
1992 – Human Factors Society renamed Human Factors and Ergonomics Society
1993 – Ergonomics in Design applications-oriented magazine first published

Human Factors Psychology. Table 1 (continued)

1996 – APA Division 21 renamed Division of Applied Experimental and Engineering Psychology
2002 – National Ergonomics Month established by vote of HFES Executive Council
2003 – First National Ergonomics Month (October)
2008 – Games To Explain Human Factors: Come, Participate, Learn & Have Fun!!! outreach presentation published in HFES conference proceedings
2010 – Retired US Airways pilot Chesley B. “Sully” Sullenberger III, who landed Flight 1549 on the Hudson River on January 15, 2009, presents keynote address at HFES 54th Annual Meeting. HFES membership approximately 4,500. Captain Sullenberger is awarded the HFES Oliver Keith Hansen Outreach Award

terms such as engineering psychology and ergonomics have been introduced as well. Indeed, there are several different terms used to describe the human factors discipline. In addition to the terms “human factors” and ergonomics, “engineering psychology” is frequently used.

Some professionals in the field would use the various labels to refer to differences in approach and practice. In a 1987 article Howell et al. (1987) stated that engineering psychology might be viewed as emphasizing the content of psychology but that there is continuing debate about whether that distinction was meaningful. In 2010, Durso, DeLucia, and Jones wrote two articles for Corsini’s 2010 *Encyclopedia of Psychology*, one entitled *Engineering Psychology* (Durso et al. 2010a) and the second entitled *Human Factors Research* (Durso et al. 2010b) suggesting that there may be a meaningful difference.

Both Durso, DeLucia, and Jones articles do an excellent job of introducing the field and include good examples. They also describe what some professionals would identify as differences between engineering psychology and human factors research in their article. While some people would argue there is no difference between engineering psychology and human factors research even those who believe that there is a real difference in the terminology would agree that individuals may practice in multiple fields. For example, Frank Durso is a past president of the American Psychological Association Division

21 (Applied Experimental and Engineering Psychology) and is on the Executive Council of the Human Factors and Ergonomics Society (HFES). Pat DeLucia is the President of APA Division 21 and heads the accreditation committee for HFES. Numerous individuals throughout the history of the profession have served as leaders of both organizations.

In addition to potential conceptual differences between human factors and engineering psychology, there may also be geographic differences in names. The term Ergonomics has been used to refer to the entire discipline in Europe, whereas the term human factors has historically been used more frequently in the USA.

Recently, the Board of Certification in Professional Ergonomics (BCPE), one of the premiere groups for certifying human factors professionals, has added the designation “certified user experience professional” to their certifications along with “certified human factors professional (CHFP)” and “certified professional ergonomist (CPE).” The requirements and examination are identical for the various certification titles and once certified professionals are permitted to change certifications upon request (and payment of a nominal fee) suggesting that there may not be any meaningful difference. To add some complexity to the issue, various academics and employers seeking to hire professionals in the field have used other designations such as Applied Experimental Psychology and Cognitive Engineering as well. The controversy continues!!!

Acknowledgments

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Humphrey, George

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Basic Biographical Information

George Humphrey, who was born on July 17, 1889, in Boughton, Kent (roughly 50 miles East of London, England) played a pivotal role in the formation of academic psychology in Canada, made important contributions to learning theory and to the history of cognitive psychology, and, in 1949, essentially founded the Institute of Experimental Psychology at the University of Oxford.

After having been schooled locally in Faversham, Humphrey completed the requirements for an M.A. degree in Classics at All Saints College at Oxford. Funded by scholarships, he traveled to the University of Leipzig and to Harvard University for brief visits before taking up a tutoring position in Latin and Greek at Borough Road College in Isleworth, West London, in 1915. In 1916 he was appointed Professor of Classics at St. Francis Xavier University in Antigonish, Nova Scotia, Canada. In 1916, he married Muriel Miller, and they had one daughter.

From 1918 to 1920, Humphrey worked for a Ph.D. degree in Psychology at Harvard, following which he served as Assistant Professor of Psychology at Wesleyan University, Middletown, Connecticut. Here he was a colleague of Raymond Dodge (1871–1942), an authority on eye movements and their measurement. Humphrey then returned to Canada in 1924, having been offered the Charlton Professorship of Philosophy at Queen's University at Kingston, Ontario. Queen's had been founded in 1841, only 3 years after the first chartering of a University in Canada, namely,

Dalhousie University in Halifax, Nova Scotia. Humphrey was expressly charged by the Dean of Arts at Queen's to build up the psychological side of the Department of Philosophy.

In a small basement room in the Department of Biology, Humphrey began his classic experimentation on habituation in freshwater snails (Humphrey 1930); he also demonstrated, with human participants, that a defensive conditioned reflex movement that had been acquired to a specific tone no longer appeared when that tone was part of a well-known melody or of an arpeggiated chord based on a small sample of notes from that melody (Humphrey 1927).

A proper laboratory for psychology was provided by the University in the late 1930s, and Donald O. Hebb (1904–1985) was hired from McGill University to develop laboratory research on learning in rats. (Hebb left Queen's, however, in 1942, to do research at the Yerkes Laboratories of Primate Biology, in Orange Park, Florida.) Humphrey was one of the founding members of the Canadian Psychological Association (CPA) in 1939. During World War II, CPA organized a Test Construction Committee (War Committee) for the devising of a battery of verbal and nonverbal tests in connection with the selection of personnel for the Canadian Armed Forces; the test was administered to about a million individuals (for more on this test battery, please see Ferguson 1982). Humphrey also served as President of the CPA during the period 1942–1944.

In 1947, Humphrey spent a sabbatical year at the Experimental Psychology Laboratory at the University of Cambridge, and, in the following year, accepted an appointment to the First Chair of Experimental Psychology at the University of Oxford. His tenure at Queen's, from 1924 to 1948, had been unusual insofar as, in his role as the Chair of Philosophy, he had acted throughout by furthering the cause of experimental psychology, but a separate department of psychology was not established at Queen's until 1949, the year in which Humphrey left for Oxford. The first holder of the Chair of Psychology at Queen's was the social psychologist Julian Blackburn (1903–1974).

Following Muriel's death in 1953 and Humphrey's retirement from his Oxford post in that same year, he married Berta Wolpert in 1956 and moved to Cambridge, where he became a familiar visitor to the library

in the Experimental Psychology Laboratory prior to his death on April 24, 1966. Among his distinctions were a Fellowship in the Royal Society of Canada and the title of Emeritus Professor from Oxford. In a Presidential Address to the CPA on the occurrence of Humphrey's retirement from Oxford, Blackburn (1957) gave a valuable summary of Humphrey's achievements in learning theory, and Inglis (1982) offered a detailed account of Humphrey's accomplishments at Queen's University.

Major Contributions

At Wesleyan, Humphrey had written a book, directed at laymen as well as at professional psychologists, aimed at interpreting the ideas of behaviorism, Gestalt psychology, and psychoanalysis into a coherent narrative for viewing the psychology of everyday life. In *The Story of Man's Mind* (Humphrey 1923) can be found the kernels of several ideas on which Humphrey would elaborate in later publications. At Queen's, he wrote *The Nature of Learning in Relation to the Living System* (Humphrey 1933) and *Directed Thinking* (Humphrey 1948), as well as many articles and book chapters. In collaboration with Muriel, he translated two early nineteenth-century monographs by J.-M.-G. Itard (1775–1838); these were later incorporated into a book entitled *The Wild Boy of Aveyron* (Humphrey and Humphrey 1932). This is a key historical source showing how difficult Itard had found it to educate a feral 10-year-old boy to a level at which he could function socially.

While at Queen's, Humphrey also wrote two science fiction novels, using the pseudonym Donald Macpherson. They were entitled *Go Home Unicorn* (Macpherson 1935) and *Men are like Animals* (Macpherson 1937). Both incorporated recent discoveries in neuropsychology and both were partly set in the island scenery of the St. Lawrence river where it flows past Kingston.

At Oxford, Humphrey completed a volume entitled *Thinking: An Introduction to its Experimental Psychology* (Humphrey 1951). This historical review remains, even today, a useful account of the laboratory investigations by members of the Würzburg school into the thinking processes of intellectually gifted persons; the ideas of Otto Selz (1881–1944) on the mechanisms underlying mental problem solving; and the

experiments undertaken by members of the Gestalt School into problem solving in “hands-on” practical contexts.

The dominance in the 1930s of the three competing schools of behaviorism, Gestalt psychology and psychoanalysis was attested to in a widely read textbook by Woodworth (1931); a short evaluation of their influence upon academic psychology as seen from a present-day perspective has been offered by Murray et al. (2000). As already noted, Humphrey picked out his preferred features from each school and tried to apply these features to ongoing problems in experimental psychology. For example, in *Directed Thinking*, Humphrey (1948) confronted the problem of *what* mental representation might be consciously experienced between the presentation of a stimulus word (or a question) and the supplying of an associated word (or answer). From the writings of the Würzburg school (between about 1900 and 1910), he took the observation that, often, a participant was not capable of listing a sequence of intervening associated words or images of which he or she had been consciously aware. From Freud, Humphrey took the notion that processes, of which one is not consciously aware, nevertheless can operate in such a way as to “keep alive” the motivational state, often emotionally toned, that had been aroused by the stimulus word or question. Humphrey then combined these approaches into a hypothesis according to which the continuity of an individual’s thought is determined by motivational states, of which we are often not always aware, quite as much as it is by the semantic determinants of a chain of mental associations of which we often do happen to be aware.

In *The Nature of Learning*, Humphrey (1933) interpreted his “arpeggio effect” as being the evidence supporting the introduction of Gestalt principles into our understanding of classical conditioning. If the conditioned stimulus (a tone) be considered as a stand-alone stimulus in its own right, it follows that the tone will not necessarily continue to serve as a conditioned stimulus if the tone is embedded in a physical context of other tones such as the melody or common chord. His work on snails (Humphrey 1930) also led him to reconsider the usual schema used by instructors to describe the course of classical conditioning. At the onset of the conditioning trials, the conditioned stimulus might elicit an arousal or

defensive response (partly because of its novelty). It will be necessary for the subject to become habituated to that stimulus, that is, no longer treat the stimulus as a signal of possible danger or gratification. Only after a quiescent emotional attitude vis-à-vis the conditioned stimulus has been arrived at, will that stimulus be able to be associated with the unconditioned stimulus and come to elicit the expected conditioned response.

Perhaps the most striking of Humphrey’s innovations in learning theory was his suggestion that a chain of learned responses should not be seen only as one in which each learned response fires off the next response in the chain as a result of mere habit formation; for Humphrey, each response is also determined by the organism’s need to restore the psychological and/or physiological state of equilibrium that had been disrupted by the initial presentation of the unconditioned and conditioned stimuli. The idea that sequences of physical events involve a reaction (a disruption in equilibrium) followed by a counterreaction (a restoration of equilibrium) had been elevated into a scientific principle by Henri Louis Châtelier (1850–1936). According to Asimov (1972), the principle may be stated as: “Every change of one of the factors of an equilibrium brings about a rearrangement of the system in such a direction as to minimize the original change” (p. 460). The principle had originally been applied in the context of chemical thermodynamics, but anticipations of the principle can be seen in Herbart’s (1824/1961) theory of the statics and dynamics of mental representations concurrently being consciously experienced. In Humphrey’s own time, Cannon (1915/1929) had formulated a theory of how bodily physiological equilibrium could be attained by processes of “homeostasis,” a term Humphrey also adopted. J. von Uexküll (1926) anticipated the modern cybernetics approach when he claimed that the interaction between an organism and its environment included the growth of feedback mechanisms within the organism that were designed to ensure behavioral stability. In Humphrey’s discussion of habituation, when an unlearned defensive reaction to a disturbance in the environment gradually drops out as the organism “learns” that the disturbance, when repeated, is non-harmful, the adaptive usefulness of the habituation mechanism is that it restores

the organism to a pre-disturbance level of equilibrium. Humphrey (1930) also claimed that this argument might also apply to Pavlovian extinction mechanisms.

In short, Humphrey challenged many traditional beliefs associated with classical conditioning, and his penchant for integrating diverse currents of contemporary psychological ideas clearly bore fruit in his analysis of human thinking processes.

See Also

- ▶ Behaviorism
- ▶ Dodge, Raymond
- ▶ Hebb, Donald O.
- ▶ Hull, Clark L.
- ▶ Psychoanalysis

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Hunter, Walter S.

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H

Basic Biographical Information

Born: March 22, 1889; Died: August 3, 1954.

Walter Samuel Hunter was born in Decatur, Illinois and spent his early life living and working in rural farming communities in Illinois and Texas. He studied with C. S. Yoakum at the University of Texas and received a scholarship to the University of Chicago, where he took the Ph.D. with Harvey Carr in 1912. He became a central figure in the development of academic experimental psychology and ultimately became identified with Brown University in Providence, where he worked from 1936 until his death.

Major Accomplishments/Contributions

Hunter was fascinated by animal studies, and combined this interest with refined experimental technique. His early research on the delayed reaction (Hunter 1913) is exquisitely representative of the elements that were most compelling in establishing functionalistic behaviorism as a dominant force in psychology at that time. He showed that organisms ranging upward from rats through raccoons to children were able to delay responses to a desired object, the delay proportionate to the level of complexity of the organism involved. Hunter rendered the mental state, obviously involved in maintaining readiness to respond after a delay, as a palpable negative figure surrounded by the positive ground of apparatus and measurement. Mental representation was thus a necessary fact

inferred from objective, species-comparative experimental data, rather than from trained introspection. Between 1915 and 1925, Hunter critiqued the classical psychological concepts of association (Hunter 1917) and consciousness (Hunter 1924), and then turned his attention to formulating a general theoretical position. In doing so he drew not only on his experimental expertise but also on his store of general cultural knowledge, which distinguished him from Watson and others in the field who disavowed philosophy. Hunter called his system by the old Kantian term “anthroponomy,” which he contrasted with different types of “psychology” ranging from the pure science of introspectionism of Wundt and Titchener, to blends of introspective and objective material which he saw as inextricably tangled and, to the extent that they focused on individual experience rather than objective data, sterile and barren inventories of experiences unrelated to social and physical reality. Wryly utilizing quotations from Victorian poets, Hunter, in his contribution to Murchison’s *Psychologies of 1925* (Hunter 1926), found an analogy to the nonproductive solipsism of most “psychology” in Matthew Arnold’s “To Marguerite, Continued” and challenged the choice between an objective and subjective psychology by quoting Dante Gabriel Rossetti’s “The Cloud Confined.” Hunter was most in sympathy with the reductionism of A. P. Weiss, the neural correlative approach of Karl Lashley, and the theoretical physical analysis of perception advanced by Wolfgang Köhler, though he personally favored molar analyses at the level of ordinary objects and social transactions. He was willing to admit any idea into psychology providing that it could be translated into a stimulus/language reaction form, and, like Meyer and Weiss, emphasized the necessity of language in a theoretical account of behavior (though Hunter did not pursue the study of language specifically). Hunter did not pursue his theory and other approaches to objective psychology gained ascendancy in the 1930s. His attitude toward the proper level of psychological analysis was consonant with tendencies in the field to focus psychology strictly on experimentation based on directly observable entities. One probable effect of his influence in this direction is the creation of the Psychonomic Society: one of Hunter’s students, Clarence Graham, was a founding member.

Hunter could be justly said to have “placed service to his science above all else” (Graham 1958, p.146). However, it was as a teacher, as a proponent of applied psychology, and as a developer of several infrastructural elements in psychology that Hunter had his greatest effect. He wrote a well-received general psychology textbook and fostered the careers of many significant psychologists at the University of Kansas (1916–1925), Clark University (1925–1936), and Brown University (1936–1954), mostly in the areas of sensation and perception, one of Hunter’s other experimental interests (Hunter 1914). Among these were Clarence Graham, Frank Geldard, and Lorrin Riggs. While at Clark, he gave a course in animal behavior which was attended by, among others, F. S. Keller and B. F. Skinner early in their graduate careers. He also gave an initial boost to the career of Donald G. Paterson, who began work on reliability of mazes at Kansas in 1917 and continued this work with Hunter after moving to Minnesota after the First World War. Hunter accepted responsibility for both the *Psychological Index* in 1926 and the newly developed *Psychological Abstracts* in 1927, which he edited for 19 years. He was elected President of the American Psychological Association in 1931. He also played roles in many major applied psychology initiatives, especially in military psychology. During the First World War he, like many other psychologists, served as a commissioned officer with the US Army Testing Program. During the Second World War, he was involved in several committee efforts to coordinate psychology’s response to military needs, and eventually chaired the Applied Psychology panel of the National Defense Research Committee after 1943. He continued to work on defense projects after the war and was honored with a Presidential Medal for Merit in 1948 for his defense-related work. His anthroponomy meshed with a general interest in humans as a species, recognized by his appointment as chair of the Division of Anthropology and Psychology of the National Research Council in 1936. Hunter was also among those psychologists for whom race was a consistent theoretical concept. During the First World War, Hunter actively collected nation-of-origin data for Army inductees. Also, during Army service at Camp Lee, Virginia, he came into contact with George Ferguson, author of *The Psychology of the Negro*, whose work he cited in support of the idea of differences in mental ability between races

in a chapter on social and racial psychology in his general psychology textbook. Having formed a conviction of race differences in intelligence, Hunter, assisted by Eloise Sommermeier, tested intelligence during 1920–1921 in Indian schools in Kansas and published data showing a relation between increasing “white blood” and the Otis Intelligence Score, results that persisted in the literature (Hunter and Sommermeier 1922). This pattern of activity on many different levels, though peripheral to Hunter’s main interests in theoretical psychology, is indicative of the way that race-related ideas were carried along with general experimental psychology during the first quarter of the twentieth century.

See Also

- ▶ Köhler, W.
- ▶ Lashley, Carl
- ▶ Paterson, Donald G.

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Husserl, E. G.

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Basic Biographical Information

Edmund Gustav Husserl, the father of phenomenology, was born on April 8, 1859, in Moravia, then part of

the Austro-Hungarian Empire and today part of the Czech Republic. His family was of Jewish heritage. He was a philosopher whose education and writings straddled the end of the nineteenth century and the first third of the twentieth century. His philosophy in parts importantly addressed psychology. Husserl died on April 29, 1938 in Freiburg im Breisgau, Germany, at the age of 79.

From 1878 through 1881, Husserl studied mathematics at the University of Berlin. In 1881, he moved to the University of Vienna where he received his Ph.D. in mathematics. At the University of Vienna, Husserl attended the lectures of Franz Brentano in 1884–1886. Husserl claimed that Brentano’s example of scholarly research influenced him in believing that philosophy could be scientific. As consequence, Husserl turned his attentions to philosophy.

Milestones in Husserl’s personal life paralleled the redirection of his professional life. In 1887, he married Malvine Steinschneider. She too was of Jewish heritage and she also had been born in the Austro-Hungarian Empire. They had three children: Elisabeth, Gerhart, and Wolfgang. The Husserl parents survived the death of their son Wolfgang, who was killed in action at Verdun in World War I. Malvine died in 1950.

Major Accomplishments/Contributions

With respect to his continuing scholarly development from 1886 and on, in 1900 Husserl (1970) published the two parts of his *Logical Investigations*. In 1901, Husserl and his family moved to the University of Göttingen. His stay at Göttingen lasted through 1916. The year 1913 saw Husserl (1998) *Ideas I* published. These two books heralded the start of Husserl’s development of philosophical phenomenology. In 1916, Husserl was appointed to the University of Freiburg. He remained in Freiburg up through 1928. World War I had been in progress already for 2 years when Husserl was appointed to Freiburg. Edith Stein worked as his assistant 1916 through 1918. Martin Heidegger became Husserl’s assistant in 1919 and later succeeded him to the Chair of Philosophy at the University of Freiburg. In what was termed the Circle of Freiburg that gathered around Husserl, there numbered Martin Heidegger (who later came to articulate his own

hermeneutic phenomenology), Hans-Georg Gadamer, and Emmanuel Levinas.

Significant as were Husserl's critiques of psychologism, they did not inhibit his addressing the issue of a valid psychology. Among the topics in philosophy that Husserl treated in his writings that were of psychological relevance were meaning, evidence, perception, imagination, and time. In 1925 and 1928, Husserl presented lecture courses on phenomenological psychology. In his Freiburg lectures, Husserl was "aiming at giving a solid foundation for all psychology through a pure psychology on philosophical grounds" (Spiegelberg 1972, p. 8). This aspiration for psychology and phenomenology was in the context of subsequent developments in Husserl's thoughts.

Amedeo Giorgi (2009), an American psychologist who has been explicit in his mediation of a phenomenological psychological method from Husserl's work, has pointed out, "at the level of psychological science what is required is what Husserl calls the psychological phenomenological reduction. . . . the acts of consciousness correlated with. . . objects [of experience] belong to a human mode of consciousness" (p. 98). Psychology is engaged.

From 1933 on, the life of Edmund Husserl and his family was subject to the anti-Semitism of the Nazi regime. In 1933, Husserl received an invitation to a position at the University of Southern California School of Philosophy. His children had already left Germany and were living in the United States and had urged their parents also to move from Germany. Husserl, nevertheless, declined the California invitation. He preferred to die in his homeland.

Although Husserl had seen the publication of a number of his important writings, he was to leave behind him a vast amount of unpublished writings – his philosophical *Nachlass*, "estate." These writings comprised approximately 40,000 pages of stenographic material in Husserl's handwriting, and about 10,000 pages of typed or handwritten transcriptions (the work of Husserl's assistants, Edith Stein, Ludwig Landgrebe, and Eugen Fink). All these pages housed the further reflections of Husserl. It was a body of vast material invaluable for the full comprehension of Husserl's thinking. All of it was in danger of destruction and the story of its rescue requires mention. The danger

was from two sources. The first was the pogroms instituted by the Adolf Hitler government. In 1886, Husserl had converted to Lutheranism. The comprehensiveness of Nazi anti-Semitism, however, encompassed all Jews – observants, non-observants, and converts. Husserl's *Nachlass* faced destruction.

The second factor contributing to the parlous situation of Husserl's writings was the geography of Freiburg in Germany, the city within which Malvine Husserl resided and within which rested the unpublished writings of Husserl in her care. The proximity of Freiburg to the border with France heightened the vulnerability of the material to war zone destruction in the quite imminent World War II.

Four months after Husserl's death, in the face of this situation Malvine Husserl entrusted the rescue of Husserl's unpublished writings to Herman L. van Breda. Van Breda was a student of Husserl's phenomenology and a Franciscan priest from Belgium. Upon accepting the task of saving Husserl's manuscripts, van Breda smuggled out of Germany the transcriptions in his luggage. The remainder of Husserl's writings was rescued by an operation involving Louvain University and the Belgian government that resulted in the final safe deposit of them as the "Husserl Archives" in Louvain University. Van Breda obtained a visa and permit for residence in Belgium for Husserl's widow.

With the subsequent invasion and occupation of Belgium in World War II, for a period of 4 years until the end of the war Husserl's writings had to be hidden. The most fortunate rescue of Husserl's manuscripts has enabled further appreciation of Husserl's phenomenology not only for philosophy but also for psychology.

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Hypnosis

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Introduction

Hypnosis as an accepted practice has had a long and tenuous history around the world and especially in Western civilization. In some of the oldest recorded history, the use of trance has been established for self-transcendence and healing among spiritual traditions around the world. Individuals have practiced self-hypnosis through meditation techniques that either controlled breathing or focused on an object, such as a candle flame. Others have gone into trance states dancing into a frenzy of ecstasy such in the circle dancing of the Sufi religion. Still others have used natural mind-altering drugs to alter their normal perceptions to enhanced and transcendent states. Shamanic healers have been found in most indigenous cultures that have gone into trance themselves and/or produced trance states in their patients to aid in the cure of disease. In many cultures, these practices continue today.

The paranormal perspective of trance mediums, psychics, and those that have used hypnosis for its notoriety and entertainment value have at times brought the idea of hypnosis into disrepute especially in the past few hundred years in Western Civilization. During this period of time, scientists and theorists wishing to distance themselves from religion or superstition suspected any practice or concept that could not be proven through visible means. This breach in acceptance was broadened by the lack of adequate technology to properly examine many concepts. Spiritual practices that did not maintain a logical basis was considered suspect by scientists, and the schism between the two grew larger and larger.

There is a rich history beginning in the 1700s in Europe whereby a number of physicians, neurologists, and psychiatrists began to explore the mind–body connection. At that time, hypnosis began to be researched in clinical practices to develop understanding of the connection between psychological dysfunction and physical ailments. While the mechanics of hypnosis

was not understood and is still debated today, progress was made in discovering that physical and psychological health are connected through the inner workings of the mind. The contributions of those individuals developed and legitimized the study and science of psychiatry and psychology.

In the last half of the twentieth century, the schism between spirit, mind, and body has changed due to the significant advancement of research technology and theories into the abilities related to states of consciousness. Hypnosis as a tool for accessing unconscious trauma and changing self-defeating beliefs has received scientific acceptability. Hypnosis for self-regulation and healing of one's own immune system and pain is being researched and being substantiated. Other methodologies are being developed around the concept of single-pointed concentration found in hypnosis that are proving to be profoundly helpful treatment options for trauma, stress, anxiety, and pain. Fueled by all of these advances, the introduction of integrative medicine that combines both traditional medicine practices with alternative and complementary practices are opening up tremendous opportunity for hypnosis to become fully accepted in both psychology and physiological health care.

Definition

Hypnosis has been defined as an altered state of consciousness or an increased state of awareness that heightens suggestibility or responsiveness to ideas that is induced by expectation, focused attention, and suggestion (Braid 1846; Bernheim 1891/1980; Hull 1933/2002; Erickson 1980). To reach this state of susceptibility has been called a hypnotic induction, which generally follows a series of preliminary instructions and suggestions. Hypnotic suggestions may be delivered by a hypnotist or hypnotherapist in the presence of the subject, or may be self-administered through the process of self-suggestion, deep relaxation, or meditative trance.

The American Psychological Association (APA) has proposed a scientific definition of hypnosis published by Division 30 of the APA, the division for psychological hypnosis:

- ▶ Hypnosis typically involves an introduction to the procedure during which the subject is told that suggestions for imaginative experiences will be presented.

The hypnotic induction is an extended initial suggestion for using one's imagination, and may contain further elaborations of the introduction. A hypnotic procedure is used to encourage and evaluate responses to suggestions. When using hypnosis, one person (the subject) is guided by another (the hypnotist) to respond to suggestions for changes in subjective experience, alterations in perception, sensation, emotion, thought or behavior. Persons can also learn self-hypnosis, which is the act of administering hypnotic procedures on one's own. If the subject responds to hypnotic suggestions, it is generally inferred that hypnosis has been induced. Many believe that hypnotic responses and experiences are characteristic of a hypnotic state. While some think that it is not necessary to use the word "hypnosis" as part of the hypnotic induction, others view it as essential.

Details of hypnotic procedures and suggestions will differ depending on the goals of the practitioner and the purposes of the clinical or research endeavor. Procedures traditionally involve suggestions to relax, though relaxation is not necessary for hypnosis and a wide variety of suggestions can be used including those to become more alert. Suggestions that permit the extent of hypnosis to be assessed by comparing responses to standardized scales can be used in both clinical and research settings. While the majority of individuals are responsive to at least some suggestions, scores on standardized scales range from high to negligible. Traditionally, scores are grouped into low, medium, and high categories. As is the case with other positively-scaled measures of psychological constructs such as attention and awareness, the salience of evidence for having achieved hypnosis increases with the individual's score. (APA, 2010)

Historical Background

The earliest historical references to hypnosis are reflected in the trance states found within meditation practices, mystical rites, and Shamanistic healing practices within Eastern and indigenous cultures, and early world religions including Buddhism, Taoism, Hinduism, Islam, and Christianity (Braid 1846; Brennan 1998; Heinze 1988, 1991). The single-pointed concentration found within such practices as meditation, Sufi dancing, and deep breathing that move consciousness

into a heightened and diffused awareness or trance state was first noted in Persia, dating back to between 628 and 551 B.C., in the ancient spiritual teachings by the prophet Zarathustra. As ancient Persia (now known as the area around Iran) was a gateway for travel between Indian, Arabic, Hebrew, and Greek societies, many philosophical ideas have benefited from Zarathustra's teachings that focused upon spiritual transcendence within these other societies and major religions (Brennan 1998; Heinze 1988).

Spirituality and medical healing techniques were in harmony with each other throughout the ancient world and can still be found in indigenous cultures that utilize Shamanic healing (Heinze 1988). When Alexander the Great defeated Persia around 330 B.C., many of these philosophical ideas and teachings of Zarathustra migrated into Greek culture. The use of imagery and hypnosis as healing techniques was found in the ancient temples of Asclepius, a Greek physician later deified as the god of medicine, (Braid 1846; Brennan 1998; Hilgard 1987). Asclepius was reported to have treated the sick while they were in some sort of sleep (trance) state with testimonies of cures of blindness, speech disturbances, and paralysis (Veith 1965).

The spiritual connection of body–mind philosophy waned as the Age of Enlightenment and subsequently the Age of Reason took over in Europe. Hypnosis as a Western psychological and physiological study began with the experimentations and theories of German born, Franz Anton Mesmer (1734–1815). Mesmer was a physician trained in Vienna who theorized in his doctorate thesis that all animate and inanimate objects shared a natural energy (animal magnetism) that could be transferred through a process he called mesmerizing (Ellenberger 1970; Hughes and Rothovius 1996). He speculated that the magnetic waves of universal invisible fluid found in people and animals could be transferred through inducing a trance state in (mesmerizing) patients and would lead to cures for such issues as sleep walking, lethargy, catalepsy, and both maniacal and ecstatic visions (Braid 1846; Ellenberger 1970). His theories were eventually discredited by the scientific community due to his ideas about animal magnetism being deemed unscientific forays into imagination (Brennan 1998; Ellenberger 1970; Hughes and Rothovius 1996). Mesmer's techniques of staring into the eyes of his

patients to induce a state of susceptibility to suggestion intrigued others, and led to further studies of his speculations that eventually replaced his ideas about animal magnetism with concepts of suggestion, visualization, and dissociation that contributed to the development of hypnosis by other physicians and scientists.

Hypnosis fell out of favor for a time in the scientific communities due to the use of it within the spiritual movements that surged through Europe and America during the late eighteenth century. During that period, hypnosis became recognized as a combination of spiritual practice and science referred to as psychotherapy by spiritual communities in Europe and America and was used by many clergy that practiced healing techniques (Taylor 1999). Hypnosis has maintained a presence in the alternative healing and spiritual practices throughout Europe and America while its acceptance has waxed and waned in the scientific community throughout the last two centuries. Such practices as trance mediums, automatic writing, séances, and hypnotism for entertainment led to skepticism from the scientific community more than once throughout the past 200 years.

James Braid, a physician (1795–1860) born in Scotland and educated at the University of Edinburgh, became interested in the phenomenon of the physical effects that were produced by Mesmer as well as the concepts of the Marquis de Pyusegur (a French contemporary), who speculated that trance states were similar to the same state found in sleepwalking, known as somnambulism (Hughes and Rothovius 1996). Braid hypothesized that the induction technique used to facilitate a trance state was linked to brain physiology, and he coined the name of hypnosis to describe that state and induction process (Braid 1846, 1960). Braid developed a straightforward approach to the process of hypnotizing an individual through use of an object to bring forth single-minded focus that would render the individual susceptible to suggestion. He also studied Zarathustra's ancient teachings noting in his writings that the ability to induce a trance like state was not a new discovery, but had been practiced for thousands of years in spiritual traditions (Braid 1846). Braid's work ultimately legitimized the study of hypnosis in medical and scientific communities for a time, leading the way to the eventual use of hypnosis with psychological pathology.

Jean Martin Charcot (1825–1893), a neurologist, born and educated in Paris, led research at the Salpêtrière school and has been credited with reviving a scientific application of hypnosis by identifying the difference between convulsions that were associated with the physiological disorder of epilepsy and those of a psychological nature related to hysteria (Brennan 1998; Hilgard 1987; Hughes and Rothovius 1996). His work with hypnosis led to speculations of a neurological basis for the origins of hysteria and posttraumatic phenomena that were different from organic physiological symptoms found in the nervous system. While some of his later work was ultimately ridiculed and discounted, his ideas still fueled the later work of Janet, Breuer, and Freud, leading to the further developments of psychiatry and psychoanalysis (Ellenberger 1970).

Hippolyte Bernheim (1840–1919), a French physician trained in Strasbourg and a professor at the *Faculté de Médecine* at Nancy, determined that hypnotic effects were due to the power of mental suggestion and a continuum of hypnotic susceptibility in the subject (Bernheim 1891/1980; Ellenberger 1970). Bernheim was a critic of Charcot's work, disagreeing with the concept that hypnosis is a pathological nervous condition related to hysteria and completely rejecting Charcot's idea that physical symptoms could be transferred laterally with magnets. Insisting instead that hypnotism is a psychic condition that increases the susceptibility to suggestion, Bernheim used hypnosis to treat organic diseases such as menstrual disorders, gastrointestinal diseases, and rheumatism. Eventually, he and his students abandoned the use of hypnotic induction for direct suggestion using a technique they called psychotherapeutics (Bernheim 1891/1980; Ellenberger 1970).

Pierre Janet (1859–1947), another French physician at the Lyceum in Le Havre, furthered the research on clinical data of the abnormal mental states related to psychosis and hysteria using hypnosis. His studies identified the connection between traumatic origins and automatic actions. He developed an analytic framework that emphasized the relationship between consciousness and action stressing the concept of a field of consciousness, and coining the phrases dissociation and subconscious (Ellenberger 1970). Breuer and Freud, both students of Janet, published a pivotal

paper (1895/1957) discussing experiments using hypnosis on a woman, Anna O, who was able to resolve several debilitating physiological symptoms by going back in time to specific traumas she had experienced and bringing the traumas into consciousness. The paper had quite an effect on the psychiatric community at the time. Breuer demonstrated by using hypnotic induction how psychological trauma that had been repressed in the subconscious had adversely affected both psychological and physical health, and how those affects could be reversed. Freud eventually quit using hypnosis and developed psychoanalysis that he felt led to the same effect of uncovering unconscious beliefs and memories by using free association and dream analysis.

The collective research contributions on hypnosis by Mesmer, Puysegur, Braid, Charcot, Bernheim, and Breuer, along with Freud's psychoanalytic contributions to therapy led to a large body of evidence and understanding of neurological, physiological, and psychological theory over a period of about a century (Ellenberger 1970; Hughes and Rothovius 1996; Wozniak 1992). The mind–body connection was established as a concept from the evidence that trance states, mental suggestion, psychic trauma, dissociation, and catharsis, as well as the therapist's intention to cure and develop rapport does effect change in the physical body. However, the mechanisms of hypnosis continued to be questioned by the scientific and medical communities with it falling out of favor as a method to reach that cathartic state with Freud's switch to psychoanalytic psychiatry in the early twentieth century and with the acceptance of behavioral psychology and medical pharmacology as preferred methodologies of treatment.

Clinical research into the use of hypnosis for the rehabilitation of war-related disorders, such as, anxiety, obsession, depression, and reactions to posttraumatic stress such as amnesia and psychological paralyses, was sanctioned after World War II in the United States (Watkins 2009). Watkins, a professor at Auburn University in the early 1940s, studied the use of hypnosis for war propaganda prior to working at the Welch Convalescent Hospital in Florida with returning veterans. Watkins continued to work for the veteran administration as the Chief of Psychology in Oregon in the early 1950s at a VA hospital treating

posttraumatic stress in veterans with hypnosis, and he contributed substantially to academic journals on the results of his clinical research (Watkins 2009).

He became a founding member of the Society for Clinical and Experimental Hypnosis in 1949, which was an exclusive society working to establish hypnosis as a reputable contribution in the medical and psychological fields. Due to its membership standards being out of reach for most hypnotherapy practitioners, Milton Erickson established a less restrictive group for practitioners, the American Society of Clinical Hypnosis in 1958 that still produces a journal today (Watkins 2009; Weisberg 2008). By the late 1950s, the American Medical Association (AMA), the Canadian Medical Association (CMA), the British Medical Association (BMA), and the American Psychological Association (APA) all endorsed hypnosis as a valid medical practice (Weisberg 2008). Watkins has gone on to use a combination of psychoanalysis and hypnosis in clinical practice while continuing to teach at the university level and write about his clinical cases throughout the last half of the twentieth century.

Milton Erickson (1901–1980) was probably the best-known American psychiatrist that conducted research, wrote publications, lectured, and developed 3-day workshop training for hypnosis practitioners, bridging the gap between experimental laboratory experiments and clinical experience of hypnosis (Ellenberger 1970). His studies of hypnosis began in collaboration while studying with Clark Hull (1884–1952), the first major scientific researcher of hypnosis at the University of Wisconsin. Hull's contribution to behavioral psychology was to formalize laboratory methods. Hull, and his behavioral psychology followers have continued speculation that research into mechanics of hypnotizability of subjects demonstrates that suggestibility is a behavioral construct (Kirsch et al. 2007).

Initially Erickson's application of hypnotic principles worked to turn resistance in clients to advantage using paradoxical techniques that ultimately contributed to the concept of brief therapy concepts (Nichols 2010). Erickson continued to research hypnosis from the perspective of state theory and added to the literature on many areas of psychopathology that contributed to an understanding of mind–body dynamics. He suggested that the unconscious holds useful knowledge

that assists in the healing process when accessed (Erickson 1974/1980; Hilgard 1987). He also contributed to facilitating the induction process of hypnosis by suggesting that rather than using a ritualistic method, the hypnotherapist take into consideration the needs and personality of the client in any given situation, leading to a more naturalistic approach. He suggested that the naturalistic approach to trance induction was less time consuming and more effective in the long run (Erickson 2009).

Current Theories of Hypnosis

There are two dominant modern theories about hypnosis that have emerged from the original schools of thought developed from the Salpêtrière school from Charcot to Feud, and the Nancy school and Bernheim's work, which are, respectively, called state theory and nonstate theory. State theory follows a neodissociative model that emphasizes that hypnosis activates an altered state of consciousness where by cognitive functioning is no longer in control and a partial dissociative state takes over (Hilgard 1986, 1992). Nonstate theory, or sociocognitive theory, suggests that hypnotic behaviors occur due to the person's suggestibility, attitudes, and/or motivations. The nonstate theory has emerged from Bernheim's early work and the behavioral psychology perspective carried on by Hull and others (Spanos and Chaves 1991; Spanos and Coe 1992). These two opposing theories have both been supported in research with the variance in support related to the concept of degree of susceptibility of the subjects. The argument that some individuals are more susceptible to being hypnotized than others has led to considerable research into the mechanisms of susceptibility.

Modern advances in neurology and technologies that permit brain scans led to research that supports and repudiates both of these theories. Some researchers have noted physiological changes in activity in the electro cortical region of the brain using Electroencephalogram (EEG) readings that demonstrate hypnotic susceptibility (Kirsch and Council 1992; Silva and Kirsch 1992). These findings lent support to Braid's hypothesis in the 1800s of the correlation between high hypnotizability being linked to brain physiology (Braid 1960). EEG readings are a simple process that records and identifies wave patterns of

the brain's electrical activity. Some researchers have found a correlation between individuals with higher susceptibility to being hypnotized producing higher than normal alpha waves while resting (DePascalis et al. 1988; MacLeod-Morgan 1979). Other researchers have criticized those findings due to the supposedly poor empirical design and controls used in the research (Ray 1997). Research has suggested that individuals who are highly susceptible to hypnotic suggestion have more right hemisphere activity in their brains, which has been associated with intuition, imagination, and creativity (DePascalis and Penna 1990; Macleod-Morgan 1979). While other researchers found no relationship between high or low susceptibility to being hypnotized and the lateral hemispheres of the brain (DePascalis et al. 1988; Morgan et al. 1974).

There seems to be evidence that theta brain activity, which is associated with activities such as meditation and focused attention, has been correlated with high susceptibility for hypnosis using EEG outcomes (Crawford and Gruzelier 1992). More sophisticated research methods have yielded support that highly susceptible individuals for hypnotizability have greater theta output in the frontal and temporal cortex areas of the brain at baseline, which suggests a heightened state of concentration of attention (Sabourin et al. 1990). Erickson and Rossi's mind-body research have supported Braid's definition of hypnosis as a reversible amnesia or dissociation, whereby memory is dependent upon the psychophysiological state of the individual at the time of the experience (Erickson and Rossi 1974/1980). These theories have been supported in recent research into the phenomena of Posttraumatic Stress Disorder (PTSD) and Dissociative Identity Disorder (DID) associated with extreme trauma (Gauld 1992; Spanos and Chaves 1991; Bertrand and Spanos 1989). While there have been no definitive conclusions accepted into the mechanisms of hypnosis, the mind-body theories provide the best options for research that may bring more conclusive evidence into how hypnosis works in the future.

Areas of Continuing Hypnosis Research

Research into the efficacy of hypnosis has been actively ongoing in the United States and internationally for both psychological and physiological problems since

the 1950s (Watkins 2009). Due to participants being required to be actively involved in the procedures of hypnosis induction, empirical quantitative research with double-blind and/or single-blind standard procedures have been difficult to accomplish. Despite these procedural difficulties, a literature review sampling found significant studies in a variety of areas within psychological research that include the positive effects of hypnosis for treatment of anxiety and phobias, posttraumatic stress disorder, addictive issues such as smoking cessation, and weight loss. Areas of research into the physiological use of hypnosis have also produced significant efficacy as a treatment modality for such issues as an anesthetic for surgical procedures, chronic pain, gastrointestinal disorders, irritable bowel syndrome, nausea, and asthma.

Psychological and Physiological Research

In combining cognitive-behavioral therapy (CBT) with hypnosis for the treatment of posttraumatic stress disorder (PTSD), one study found a 70% greater improvement in clients' symptoms of distress, as opposed to those that just received CBT (Kirsch et al. 1995). A study treating clients with anxiety and phobias using either systemic desensitization or hypnosis found that both techniques produced significant improvement at a 1-year follow-up (Marks et al. 1968). Another study examining the effects of hypnosis, health education, or behavior modification for the treatment of smoking cessation found that each program reduced cigarette consumption equally (Rabkin et al. 1984). Three studies on the effects of hypnosis contributing to weight loss indicated that for those individuals with high hypnotizability, there was a correlation for greater sustained weight loss (Anderson 1985; Barabasz and Spiegel 1989; Cochrane, and Friesen 1986).

For psychological symptoms of preoperative anxiety, pain, and as analgesia for surgery, several studies have been conducted. Saadat et al. (2006) found a 56% decrease in preoperative anxiety; while Lang et al. (2000) found anxiety and pain decreased, and less analgesia was needed for patients experiencing conscious sedation in minimally invasive procedures during radiology with use of hypnosis. Two studies affirmed postoperative pain reduction in patients that

used hypnosis (Horton et al. 2004; Zachariae and Bjerring 1994). Four studies suggest that patients responded with improved recovery when given positive therapeutic suggestions along with anesthesia during surgery (Bonke et al. 1986; Hutchings 1961; Pearson 1961; Wolfe and Millett 1960). In addition, a critical review of 18 clinical trials that used hypnosis, suggestion, or relaxation as interventions to aide in recovery from surgery by Blankfield (1991) found that while these techniques were still generally underused in hospitals at that time, they all promoted physical recovery, shorter hospital stays, and contributed to a more positive psychological and emotional response after surgery.

Pain has been demonstrated as reduced significantly by hypnosis in a number of studies. Cancer patients with malignant tumors demonstrated significantly reduced pain symptoms in a study by Spiegel and Bloom (1983). Syrjal et al. (1992) found significant pain and nausea reduction in patients with hematological malignancies undergoing bone marrow transplants. A review by the National Institute of Health found that hypnosis was strongly effective in reducing pain in cancer patients (Hammond 2007). A study by Patterson and Ptacek (1997) also found that burn patients experienced less pain during posttreatment when using hypnosis. Two studies on hypnosis for fibromyalgia pain demonstrated relief with symptoms as well (Castle et al. 2007; Haanen et al. 1991).

In the treatment of gastric disorders, one study found relapse significantly reduced in hypnosis users with duodenal ulcers (Colgan et al. 1988), and two studies by Klein and Spiegel (1989) found that gastric acid production can be reduced with hypnosis. In the case of irritable bowel syndrome, five studies concluded that the majority of patients experienced an improvement in symptoms with just one session of hypnosis (Harvey et al. 1989; Tan et al. 2005; Whorwell et al. 1987; Whorwell et al. 1984; Whorwell 1991). A literature review by Whitehead (2006) found eleven studies demonstrating that hypnosis improved symptoms in about 87% of cases for gastrointestinal disorders.

Studies for the use of hypnosis to control nausea have been done with cancer and pregnancy patients. Two studies using hypnosis to control nausea in chemotherapy patients found the treatment to be effective (Redd et al. 1982; Walker et al. 1988). While Fuch et al. (1980)

found group hypnosis more effective than individual hypnotherapy for the relief of nausea in first trimester pregnancy patients.

Four studies found some relief in symptoms of asthma using hypnosis (Ewer and Stewart 1986; Maher-Loughnan et al. 1962; Morrison 1988; Research Committee of the British Tuberculosis Association 1968). In a study with children with asthma, Anbar (2002) concluded that 80% of the patients had improvement in their symptoms. Studies have found that children can also be effectively taught self-hypnosis to manage and improve symptoms of recurrent headaches (Kohen and Zajac 2007), insomnia (Anbar and Slothower 2006), and in lessening anxiety and pain in procedures with pediatric cancer patients (Lioffi et al. 2006).

There has been criticism of the use of hypnosis for accurate recall in a number of studies that led to hypnosis falling out of favor again for a while in the 1980s, especially in the legal system. However, the ramifications of the legal concerns over use of testimony found from hypnosis also affected its acceptability in healthcare (Watkins 2009; Weisberg 2008). Yet, the evidence of research on the efficacy of hypnosis as a viable treatment modality from the 1950s on strongly suggest its use for a variety of chronic pain syndromes, nausea, anxiety, posttraumatic stress disorder, and as a complementary treatment for addiction. Despite the overall finding of the efficacy for hypnosis it has generally been relegated to an alternative medicine status that was not endorsed by insurance carriers or used as a cost-effective alternative to hospital procedures that mandated traditional medical practices in the United States.

Self-help Movement and Integrative Medicine

The personal use of complementary and alternative therapies to promote self-healing jumped in use in the United States in the 1970s and on. Speculating on why the phenomena happened requires looking at several aspects of life at that time. In the 1960s, a large influx of Eastern philosophy, along with social unrest, and psychedelic drug experimentation found its way into some of the academic institutions, and into society at large. Trance states through a number of means were being actively explored by some prominent psychologists and

reported in scholarly journals. Self-induction of hypnotic states through progressive relaxation, guided imagery, deep breathing techniques, and meditation became more commonly practiced to de-stress and to promote self-healing. Humanistic and Transpersonal Psychology that embraced a mind–body–spirit perspective to treating psychological disorders was gaining ground in academic circles. Lay people were experimenting with alternative therapies due to being disappointed with outcomes of the medical model treatments and becoming open-minded to the influences of Eastern spiritual philosophies. This trend continued to grow across the United States through the later part of the twentieth century because alternative and complementary therapies were being demonstrated as less intrusive, less expensive, and more effective for treatment of chronic illness than many of sanctioned treatments prescribed by the medical community. Hypnosis, along with other complementary therapies again reached acceptance within the populace.

At the same time, more technological advances in psychoneuroimmunology, genetics and neuroimaging, and understanding about integrative medicine demonstrated the benefit of hypnosis as an intervention for chronic health problems and in reducing anxiety (Weisberg 2008). Research brought increased knowledge of psychoneuroimmunology and with it a general recognition that stress, anxiety, and depression adversely influence immune function was determined (Kiecolt-Glaser et al. 2001). This research led to further investigation into hypnosis as a means of intervention to activate immune system response to a variety of health challenges. With the inventions of Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET) scans came research that suggested therapeutic interventions that were nonverbal and experiential, such as Eye Movement Desensitization and Reprocessing (EMDR) and Somatic therapies that were more helpful in treating PTSD effectively (Bryant et al. 2001; van der Kolk 1994; Levine 1997).

Integrative medicine has emerged from all of this research, which views health and illness from a new paradigm suggesting that a body–mind–spirit approach be proposed whereby the onset and exacerbation of illness can be found in a synergistic connection between all factors of the individual (Weisberg 2008). The combining of alternative healing

techniques, which includes hypnosis, with traditional medicine has been found to be more effective and less expensive in the treatment of chronic health issues such as pain, anxiety, and stress. This understanding returns to the roots of ancient thought found in Asia and the Middle East.

This new model of integrative medicine returns to an understanding of the importance of a collaborative approach between the practitioner and the patient, as well as the innate human capacity for self-healing. Integrative medicine allows for greater empowerment and participation by the patient in the healing process, thus allowing hypnosis to become part of the arsenal of treatment modalities utilized in the healing process (Weisberg 2008). Recently, there have been studies into combining acupuncture and hypnosis that found a correlation that the unity between these mind–body treatments provided low-cost and more effective treatment that assists the promotion of self-healing for a number of chronic and acute issues (Eitner et al. 2005; Samuels 2005; Lu et al. 2001; Schiff et al. 2007; Zelter et al. 2002).

Future Trends

Clearly, the advances in research that have led to a paradigm shift toward integrative medicine will continue to research and demonstrate the efficacy of hypnosis along with other complementary treatment modalities for the treatment of chronic illness. The high cost, adverse side effects, and poor rate of cure of traditional medicine for chronic pain, anxiety, addiction, and trauma indicate a need for finding more efficacious treatment modalities. Continued research into combining modalities such as hypnosis and acupuncture may prove further the efficacy of hypnotic suggestion in activating an individual's immune system and innate healing abilities. The use of self-hypnosis through such practices as progressive relaxation, guided imagery, mindfulness, and meditation can be taught to individuals to assist in self-healing. Such treatment methods as EMDR, Somatic Experiencing, and Emotional Freedom Technique (EFT) need to be further researched to determine efficacy for treatment of trauma-related disorders. All of these modalities have been noted to include aspects of hypnotic susceptibility.

At this point, even cognitive-behavioral psychologists are suggesting the use of mindfulness strategies

along with traditional psychotherapy to facilitate a wellness philosophy in mental health care (Seligman et al. 2005; 2006). As continued research demonstrates the continuum between states of consciousness and relative health or illness, there may be a wider acceptance of the ancient healing and spiritual practices of trance found in hypnotic induction. Self-hypnosis is easily teachable to even children to facilitate stimulating immune response for healing, self-regulation of pain, and chronic symptoms of psychological and physical distress. Certainly, as people learn that they have control over the functioning of their own immune systems through self-hypnosis, a renaissance of mind–body–spirit practices may occur worldwide lessening the gap between scientific reasoning and intuition found in spiritual approaches.

See Also

- ▶ [Consciousness and Embodiment](#)
- ▶ [Erikson, Erik](#)
- ▶ [Hull, Clark L.](#)
- ▶ [Janet, Pierre](#)
- ▶ [Parapsychology](#)
- ▶ [Trauma Psychology](#)

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Indiana University, History of Psychology at

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The Indiana University Psychological Laboratory, organized in 1888, was the first research and teaching laboratory devoted to experimental psychology in the Midwest, and the second such facility established in the United States. This laboratory served as the matrix for the development of scientific psychology as an academic discipline at Indiana University and provided the nucleus for the Department of Psychology. The department, like American psychology generally, has evolved considerably to the present, both intellectually and institutionally. The early general-purpose laboratory has grown into several specialized laboratories that pursue investigations in a variety of fields, and the department conducts a multifaceted program of research, teaching, and service activities. Despite significant changes in scale and operation, however, laboratory research has remained the vital center of psychology at Indiana for well over a century.

In January 1888, the original laboratory, located in the Department of Philosophy, was established by William Lowe Bryan, a young philosophy professor who had been inspired to pursue the new psychology as one way to reconcile traditional religious and philosophical concerns with the increasingly powerful authority of science. In addition to an intellectual agenda, psychology provided Bryan a route for academic advancement within the university, which was entering a new era as it adapted to the demands of modern higher education. For the first few years, the psychological laboratory was as much a symbol of Bryan's commitment to the promise of science as it was a place to

perform research. In 1892, Bryan obtained a doctorate under G. Stanley Hall at Clark University. During Bryan's time at Clark, Hall was organizing the American Psychological Association, and Bryan became a charter member (and was elected, in 1903, as president). After his return to Indiana, Bryan transformed the laboratory into a scientific workshop dedicated to original research and the training of students. He wanted the laboratory to serve the practical needs of the university, and he stressed the role of experimental psychology in addressing educational issues – particularly scientific pedagogy. As a consequence, investigations of learning emerged as the key motif in the psychology program as it came to dominate the affairs of the Department of Philosophy.

Bryan and his student, Noble Harter, performed a series of groundbreaking studies on the process of learning telegraphy. In their view, the telegraphic language was ideally suited because no other human communication system could be so completely translated into precisely measureable terms that could be easily quantified. And there was much equipment in the psychological laboratory that had been directly appropriated from devices in the workplace, such as the telegraphy key and various types of electrical counters and timers. Their studies represented a strategic research choice, combining methodological rigor with practical significance. Bryan and Harter reported the results of their research in two long articles in 1897 and 1899, in the *Psychological Review*, representing acquisition of learning graphically by kymograph curves. Among the first example of "learning curves," the widely cited studies became a landmark in psychology.

Between 1888 and 1910, Bryan and his colleagues directed a host of bachelor's and master's degree students who went on to professional careers in psychology and in education (e.g., Lewis M. Terman, BA 1902, MA 1903). By 1902, when Bryan embarked on his 35-year term as president of Indiana University, he had recruited a small staff of psychologists to continue

the program, including Ernest H. Lindley, who served as head from 1902 to 1917. For the next 2 decades, undergraduate teaching and public service took much faculty time, and department members played important roles in establishing the university's School of Education. Throughout its first 30 years, the laboratory provided a focus for the ideals – if not always the activities – of Indiana psychologists.

Between the First and Second World Wars, the psychology program continued to have a strong utilitarian thrust, but the foundations of an autonomous research enterprise were also being laid. Enrollment in psychology courses was about twice as much as in philosophy courses, and in 1919, the department was renamed the Department of Psychology and Philosophy, with William F. Book as head from 1917 to 1934. After the First World War, the psychology faculty grew substantially, reaching a total of eight by the early 1930s, including noted theorist J.R. Kantor. Unlike before, many of these new faculty members did not have strong roots in Indiana. Beginning in the 1920s, the rudiments of a doctoral program were assembled, and by the end of that decade, the psychology program had attained complete administrative independence from philosophy. By 1931, the Department of Psychology included a nucleus of productive scientists on its faculty, and research and graduate education were increasingly emphasized. The department developed notable strengths in the areas of animal conditioning, clinical psychology, and psychophysiology, each of which had its own specialized laboratory facilities. Guided by department head Edmund S. Conklin since 1934, pure as well as applied research was flourishing at Indiana at the start of the Second World War, and the department was poised on the edge of far-reaching changes.

Along with the entire university, the psychology department entered a new era after the Second World War. Already in the midst of a renaissance under the administration of Herman B Wells, who had become president in 1937, Indiana University grew dramatically after the war, and research and graduate education were strongly supported. In 1945, B.F. Skinner was selected as chair, bringing a robust experimental program in operant conditioning and a new species – the pigeon – as subject. Scientific ideals came to dominate every aspect of the department's program, and applied research became less important. A host of new young

faculty members arrived, who broadened and strengthened research in both experimental and clinical areas. The topic of learning continued to provide a focus for the department, but a variety of theoretical viewpoints coexisted, all sharing an overarching commitment to methodological rigor.

In 1948, Skinner resigned and joined the Harvard University faculty, and Douglas G. Ellson succeeded him as chair of the IU department. By the early 1950s, the Indiana psychology department was one of the country's leading academic centers for experimental psychology, and for the first time in its history was a major producer of Ph.Ds. Growth continued through the 1950s and into the 1960s as the department expanded into new fields, notably mathematical modeling and sensory psychology, while also strengthening the mainstays of animal learning, physiological psychology, and clinical psychology. By the time Ellson concluded his term as department chair in 1959, faculty size was approaching two dozen, and plans were laid to construct a new facility to house the department. In 1960, psychologist William K. Estes became the first faculty member on the Bloomington campus to receive the title of Research Professor. The new Psychology Building was dedicated in 1963, and by 1964–1965, the faculty boasted 40 faculty members at the assistant professor level and above. Various national rankings of American university graduate programs in the 1960s placed Indiana among the top dozen or so institutions in the country, with high ratings for both the quality of its faculty as well as the effectiveness of its doctoral training. The department was chaired by Roger W. Russell (1959–1967) and Conrad G. Mueller (1967–1969), and Delton C. Beier served as Director of the Psychological Clinic (1945–1969).

Along with the rest of the academic community, the psychology department entered an era of limited resources in the 1970s. Faculty size reached a steady state of around 40 members, and Ph.D. production leveled off. Notable efforts to recruit women faculty members started in the early 1970s. The program came to encompass the major areas of animal behavior, cognitive/mathematical, sensory, physiological, developmental, social, and clinical. In 1969, Irving J. Saltzman began a 20-year career as department chairman. Toward the end of that period, in 1988, the department observed the centennial of the founding of the original psychology laboratory with a gala

celebration, with many of the department's 500 doctoral alumni in attendance (Capshew 1988).

Over the past 20 years, the department has changed in response to disciplinary and professional trends within the field of psychology, and has maintained its status as one of the best science departments at Indiana University. Among the important developments was the creation of an interdisciplinary graduate program in Cognitive Science in the early 1990s, directed by cognitive psychologist Richard Shiffrin. In 1997, the undergraduate psychology program was ranked 13th in the nation in the "Gourman Report of Undergraduate Programs" published by *Princeton Review*. Facilities have undergone expansion and modification as a major addition to the Psychology Building was completed in 2002. A brain-imaging research center was dedicated in 2006 in order to perform functional magnetic resonance imaging (fMRI) to indicate brain activity while subjects are engaged in various tasks. As experimental psychology turned increasingly toward neuroscience and clinical psychology renewed its claims of clinical science, the department was renamed Department of Psychological and Brain Sciences in 2005, reflecting a diversity of approaches to the field. Another department faculty member, Sharon S. Brehm, was elected President of the American Psychological Association in 2007.

Although specialization has continued, rigorous research training remained the hallmark of the graduate program for both experimental and clinical students. In 2010, students could specialize in the following Ph.D. programs: Biology, Behavior, and Neuroscience; Clinical Science; Cognitive Neuroscience; Cognitive Psychology; Developmental Psychology; or Social Psychology. Today, the department enjoys a secure reputation as an important scientific institution in psychology. Well into its second century, the legacy of the laboratory endures.

See Also

- ▶ Hall, G. Stanley
- ▶ Skinner, B. F.

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Industrial-Organizational Psychology

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Industrial-Organizational (I-O) Psychology is defined simply as "psychology applied to work" (APA 1971). It studies "work" in its broadest sense, including paid and unpaid effort, recreation, and any purpose-driven effort (sports, hobbies). Compared with other specialties, I-O is more "applied" – putting practice above theory, since it typically aims to solve specific problems, increase efficiency, and maximize outcomes.

For over a century, I-O psychology consists of four distinct sub-areas, each with its own history: (1) *Personnel*: fitting the individual to the current organization, using psychological tests and other methods to assess job applicants or current employees. (2) *Organizational*: fitting the organizational structure to its current individuals, through organizational development (OD) or other restructuring methods. (3) *Consumer behavior*: strengthening the organization's effective two-way communication with the outside world – both outward (advertising) and inward (market research). (4) *Human factors* (or ergonomics): adapting the physical environment to fit the worker, through diverse means – such as office architecture, equipment design, work schedules. Each specialty within I-O psychology has its own historical origins (Benjamin and Baker 2004) (see Table 1).

Personnel psychology is the oldest and once-largest specialty. It dates from 1890, when James McKeen Cattell (1860–1944) coined the term "mental tests." After raising this possibility to quantify individual mental abilities, Cattell soon devised 10 sensorimotor tests to select graduate students for his program at Columbia University; 30 years later, Cattell founded the Psychology Corporation in 1921, which still continues to apply psychological assessments to improve

Industrial-Organizational Psychology. Table 1

Background of I-O psychology

1879 – Wilhelm Wundt “founds” the science of psychology, forming the first psychology lab in Leipzig
1890 – Columbia professor J.M. Cattell coins the term “mental test” in the journal <i>Mind</i> , and suggests 10 perceptual-motor tests which, by 1894, are part of Columbia’s procedure for selecting psychology students for admission
1901 – On December 20, W.D. Scott lectures on “The psychology of selling” to a group of Chicago businessmen. This popular idea quickly grew into four books starting with <i>The Theory of Advertising</i> (1903)
1911 – “Scientific management” arrives in F.B. Gilbreth’s <i>The Brick-Laying System</i> and F.W. Taylor’s <i>The Principles of Scientific Management</i>
1913 – At Harvard’s Laboratory of Applied Psychology, Prof. Hugo Munsterberg’s popular <i>Psychology and Industrial Efficiency</i> also sells applied psychology to industry
World War I – Psychologists and their new tests are called upon for selection and training of 1,700,000 military recruits. Their efforts proved enormously successful
1927–1939 – Psychologists and engineers conducting the “Hawthorne studies” document the importance of informal social relations among workers. This 12-year study of <i>Management and the Worker</i> (Roethlisberger and Dickson 1939), led to the “human relations movement”
World War II – Again, 2000 psychologists are recruited by the US military to develop new areas of I-O expertise: training, placement, and human factors
1971 – The APA Task Force report on the practice of psychology in industry
1987 – The industrial psychology group, which joined APA as its Division 14 in 1943, incorporated in 1987 its own Society for Industrial-Organizational Psychology (SIOP), now semi-autonomous of both APA and the then-new APS
2010: SIOP members considered changing its name, then voted to keep it

industrial and other organizations. This specialty took a huge step forward in 1917–1921, when a team of military psychologists was charged to develop new group ability tests to quickly assess thousands of the 1.7 million recruits drafted into service for World War I. In the 1920s, their work developing both verbal and nonverbal tests was seen as hugely successful, to

quickly match soldiers with assignments. Over the decades, psychology in industry burgeoned, to the point where in 1971 the American Psychological Association released an APA task force report focused on the growth and special challenges of what it now re-named “I-O” psychology.

Today personnel psychologists are charged with many tasks, all assessing the individual to better fit into the organization. This includes job analysis (the duties of a specific job), performance appraisal (how well the individual or unit is performing), recruitment of new employees, selection and placement of job candidates, training, job design, safety, and personnel decisions.

Organizational psychology originated in the pioneering work on “scientific management” around 1910 by Frederick W. Taylor (1856–1915) to make US industry more competitive. Later, the classic “Hawthorne studies” conducted in the Western Electric plant in Hawthorne, Illinois, in 1927–1939 documented how workers’ feelings toward their employer impact their performance – maintaining that it is the wise employers who make their workers’ satisfaction a goal alongside productivity. These Hawthorne studies were later debunked as flawed, but not before launching a powerful “human relations movement” (HRM) in US industry. In 1960, Douglas McGregor (1906–1964) published his classic HRM manifesto entitled “The human side of enterprise” (McGregor 1960). This “O” in I-O surpassed personnel as the largest I-O specialty after the 1950s, due to many factors – the massive growth in the size and complexity of US corporations, as well as the growth of service (versus production) workers from 20% to 80% of the US work force.

Today, organizational psychologists try to adapt the organization to fit its current employees on two levels: (1) management psychology, focused on diverse ways to improve leadership; (2) human relations, focused on diverse ways to motivate employees in general. Some key topics in organizational development are: worker motivation, satisfaction, person-environment fit, employee attitudes surveys (EAS), organizational citizenship behaviors (OCB), burnout, payment/benefit systems, stress, employee assistance programs (EAP), training and development.

Consumer behavior originated back in 1901 with an immensely popular series of pre-Christmas lectures to a group of Chicago businessmen on “the psychology of

selling” by Walter Dill Scott (1869–1955), which quickly became a book *The Theory of Advertising* (Scott 1903). Starting in the 1930s, psychoanalyst Ernst Dichter (1907–1991) introduced “Motivation research,” probing the unconscious factors in consumer attitudes. After World War II, war-time research on propaganda, along with the growth of corporations in general and Madison Avenue advertising in particular, led hundreds of psychologists into consumer research and practice.

Today, psychology’s role has waned in consumer behavior, and is divisible into two specialties. (1) *Advertising* focuses on the effectiveness of the organization’s outward communication – to the public, policy-makers, and others. (2) *Market research* focuses on the accuracy of inward communication into the organization from the outside – the public, policy-makers, and others. For example, Sony Electronics conducts market research to learn what new products the public desire so that it can design them, then advertises to draw the public toward these new products. Because of their training in methodology (experiments, surveys, statistics), psychologists are now far more involved in marketing, leaving advertising more to non-scientists. Moreover, in large corporations, there is typically a healthy tension between these two functions, since the role of the marketing department is to objectively assess the impact of the advertising department.

Human factors originated in the pioneering work around 1910 by F.W. Taylor and his colorful colleagues Frank B. Gilbreth (1868–1924) and his wife Lillian Gilbreth (1878–1972). This couple pioneered “time-motion” research which revolutionized the ancient craft of brick laying, and was initially welcomed by labor unions as much as management for gains in work efficiency. The Gilbreths wrote “Cheaper by the dozen,” applying their efficiency methods to run a 12-child household, and in 1984 Lillian became the first psychologist to be honored with a US postage stamp. During World War II, ergonomics advanced apace with the need for pioneering new methods to develop “person-machine” systems, to maximize the safety of complex new equipment – airplanes, submarines, and other new devices.

Today, ergonomists are involved in diverse ways to harmonize workers with their physical environment: time-motion analysis, operator-machine systems,

workspace design, open architecture offices, safety and accident-reduction.

Compared with other fields of psychology, I-O psychology today has several features: (a) *Small*: I-O is a small specialty, including just 5% of US psychologists. (b) *High-employment*: Since I-O is in high demand in the industry; it has a negative unemployment rate below zero. (c) *Lucrative*: I-O has long had the highest salary, averaging at least 25% higher than 14 other psychology specialties. (d) *Separate*: I-O has become a very separate specialty within psychology, with its own independent association since 1987 – the Society for I-O Psychology (SIOP). (e) *Hybrid*: I-O overlaps with business and other social sciences. (f) *Credentials*: There is no one credential to define who is an I-O psychologist – be this a M.A., M.S., M.B.A., Ph.D., Psy.D., state license, APA or SIOP membership, or ABPP Diploma. (g) *Demographics*: SIOP members today are 6% ethnic minorities, 37% female, only 26% licensed, and 85% have a doctorate. I-O work settings vary greatly – employees in large firms, small “boutique” consulting firms, professors in psychology or business programs, or solo-practitioners.

Several useful volumes offer different overviews of I-O psychology. Riggio (2008) offers a textbook for students and novices. Jones et al. (1991) offer a practical handbook for managers to find research-based solutions to common questions. Dunnette and Hough (1990–1994) offer the definitive four-volume handbook of I-O psychology. There are also numerous web resources on I-O psychology (www.siop.org), *human factors* (www.hfes.org), *human resources* (www.hrny.org), and *the many divisions of psychology in general* (www.apa.org/about/divisions).

Today, I-O psychology faces several challenges – such as globalization of organizations, the increased diversity of the US workforce, increased regulation by government and labor law, and the changing nature of work. These same challenges make a science-based I-O psychology more indispensable to successful organizations.

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Irwin, Orvis

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Orvis Irwin received his Ph.D. in psychology from Ohio State University in 1929, and as a professor of psychology at the Iowa Child Welfare Research Station,

beginning around 1945, he initiated a series of studies on the speech sound development of infants. This period of language development, often referred to as the babbling stage, had been given only limited attention in biographical accounts of the psychosocial development of infants. As electronic recording was not available at the time Irwin's investigations were conducted, Irwin began his research by establishing a system of examiner reliability. Large numbers of infants were included in each of his meticulously conducted investigations which reported the growth of the sounds of English-speaking infants from birth to 30 months. The results of these investigations served as the basis for descriptive and theoretical accounts of speech sound development and provided a foundation for later investigators when electronic sound recording, speech sound spectrography, and X-ray technology were available and when comparisons could be made among infants from a variety of linguistic communities and when the effect of various stimulus conditions could be assessed.

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J

Jahoda, Gustav

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Basic Biographical Information

Birth date: October 11, 1920.

Birth place: Vienna, Austria; naturalized British subject
Educated Vienna, Paris, and London.

Major Accomplishments

Prof. Jahoda was perhaps the first modern cross-cultural psychologist. He has done pioneering research that plumbed important methodological issues.

As a young lecturer in social psychology at the University of Manchester, he went, in 1952, to what was then the Gold Coast (now Ghana). This was long before there was such a thing as cross-cultural psychology, which did not emerge until the 1960s, and IACCP was not founded till 1972.

He tried but failed to replicate some social psychology experiments, which left him with permanent reservations about that area.

At that period, the IQ of Africans were not infrequently regarded as inferior, and in particular they were said to be (in reputable publications) incapable of abstraction. In a series of experiments, the falsity of such generalizations was demonstrated.

After spending 5 years in Africa, he set up a new department at the University of Strathclyde. For the next two and a half decades, he returned regularly to Africa, and also did research in India and Hong Kong. His main research topics included susceptibility to visual illusions, space perception, and cognitive development.

Most studies administering Piagetian tasks to African children reported that they perform at a lower level than young Genevans. He suspected that the reason was the latter's greater familiarity with the materials, so that one could reverse the relationship by finding a sphere more familiar to African children. He proved this by using ecologically valid tests.

Other evidence shows that with rapid social change, the gap between the performances of African and European children is closing.

Whereas Jahoda was closely involved in the groups from which his subjects came, he laments that most cross-cultural today rarely have personal contact with participants. They typically ask colleagues in third world countries to administer questionnaires or scales for them. Jahoda finds this trend disconcerting.

He also feels that typing societies as individualistic or collectivistic is reified and misleading because it obscures the diversity within societies. Jahoda favors more concrete, situational descriptions of social conditions. This enables the researcher to explore specific processes that link culture and psychology.

Jahoda's *Crossroads between Culture and Mind* masterfully traces the history of cultural psychology, especially developments in the eighteenth century and German idealistic *Volkerpsychologie*. He addresses the crucial question of whether psychological science should/can be a universal science or a culturally specific discipline that varies in different societies.

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Janet, Pierre

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Janet's obituary in *The Psychological Review* (1949) begins, "This year saw the death of a man whose name will be one of the great landmarks in the history of psychology." Janet was the dean of French psychology after Charcot, Binet, and Ribot died, according to Boring, *A History of Experimental Psychology* (1950). Janet stood at the threshold of all modern dynamic psychology according to Ellenberger, *The Discovery of the Unconscious* (Ellenberger 1970). Among the psychologists influenced by Janet were Eugen Bleuler, Carl Jung, Alfred Adler, Sigmund Freud, and Edwin Guthrie.

Janet was born in Paris, he was a gifted student, and he received a privileged education. He began teaching philosophy in secondary schools. He became interested in psychology and volunteered at a hospital in Le Havre where the doctors allowed him to observe patients. At that time he was looking for topic for a doctoral thesis, and there he met a woman who could be hypnotized at a distance. She became his research subject, and subsequently she provided the opportunity for Janet's area of investigation, hysteria. This research introduced Janet to scientific psychology. His approach to psychology was influenced by Theodule Ribot (1839–1916). Ribot was the first person to hold the chair of experimental and comparative psychology at the College of France, and he was a significant figure in introducing the new, scientific psychology, in France. Janet's dissertation was titled *Psychological Automatism: Experimental-Psychological Essay on the Inferior Forms of Human Activity*. Therein, his purpose was to reveal elementary automatic activity that was normally inhibited by higher mental functions.

Janet's dissertation introduced the automatism as the irreducible object of study. His dissertation was noteworthy in the history of psychology because of his treatment of automatisms (the more or less complex purposive acts of behavior) in terms of conscious versus subconscious control. Janet

introduced the "subconscious" to the status of psychological phenomena. When consciousness was the undisputed object of psychology, Janet argued that phenomena that were unconscious were also within the field of psychology. This means that psychology remained the science of the consciousness, but for Janet the observed scientific object becomes behavior made manifest in purposeful activities, activities often inaccessible by the method of introspection.

With regard to Janet's method, science required identification of elementary units followed by their individual study. For Janet, the automatism was the irreducible element, and his choice was significant when most psychologists had selected the sensation as the basic starting point from which to analyze the mind. The automatism (reoccurring organized behaviors) followed an autonomous and subconscious development: That is common habits were often learned outside of complete awareness. Historically, the discovery of the unconscious can be interpreted as a chronological chain of events where religious exorcism was linked to animal magnetism that in turn was linked to hypnotism, and hypnotism provided the important research that linked suggestion to modern dynamic theories of psychology. Janet forged the link that provided a scientific explanation of hysteria.

In 1902, Janet succeeded Ribot as the professor of experimental psychology at the College de France. Janet was perhaps the most eminent representative of French psychology at the beginning of the twentieth century. Believing that in psychology there were too many explanations on too many narrowly defined subjects, he undertook the construction a unifying model of human psychology. From approximately 1909, Janet worked on a comprehensive theory of psychology. Basing his theory upon adult psychology, psychopathology, child psychology, ethnology, and comparative psychology, Janet emphasized the analysis of "tendencies." For practical purposes, for the English speaking reader, tendencies are synonymous with habits. Janet's concept of tendency seemed to evolve from his automatisms; although similar, they were different. With the automatism the emphasis was on an internal source of action while with the tendency, the emphasis shifted to

the probability of the occurrence of the activity of interest based on the given environment.

Janet's theory was expressed in *Medecine Psychologique* (1923). He said that he was taking up his previous studies from a new perspective, and the new view gave special emphasis to the basic principles and methods of psychotherapy. Janet advanced a social-behavioral theory to describe the conditions under which learning occurred. He believed that an individual's behavior was the result of the complicated functioning of a multitude of habits that were being constantly formed and modified. The acquisition of new habits relied on the well-known trial and error paradigm and conditioned reflex theories. True to his clinical experience, Janet's approach emphasized the untoward effects that followed the failure to progress apace toward successful habit formation. He believed that adaptation, and its deficiencies, were of the greatest importance in mental medicine. Emphasizing the central role of learning, the habit was treated as the fundamental unit of analysis. He used widely received learning paradigms to organize, illustrate, and conceptualize mental phenomena. He relied on the conditioned reflex theory that was attended with the familiar physiological terms of stimulus and response for concepts in the analysis. What distinguished Janet was his concept of "mental force."

Janet argued that energy was an important factor in the analysis of habit formation. He observed that his patients often lacked the ability to initiate successful responses to meet situational demands, and he attributed this failure to a lack of what he called "mental energy." Activity, behavior, implied that learning could not be divorced from physiology. Obviously, learning required effort, and Janet pointed out that learning required energy over an extended period of time. Thus, an energizing component was a dynamic principle that could be used for analysis. Boring, *The History of Experimental Psychology* (1950), recognized Janet's psychology as dynamic by saying that life for animals and plants was built around a continuous struggle for existence, and it was obvious that psychology had to consider the activity of the organism acting in accordance with internal tensions that represented the potentialities for action. Janet gave credit for this concept of mental force to William James's, *On Vital*

Reserves (1911). Janet assumed that acquiring a new habit required excess energy with which to generate the new combinations of movements.

Janet asked, what mechanism was at work in the mobilization of this energy? He assumed that energy was necessary to support responding through the necessary number of learning trials. He assumed that the amount of energy available to acquire new habits was not the same for everyone. Energy was clearly defined: A person's energy was diminished when they could no longer do what they previously had done, and energy was restored when the person regained the ability to carry out their previous activities. However, "mental energy" was not a simple concept. Attending the concept of mental energy was the concept of "psychological tension." For Janet, psychological tension pointed to the capacity of the individual to rise to the occasion with regard to both discrimination and the appropriate organization of activity. Learning was not only constrained by physical stamina, it was also constrained by the capacity of the individual to use their resources effectively. Together, the interaction between mental energy and mental tension formed the necessary conditions for successfully learning adaptive behavior.

The goal was to understand the critical balance between the primary conditions of learning: energy and tension. And the role of the psychotherapist was to analyze the client in terms of assessing their available energy and their capacities to organize it toward their goals. Expressed in terms of economy, the goal of psychotherapy was to plan a realistic mental economy for the individual, one that used his or her resources effectively. Janet believed that the psychology of behavior that proved so useful in the study of animals should be applied to describing even higher psychic functioning in terms of behavior and that someday mental disorders would be described solely in terms of action and conduct.

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Japan, History of Psychology in

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Introduction

Before surveying the history of psychology in Japan, it is essential to first know that psychology or science of mind, in the modern definition, was not studied until the mid-nineteenth century. Prior to then, Japanese scholars were unaware of such possibilities. However, it does not mean that Japanese literature contained no descriptions of the human mind, just that it was not studied scientifically.

Consider Zen and its effect on Japanese psychology. Zen is a religious practice and a tradition that harks back to thirteenth-century Japan. Though applying Zen to psychotherapy began in the twentieth century, the essence of Zen practice or meditation lays in the quest for an undivided state of inner experience, which rejects any theory of mind or scientific analysis. Thus, Zen has been only a marginal topic for psychological research in the history of psychology in Japan (Kato 2005).

The new science called “psychology” was introduced in Japan at a time when the country was undergoing enormous changes, both societal and political. Unlike many other countries, psychology’s beginnings in Japan are easily identified in a timeline (described below in Historical background).

Definition

The history of psychology in Japan began in the 1870s, where it was imported from Western countries (prior to this is the prehistory period) (Oyama et al. 2001; Sato and Mizoguchi 1997; Sato and Takasuna 2003). The foreign study first required a name in Japanese, and this need was met by early pioneer Amane Nishi (1829–1897), who coined the word *shinrigaku*. Literally translated, *shin* means mind, *ri* refers to reason, and *gaku* implies knowledge or science. To this day, *shinrigaku* remains the current Japanese word for psychology. In 1888, Yujiro Motora (1858–1912), the first Japanese psychologist, propelled *shinrigaku* to the next phase by presenting the first lectures on psychophysics

at Imperial University. Twentieth-century Japan brought with it a sharp rise in the number of psychologists and research institutions. Before World War I (1914–1918), psychology was applied to industry and the military. Postwar, American psychology replaced the German influence of Gestalt psychology. Each of these periods is described below.

Accounts written by Japanese psychologists before World War II (1939–1945) often describe psychology’s existence in Japan before the mid-nineteenth century in terms of its connection to Eastern thinking (i.e., Buddhism and Confucianism). One example, *shingaku* (literally, mind science), was proposed by Baigan Ishida (1685–1744) and popularized in the eighteenth century. However, this *Sekimon* school of scholars not only educated people on how to realize the nature of themselves, but how they should serve the world, demonstrating the deep influence of Eastern thought. *Shingaku* is now considered a branch of Eastern moral sciences and is not associated with anything common to modern psychology, despite it sounding close to *shinrigaku*.

Historical Background

During the Edo era (1603–1868), Japan’s government enforced a rigid closed-door policy (1641–1854) against all Western countries (except the Netherlands), which seriously restricted the import and, so, impact of foreign knowledge. Beginning in the Meiji era (1868–1912), Japanese scholars were finally introduced to the many fields of Western science, including psychology. The sea change occurred in July 1853 when Commodore Matthew Perry (1794–1858) appeared off Japan’s shores with his squadron of four American warships. Though the Japanese government reconciled one-sided treaties with its new partners (USA, Great Britain, and France), a new desire to be accepted as an equal to the West provided additional incentive for Japan to overhaul its political system and open the door to Western social customs. Consequently, the modernization or westernization of Japanese society came about rapidly and continued until the early 1870s.

Throughout the Meiji Restoration (1867–1868), the revamped Japanese government endeavored to import various knowledge and techniques from Western countries. The new way of living dramatically transformed day-to-day life for Japanese citizens, being referred to

as *bunmei-kaika* (civilization). People adopted a Western lifestyle, such as wearing Western clothes and hats and using electric lamps and solar calendars. Besides foreign material goods, Western religions were more widely accepted, whereas Christianity had been officially forbidden from the beginning of the Edo era until 1873 when both Catholic and Protestant churches were acknowledged. Because many Japanese intellectuals considered Christianity to embody the spirit of Western civilization, missionary schools welcomed these innovators with access to Western knowledge. The schools not only produced clergymen but also leading social critics and scholars, including Matora.

The Meiji government threw itself wholeheartedly into the new goal of Western acceptance by dispatching many Japanese students to Western countries – at government expense – to absorb new scientific knowledge and bring it home. Yet, this support did not include those pursuing the subjects of psychology and the humanities as these were generally not considered urgent or practical for supporting Westernized society, compared to, say, medicine or law. Hence, scholars who majored in psychology (and at that time, philosophy) did not enjoy learning abroad at national expense until much later. For years until World War II concluded, studying abroad was regarded as a prerequisite to obtaining a professorship at a national university.

Key Issues

Timeline of the History of Psychology in Japan

1870s–1888: Introductory Period

The introductory period is characterized by two landmarks: coining *shinrigaku* and introducing the new field into the modern educational system. Nishi, who went to the Netherlands from 1862 to 1865, studied economics, philosophy, and politics at Leiden University. After returning to Japan, he translated the book *Mental Philosophy* by American philosopher Joseph Haven, whose first edition was published in 1857. In 1875, Nishi published the first part of the Japanese edition, *Shinrigaku*. Though no direct connection exists between Nishi's study in the Netherlands and the birth of psychology, his claim to the term *shinrigaku* marked a turning point because many schools were

simultaneously applying the word into curricula (Kaneko 1987). Ironically, Nishi originally used the term as an abbreviation of mental (*shinri-jo-no*) philosophy (*tetsugaku*), not as an exact translation of psychology, but this is moot since the term has been used to refer to psychology ever since (Nishikawa and Takasuna 2005).

In 1877, the Meiji government established Tokyo University as the first national university in Japan. However, there was a dearth of Japanese professors to teach the new sciences including psychology. Nishi never qualified for professorship because he had not formally matriculated at a foreign university. Note that although many foreign educators were hired at various schools early in the Meiji era, virtually none specialized in teaching psychology. Add to that the limited number of visiting foreigners who presented lectures in philosophy, ethics, and psychology to Japan's university students further hamstrung the field.

Therefore, because decades came and went where the entire history of Western philosophy was unknown to Japan, it is not surprising that when knowledge from Plato to Hegel finally arrived, it did so all at once. And so it fell to the first generation of philosophers, including early psychologists, to translate Western literature into Japanese and to conceive Japanese terms that corresponded to the new concepts. Some examples of newly invented words included those that translated to “philosophy,” “consciousness,” “attention,” and “representation.”

Masakazu Toyama (1848–1900) was one of the few Japanese professors at Tokyo University. He had previously studied chemistry and philosophy at the University of Michigan (1873–1876). Toyama became the first Japanese professor to lecture on psychology, emphasizing his talks on the English writings of Alexander Bain (1818–1903) and Herbert Spencer (1820–1903) (Matsumoto 1937). Toyama did not contribute theoretically to the psychology field in terms of writing papers or textbooks, but he advanced the field in two ways. In 1888, he helped bring experimental psychology to Japan by appointing Yujiro Matora, a new lecturer of psychology at Imperial University (renamed from Tokyo University in 1886). And he helped spread the concept of evolutionary theory within Japanese academia.

Toyama secured the 2-year appointment of Edward S. Morse (1838–1925), an American zoologist who,

fortuitously, was visiting Japan in 1877 to collect samples of brachiopods (lamp shells). In September 1887, as professor at Tokyo University, Morse presented the first lecture on Darwinian evolutionary theory. His anxiety over a potential audience backlash was unfounded, as the theory of evolution became nationally accepted by the Japanese without remarkable objection. The easy approval came likely because Japanese people were familiar with wild monkeys that widely inhabited Japan, particularly Japanese macaques and their seemingly human attributes.

1888–1912: Motora's Contribution

Modern psychology that featured psychophysics and experimental psychology was not fully introduced to Japanese students until 1888 when Yujiro Motora began lecturing on psychophysics. Motora had been interested in Western knowledge since his youth and went abroad to the United States (USA) in 1883. After 2 years of studying philosophy and theology at Boston University, Motora continued on to Johns Hopkins University, mostly to study under G. Stanley Hall (1844–1924), whose psychology laboratory was founded in 1883. Motora's experimental studies on dermal sensitivity using psychophysical methods resulted in his coauthoring a paper with Hall. Published in the inaugural volume of the *American Journal of Psychology* in 1887, it became the first psychological paper by a Japanese scholar. In 1888, Motora completed his dissertation and was awarded a Ph.D. (in philosophy, not psychology).

When Motora returned to Japan, Toyama, the Dean of the College of Letters at Imperial University, invited him to teach a psychophysics course. Consequently, Motora began there as part-time lecturer beginning September 1888. This opportunity also allowed him to demonstrate a few experiments to the students. Motora achieved professorship in 1890, the year he published the textbook *Psychology*. It was Japan's first textbook of scientific psychology and included several figures of the brain and geometric optical illusions. Shortly thereafter, in 1893, Imperial University established a chair system that supported two professors in "psychology, ethics and logic" independent from the philosophy chair. Motora was appointed to one of the chairs and began lecturing not only on psychology but on ethics and logic. Rikizo Nakashima

(1858–1918), who obtained a Ph.D. in philosophy at Yale University in 1889 and specialized in ethics, was appointed to the second chair.

To enable further pursuit of psychology research, a few more implementations were necessary. First, a curriculum was needed so students could learn concepts and theories in modern psychology on a university level. Making psychology coursework available would lead to increased numbers of students majoring psychology. This in turn would ultimately make viable the publishing of a scientific journal specializing in psychology, the founding of a society of psychologists, and eventually the holding of a nationwide conference on psychology. While the burgeoning of psychology in Japan followed this path, establishing a psychological society with regular conference was not realized until the 1920s.

Motora established the first psychological laboratory in 1903 at Tokyo Imperial University (as renamed in 1897), following up in 1904 with a newly implemented course of study. Finally, undergraduates were allowed to major in psychology within the Department of Philosophy at the College of Letters (Sato and Sato 2005). This revolutionary change tacitly acknowledged the acceptance of psychology as an independent course of study within the academic curriculum, although no change was made to the bachelor's degree awarded.

The second laboratory was settled in 1908 at Kyoto Imperial University (founded in 1897) by Matataro Matsumoto (1865–1943), one of Motora's earlier students. Matsumoto received his undergraduate degree from Imperial University in 1893 and continued on as a graduate student with experiments on acoustic space. After attending a lecture by George T. Ladd (1842–1921), a professor of moral philosophy and metaphysics at Yale University who was visiting Tokyo in 1892, Ladd encouraged Matsumoto to go to Yale. In 1896, Matsumoto entered graduate school in psychology at Yale to conduct experiments under Edward W. Scripture (1864–1945), receiving his doctorate from Yale in 1899. In 1906, when a new College of Letters was established at Kyoto Imperial University, Matsumoto was appointed to the psychology chair, the first chair dedicated solely to psychology. Two years later, in 1908, Matsumoto established a second psychological laboratory in Kyoto.

Motora presented a paper, “The idea of ego in oriental philosophy,” at the fifth meeting of the International Congress of Psychology (ICP) held in Rome in 1905. Motora was not the first Japanese to present at an ICP as two Japanese scholars presented their research at the ICP’s fourth meeting in Paris in 1900: Tomeri Tanimoto (1867–1946) specialized in pedagogy, and Tongo Takebe (1871–1945) was a sociologist. However, the first for both the ICP and Japanese scholars was the appointment of Motora and a pediatrician, Yasusaburo Sakaki (1870–1929) as committee members. The ICP had never before extended the invitation to anyone outside Europe or North America (Rosenzweig et al. 2000).

Although Motora conducted experiments with Shuzo Kure (1865–1932), a professor of psychiatry at Tokyo Imperial University, no Japanese psychologist graduated from a Western-style medical school, such as that corresponding to the education of Wilhelm Wundt (1832–1920) in Germany or William James (1842–1910) in the USA. As a result of Western medicine arriving in Japan not much earlier than psychology, it did not impact the development of psychology. After Motora’s death in 1912, Matsumoto moved from Kyoto to Tokyo Imperial University to chair the psychology department. The new position included endorsement of applied research and rejection of abnormal psychology (see later section of Fukurai Affair).

1910s–1920s: Burgeoning of Psychologists

When the first volume of *Shinri Kenkyu* (literally, psychological research) was issued in January 1912, it signals Japan’s first foray into publishing periodicals specializing in psychology. Yoichi Ueno (1883–1957), one of Motora’s students, compiled virtually the entire journal. *Shinri Kenkyu* reigned as the sole psychological journal until 1919 when *Nihon Shinrigaku Zasshi* (literally Japanese psychological journal) came into print in Kyoto. The new journal was rather short lived (the final volume was published in 1922), mainly due to economics. Not long after, in 1923, *Nihon Shinrigaku Zasshi*, a new quarterly journal with the same name was published in Tokyo. Since both editorial offices were connected with the Department of Psychology at Tokyo Imperial University, in April 1926, *Shinri Kenkyu* and *Nihon Shinrigaku Zasshi* were integrated into a single,

new periodical, *Japanese Journal of Psychology* (*Shinrigaku Kenkyu*).

Meanwhile, the College Act enacted at the end of 1918 finally allowed private schools to be officially acknowledged as colleges or universities provided they met specific requirements. In due course, new psychological laboratories blossomed at various universities, totaling 15 laboratories by the beginning of World War II: six imperial universities (Tokyo, Kyoto, Tohoku, Kyushu, Keijo, and Taihoku), two national universities (Tokyo Bunrika and Hiroshima Bunrika), and seven private universities (Kwansei Gakuin, Nihon, Keio, Doshisha, Hosei, Waseda, and Rikkyo) (Japanese Psychological Association 1980).

From the late nineteenth century to the beginning of the twentieth century, many Japanese psychologists visited Wundt in Leipzig, Germany. The only Japanese psychologist to receive a doctorate from Leipzig was Umaji Kaneko (1870–1937), who earned Ph.D. in 1904 (Oizumi 2003). His dissertation, *Moralphilosophie Adam Ferguson’s*, was evaluated by Max Heinze (1835–1909) and Wundt. Motora chose to study for his Ph.D. under Hall, one of the first American students to attend Wundt’s seminars. Matsumoto’s dissertation was directed by Scripture, who also obtained his Ph.D. under Wundt. Thus, the early years of Japanese mainstream psychology were influenced by Wundtian psychology as modified by American psychologists.

Wundt’s influence was such that not even his death deterred Tanenari Chiba (1884–1972), an associate professor at Kyoto Imperial University, from traveling to Germany at the end of 1920 for additional psychology studies. While staying in Leipzig, he was nominated as the first chair of the psychology department at newly founded Tohoku Imperial University. Shortly thereafter, Chiba discovered a large collection of books and journals once owned by Wundt for sale at a bookstore in Leipzig. He promptly decided he must procure them for his new psychological laboratory. After a period of negotiation, he purchased so-called *Wundt Bunko* (the Wundt Collection consisted of 6,762 books and 9,098 reprints) and successfully shipped them to Japan. Since then, the *Wundt Bunko* has been well preserved at the Central Library of Tohoku University (Takasuna 2001).

Matriculation to a college or university did not include women in nineteenth century Japan. Around

the turn of the twentieth century, a few schools for women emerged with the word “college” attached to them (e.g., Japan Women’s College, founded in 1901 in Tokyo); none was officially acknowledged as a college or university, even after passage of the 1918 College Act. It took enacting the School Education Law in 1947 for women to realize opportunities in higher education, but some women managed to skirt the problem before then (Nishikawa and Takasuna 2005, chap. 13).

Tsuruko Haraguchi (née Arai, 1886–1915) entered Japan Women’s College in 1902, where she became intrigued by psychology lectures given by Matsumoto. As graduation time neared, she consulted Matsumoto about furthering her studies in psychology. With no access to pursuing graduate work in Japan, he encouraged her to study psychology abroad. In 1907, Haraguchi traveled to New York where she entered the graduate program at the Teachers College of Columbia University. There she conducted experiments on mental fatigue under the direction of Professor Edward L. Thorndike (1874–1949). The Ph.D. she obtained in 1912 was the first for any Japanese woman in any field. Despite her early death in 1915 at the age of 29, she inspired two more Japanese women psychologists to obtain a Ph.D. in the USA before the onset of World War II.

Tomi Kora (née Wada, 1896–1993) completed her experiments on the effects of hunger, in collaboration with Curt Richter (1894–1988). The work, carried out under the supervision of Thorndike, led to her Ph.D. from Columbia University in 1922. Sugi Mibai (1891–1969), who studied at the University of Michigan under Walter B. Pillsbury (1872–1960), received her doctorate in 1931. Of the six imperial universities mentioned above, Tohoku Imperial University was the first to matriculate female students. Further, the university’s Department of Psychology was the first to graduate a female student. Tsuyako Kubo (née Kurose, 1893–1969) not only graduated from Tohoku Imperial University in March 1926, but was in the inaugural group of students (both male and female) to major there in psychology.

By the 1920s, numerous Japanese psychologists claimed travel to Europe and the USA, enough for many among them to feel the necessity of founding a nationwide psychological society in Japan like those founded in other countries. Some societies had already

been established at the local level, but the first national psychological society in Japan, the Japanese Psychological Association, was not founded until April 1927. Its inception was announced during a session of “The First All-Japan Congress of Psychology” at Tokyo Imperial University, which was later counted as the first meeting of the Japanese Psychological Association. Matsumoto was elected its first president, and 30 psychologists were chosen as committee members. *Japanese Journal of Psychology*, which had begun publication the previous year, became the official periodical edited by the association (Nishikawa 2005).

World War I stimulated the military’s interest in applied psychology. Three major institutes prominent in this aspect of the war effort include the Institute of Aeronautics at Tokyo Imperial University, the Japanese Imperial Navy, and the Japanese Imperial Army. The Institute of Aeronautics at Tokyo Imperial University was originally established in 1918, and after consulting with Matsumoto, the Department of Aeronautic Psychology was established there in 1920 where it was conveniently arranged close to the psychological laboratory. Throughout the 1920s, Koreshige Masuda (1883–1933), Yenjiro Awaji (1895–1979), and their colleagues based at Tokyo Imperial University chiefly studied the psychological and physiological influences of aviation (Osaka 2000; Sato and Mizoguchi 1997).

Early on, naval officers conducted their own research at Tokyo Imperial University’s psychological laboratory. In April 1918, Matsumoto was appointed as an advisor to the Investigating Committee on the Navy’s Application of Experimental Psychology, a post he held until 1919. As part of his job, Matsumoto traveled to the USA to investigate the ways the military applied psychology to its servicemen. Upon return to Japan, Matsumoto wrote a report on the “army intelligence tests” used in the USA. This motivated Japan’s military to develop a similar group intelligence test to be administered by psychologists in Tokyo. In 1925, the Naval Institute of Technology established a division to evaluate aptitude, with testing carried out through 1926. In reality, intelligence tests served as aptitude tests to identify soldiers best suited to be telegraphers, artillerymen, machinists, or pilots (note that by the end of World War II, the Japanese flying corps had separate branches for the army and navy).

The Military Academy of the Army hosted psychology lectures as early as 1921. In 1924, the army conducted the first intelligence test, which consisted of nine subtests given to 4,633 subjects. The results suggested that some subjects had aptitudes for telegraphy, engineering, or combat. However, unlike the navy, the army did not carry out full-scale psychological studies until the 1940s.

1920s–1945: Prevalence of Gestalt Psychology

Psychological studies carried out in Japan during the 1920s and 1930s were distinguished by the popularity of Gestalt psychology (Misiak and Sexton 1966, chap. 16; Oyama et al. 2001). Though this branch of psychology originated at the Frankfurt/Berlin school of Gestalt psychology, it did not arrive in Japan via Germany. Instead, it was Sadaji Takagi (1893–1975), a student who had been studying psychology at Cornell University under Edward B. Titchener (1867–1927) from 1919 to 1921, who brought home the new knowledge (Matsumoto 1937). Because virtually no Japanese scholars studied psychology in Europe over the course of World War I, Takagi's report on Gestalt psychology made an impact. He talked about it at a 1921 meeting at Tokyo Imperial University after returning to Japan, which was attended by Matsumoto's past and present students. Among them was Kanae Sakuma (1888–1970), who eventually left Japan in 1923 to study Gestalt psychology in Berlin for 2 years. Later, one of Sakuma's works on visual perception was published in *Psychologische Forschung* in collaboration with Kurt Lewin (1890–1947).

From the 1920s to the early 1940s, about 30 Japanese psychologists studied abroad in Germany. These two decades comprised one of the most prolific eras for Japanese psychologists in terms of publishing in foreign journals, especially those written in German and in the field of perception. With Leipzig and Berlin corresponding to the hubs for Chiba and Sakuma, respectively, the two cities were the most frequently selected for study by Japanese psychologists by the end of World War II. Usao Onoshima (1894–1941) was another Japanese representative of Gestalt psychology. He and Sakuma boarded the same ship from Japan to Europe in 1923.

Since Onoshima and Sakuma received much assistance from Lewin during their stay in Berlin, when in 1933, arrived to lecture in Tokyo and Fukuoka, both were present to welcome him at the Port of Yokohama. Lewin's visit triggered a second boom of Gestalt psychology in Japan, so described because his first influence in the early 1930s resulted in the formation of a Gestalt study group in Tokyo. Called "*Lewin Klasse*" (Lewin's class), the name reflected Lewin's significant influence on Japanese psychologists. The group's name was later renamed the "Thursday Group" since university students were afraid of mistaking the handwritten "Lewin" for "Lenin" (Sato and Mizoguchi 1997).

Prior to and during World War II, Gestalt psychology influenced experimental studies on perception and influenced the application of holistic theory to education. Immediate impacts were seen in studies on perception, where size constancy was most popular with Japanese psychologists. "Psychophysiological induction," a unique contribution to perceptual theory in 1930s and 1940s, was proposed by Torao Obonai (1899–1968) whose theory first appeared in 1933, antedating the field theory presented by Wolfgang Köhler (1887–1967) in 1938.

Gestalt psychology also influenced the fields of educational psychology and developmental psychology, being somewhat mixed together with *Ganzheit* psychology, another holistic psychology trend in Germany. Katsujiro Iwai (1886–1937) and Ichiro Fukutomi (1891–1946) studied *Ganzheit* psychology at Leipzig in the 1930s. Although Iwai and Fukutomi understood the difference between Gestalt and *Ganzheit* schools of thought, Gestalt overshadowed *Ganzheit* for most Japanese psychologists. Nevertheless, in the 1930s and 1940s, *zentaisei* (the Japanese translation of totality or *Ganzheit*) was used more frequently in Japanese education since the German word "Gestalt" was a somewhat more difficult concept for non-psychologists to grasp (Takasuna and Sato 2008).

Japanese psychologists were interested not only in laboratory experiments, but also in practical application of such findings. Within the first decade of the twentieth century, Morota had devised a special apparatus to measure children's attention span. By the beginning of the 1910s, Japanese companies such as the Fukusuke Tabi Corporation in Osaka were attempting to apply psychology to advertising and

industrial efficiency. In 1931, the Association of Applied Psychology in Tokyo was born due to the proliferation of applied psychology. The first volume of its periodical, *Journal of Applied Psychology*, appeared in 1932. Though the Kansai Association of Applied Psychology had already been founded in 1927, because it lacked its own periodical, the Association of Applied Psychology is considered Japan's second psychological society. The two societies often convened joint meetings, then integrated after World War II in 1946, and finally emerged as the newly named Japan Association of Applied Psychology.

The Society for Animal Psychology, founded in 1933, was the third and last psychological society to function before World War II. Masuda's pioneering work at Tokyo Imperial University likely inspired other comparative psychologists to follow in his path, as evidenced by the output of more than 100 papers and articles on the subject within 35 years, beginning from the end of World War II. Although the society's first two presidents were biologists, psychologists took initiative from Takagi, the third president and one of the first Japanese psychologists to apply Gestalt laws to animals. The periodical *Animal Psychology*, issued quarterly from 1934 to 1938, was followed by *The Annual of Animal Psychology* from 1944 until 1990, after which it was renamed *Japanese Journal of Animal Psychology*.

Once there was closure on the Manchurian Incident (1931), Japan pushed forward into what historians called "the dark valley," the decade of global catastrophe. Japan dealt with its severe economic and ideological crisis by officially adopting a "General Mobilization of National Spirit" in September 1937. Established by the Japanese Cabinet, the guidelines were introduced in a national effort to promote citizen cooperation in regard to financial and national ideologies. Psychologists were influenced by the guideline touting frugality because the general meetings of academic societies were costly. Subsequently, the Japanese Psychological Association and the Association of Applied Psychology chose to meld with two smaller societies (Kansai Association of Applied Psychology and Society of Mental Technology). In July 1941, the now-unified group emerged as the Psychological Association. Both the 1942 and 1943 annual meetings of the new association convened in Tokyo; the 1944 meeting, to be convened

at Kyoto Imperial University, was cancelled due to the worsening situation of World War II (Nishikawa 2005).

The theme of "national unity" (*kyokoku-itchi*), as stated in the guidelines, was reflected in various journal and newspaper articles from the late 1930s until World War II's conclusion. By that time, education in Japan had already taken on certain aspects of totalitarianism or ultranationalism. The view that all children were equal to one another under the Japanese emperor stifled the concept of individuality. Thus, intelligence tests were more frequently evaluated as groups of data, instead of evaluating data from individuals. For example, from 1933 to 1936, Kan'ichi Tanaka (1882–1962), known for publishing the Tanaka-Binet Intelligent Scale in 1947, collaborated with the Ministry of Education to compare intelligence levels among various Asian groups (i.e., urban children from Korea, Manchuria, Taiwan, China, and Japan).

By 1941, students were mobilized to the war effort, which halted psychology lectures at the universities and colleges. Psychology research was severely hampered, particularly toward the end of war, due mainly to the shortage of paper goods – necessities for taking notes and administering and scoring tests. Professional exchange was also stunted: The *Japanese Journal of Psychology* managed only one issue of Volume 19 (appearing September 1944) before ceasing publication for 2 years.

1945–1972: Catch-up Period

After defeat in World War II (August 1945), Japan experienced a period of so-called "Occupation" (1945–1952). General Douglas MacArthur (1880–1964) was in charge of The General Headquarters of Supreme Commander for Allied Power (GHQ/SCAP) that included a division called Civil Information and Education (CIE). This department was responsible for democratizing Japan and introducing an American system of education. The GHQ/SCAP, along with the CIE, played important roles in further developing psychology in Japan.

The reform of Japan's university/college system in 1949 completely transformed Japan's half-German-style educational system into a fully American style and increased the number of 4-year universities and colleges. Private universities, including women's colleges, were now legally allowed to become universities.

Every national and public university as well as college was renamed. Each prefecture's Normal School was upgraded as was each school of teacher education, the latter being incorporated as its own department on campuses of the new national universities. Consequently, the overhauling and implementing the curriculum for national universities and resuming the international exchange of students not only changed Japan's educational system, but significantly impacted Japanese psychologists (Sato and Mizoguchi 1997).

The Law for Certification of Education Personnel, simultaneously enacted, pushed many universities into offering a teacher-training course for those wanting to instruct at junior high and high school levels. Here, "educational psychology" and "adolescent psychology" were compulsory subjects. As a result, there was a great demand both for qualifying psychologists to become teachers and psychologists qualified to teach at the newly established universities.

One of the first student exchange programs post-World War II was sponsored by the USA through the Government Appropriation for Relief in Occupied Areas Fund (GARIOA). In 1949, the GHQ/SCAP selected 50 young professors from various Japanese universities and sent them to study in the USA. Five psychologists were among the first scholars selected for the exchange program. That all five of them graduated from *bunrika* universities, whose graduates were influential in Japan's educational world, reflected the extent that GHQ/SCAP believed in the importance of reconstructing the psychology field in terms of education. The GARIOA program continued until 1952 when the Occupation ended and the Fulbright Program was initiated.

A great thirst for information about new psychological findings followed the extended drought brought on by an absence of available foreign journals during the 1940s. One fresh trend was neobehaviorism. Though a Watsonian type of behaviorism had previously been introduced in various articles during the 1910s, there was not enough interest to spark experimental study pre-World War II. However, after the war, the number of papers on learning increased rapidly, with about half of those studies directed at learning in animals. Japanese psychologists were aware of the series of studies carried out by Edward C. Tolman (1886–1959) in the 1930s because they were similarly aligned

with the popular Gestalt theory. Yet, once the war was over and Clark L. Hull's (1884–1952) papers on learning and behavior became available, Japanese psychologists were finally stirred to study this area. Hull was cited so frequently, especially from his *Principles of Behavior* (1943), that the work was eventually translated into Japanese in 1960, confirming his influence in the history of psychology in Japan.

By the mid-1960s, eight psychological societies had been founded, including three established before World War II: Japanese Psychological Association (founded in 1927), Japan Association of Applied Psychology (founded in 1931), Japanese Society for Animal Psychology (founded in 1933), Japanese Group Dynamics Association (founded in 1949), Japanese Association of Educational Psychology (founded in 1952), Japanese Society of Social Psychology (founded in 1960), Japanese Association of Criminal Psychology (founded in 1963), and Japanese Society of Clinical Psychology (founded in 1964) (Kaneko 1987). These societies indicated that psychology in Japan was proliferating and maturing. The next step would be a high-profile engagement with the international community of psychologists.

Though Japan had been elected one of 11 original charter members of the International Union of Psychological Science (organized in 1951), not until 1960 was Japanese psychologist Koji Sato (1905–1971) elected to the executive committee. Until then, regardless of a century of contact with Western psychology, international exchange of Japanese psychologists with those in other countries had been inexcusably one-sided (Iwahara 1976). Further, too few Japanese contributed to and participated in international activities. Now finally ensconced in a position of power, Sato lobbied to secure Japan as the destination for the next conference.

Catch-up time for Japanese psychologists culminated in the twentieth conference of the ICP, which was held in Tokyo from August 13 to 19, 1972. This was the first ICP conference held in Asia and was considered a first major step in the globalization of psychological science. There were 2,562 registered psychologists from over 50 countries and 1,394 from outside Japan. The program consisted of 32 long symposia, 9 short symposia, 8 review sessions, 56 paper sessions, and 4 film sessions (Japanese Psychological Association

1987; Rosenzweig et al. 2000). The conference was truly the turning point because, since then, other Japanese psychologists have been elected to the executive committee, and hundred more Japanese psychologists participate in at least some of the ICP meetings.

Although hosting an international meeting precipitated Japanese psychology going international, aims to integrate Japan's various societies into a psychological union modeled on the American Psychological Association were left unrealized. Over the decades, the political juggernaut has impacted how Japan's psychologists are qualified, a confusion that continues to this day.

Decline of Abnormal Psychology, Importing Psychoanalysis, and Rise of Clinical Psychology

Fukurai Affair and Decline of Abnormal Psychology in the Prewar Period

In the late 1880s to 1890s and 1910s, spiritualism boomed among Japanese people, an example the Japanese style of Ouija board, which had been in popular use for years. This spiritual period reflected the delayed import of overseas news on psychical research or parapsychology, whereas the second boom in the 1910s reflected an argument about science being unable to thoroughly explain psychic phenomena.

Tomokichi Fukurai (1869–1952), who earned his undergraduate degree at Tokyo Imperial University, remained there to pursue graduate work in hypnotic theory, as proposed by William James. Beginning in 1905, Fukurai lectured on abnormal psychology at his alma mater and, after practicing hypnotism and conducting experiments, he completed a dissertation of psychological research on hypnosis, earning a Ph.D. in 1906. It was one of the first cases of a Japanese psychologist obtaining a doctoral degree without having studied abroad. In 1908, Fukurai was appointed associate professor under Motora at Tokyo Imperial University.

Fukurai further pursued psychical research. Had he gone abroad to study like many of his colleagues, he would have likely cast a critical eye on psychic research. Instead, from 1910 until 1911, he began experiments on clairvoyance, aided by subjects Ms. Mifune and Ms. Nagao. These experiments, including a public experiment, caused a major dispute among academics,

including psychologists and physicists. Although Motora tried to dissuade Fukurai from further parapsychological research, Fukurai insisted on the existence of clairvoyance and “thoughtography,” the latter term he coined by finding that Ms. Nagao could project her thoughts onto photographic film in a camera.

After Motora's death in 1912, Fukurai published *Clairvoyance and Thoughtography*. Although an English version was later published in 1931, the book was criticized among academics because it lacked a valid scientific approach, which requires verification. Fukurai eventually resigned his post in 1913, fed up with his work being disparaged. Despite his choice of study, Fukurai was considered an elite psychologist and would realize professorship at Tokyo Imperial University in the future. However, Fukurai's ongoing controversy prevented his appointment at this time. Instead, in 1913, Matsumoto became the next new professor, wasting no time in declaring that psychologists in the department must focus on normal phenomena to regain the department's credibility. All future lectures on psychology given at the university were done so by “not mentioning abnormal psychology,” which had prevented the rise of clinical psychology in prewar Japan (Sato and Mizoguchi 1997; Sato and Sato 2005).

Acceptance of Psychoanalysis

While interest in abnormal psychology dwindled during the 1910s, psychoanalysis, familiar to psychologists and psychiatrists since the early 1910s, was on the rise. G. S. Hall, the president of Clark University, was one thread that connected psychoanalysis to Japanese psychologists. In 1909, Hall invited several prominent scholars, including Sigmund Freud (1856–1939), to a ceremony celebrating the school's 20th anniversary. In the audience were two of Hall's Japanese graduate students, Hikocho Kakise (1874–1944) and Sakyo Kanda (1874–1939). Although neither Kakise nor Kanda much influenced the development of psychoanalysis in Japan, another of Hall's Ph.D. students, Yoshihide Kubo (1883–1942), who graduated from Tokyo Imperial University in 1909, went on to write an introductory book, *Psychoanalysis*, in 1917. Here he revealed that he learned psychoanalytic theory during his study at Clark (Oyama et al. 2001; Sato and Mizoguchi 1997).

Psychoanalytic study and practice were mainly pursued outside of academic psychology. Kiyoyasu Marui (1886–1953) and Heisaku Kosawa (1897–1968) were early pioneers of psychoanalysis in psychiatry. During World War I, Marui learned psychoanalysis while studying psychopathology under Adolf Meyer (1866–1950) at Johns Hopkins University. From 1924, Marui lectured on psychoanalysis at Tohoku Imperial University's newly established Department of Psychology, these being the first systematic lectures on psychoanalysis presented to psychology students in Japan. Although Kosawa first studied psychiatry under Marui at Tohoku Imperial University, he continued studying psychoanalysis in Vienna. After returning home in 1933, he left the university to forge the field of psychoanalysis as a private practitioner in Japan.

Long before Kosawa organized the Japanese Psychoanalytical Association in 1955, Kenji Otsuki (1891–1977) had established the Tokyo Institute for Psychoanalytic Study in 1928, in cooperation with Seiya Hasegawa (1876–1940) and Yaekichi Yabe (1875–1945). None were psychiatrists or psychologists, but they still published the first Japanese journal of psychoanalysis (*Seishin-Bunseki*) in May 1933. Otsuki and colleagues collaborated on translating Freud's works, the series being published from 1929 to 1933. Prior to Volume 35, the final issue being disseminated in 1978, the journal had been published intermittently with a long suspension during World War II. The rivalry between Marui, the psychiatrist, and the nonpsychotherapists, Yabe and Otsuki, in terms of which Japanese psychoanalytic society was worthy of Freud's accreditation, provides insight into how psychoanalysts in prewar Japan were viewed. Interestingly, psychologists were generally not involved in developing psychoanalysis, likely because within the field of Japanese psychology, psychoanalysis was not considered an important technique in psychotherapy.

Development of Clinical Psychology After the War

Though the development of clinical psychology was hindered before World War II, several psychologists working at clinical institutions managed to make contributions, such as Yuzaburo Uchida (1894–1966) who developed the Uchida-Kraepelin Psychodiagnostic Test. In the 1950s, Hiroshi Ito (1919–2000), Fujio

Tomoda (1917–2005), and Morio Saji (1924–1996), among other psychologists, were responsible for bringing knowledge they earlier acquired from psychological counseling and applied it in the field. As early as 1953, the Japan Association of Applied Psychology proposed to the Ministry of Education that “school counselors” be introduced into elementary, junior high, and high schools. Progress was stymied by ongoing issues of how to qualify counselors. Discussions dragged on into the 1960s when the Japan Psychological Association and other societies got involved in discussing what determines a qualified “clinical psychologist.” By the late 1960s and early 1970s, a master plan emerged outlining qualifications for clinical psychologists, but it foundered during the student movement. Critics complained the program's design did not afford students rigorous enough training and education. Further criticism was directed at the rationale behind classifying and discriminating people based on their psychological assessment using psychological tests.

In spite of these obstacles, the 1970 directory of the Japanese Psychological Association showed that the field of clinical psychology had fully matured, as depicted by the various genres represented, though in different proportions: Psychologists specializing in division III (clinical, personality, criminal) occupied more than a third of the entire membership, more than those specializing in divisions I (experimental, physiological), II (developmental, educational), or IV (social, cultural, industrial) (Iwahara 1976). After the Association of Japanese Clinical Psychology was founded in 1982, the number of counselors, psychotherapists, and clinical psychologists dramatically increased. This organization established standards for what qualifies a “clinical psychologist,” which society members accepted in 1988 (Azuma and Imada 1994).

The Japanese Psychological Association may be the first psychological society established in Japan, but it is not the largest and does not speak for the majority of psychologists, namely clinical psychologists, as does the American Psychological Association. To counter the trend of emphasizing clinical psychology, the Japanese Psychological Association introduced its own standards for what qualifies a “certificated psychologist” (acknowledged in 1990). Unfortunately, dueling qualifications designated by the various societies led to a mushrooming of qualification that would be

acknowledged, which has further fragmented the psychology field in Japan. This dilemma continues into the twenty-first century because throughout the previous century, no national qualifications or licenses for psychologists were established, as was done for medical doctors and social workers.

International Perspectives

As described earlier, there was no connection between psychological knowledge in the Edo and Meiji eras. This contrasts sharply with Chinese historiography, which typically begins with Confucius. As an imported knowledge, psychology became a lecture subject at universities and colleges in the 1870s. Around that time, government officials determined that scholars teaching at the national university should specialize not in Japanese sciences (*kokugaku*), but in Western sciences (*yogaku*). Accordingly, psychology like other sciences was introduced as a novel system of knowledge that did not share anything in common with Eastern thought. Since then, Japanese psychologists were doomed to follow European and American psychological trends, at least by the end of the 1940s. After the Occupation, many Japanese psychologists struck out on their own, pursuing their own brand of psychology, which included Japanese and Oriental thought. The resulting international journal, *Psychologia*, which debuted in 1957, originated in the Orient and was edited by Sato.

Not many original themes or topics have emanated in Japanese psychology, besides those studied in cross-cultural psychology. Most themes involve either psychotherapy, such as Morita Therapy proposed by psychiatrist Masatake Morita (1874–1938) in the 1920s, or cognitive psychology, which incorporates Chinese characters (*kanji*) as well as Japanese syllabaries (*hiragana* and *katakana*) into material of memory research.

One theme, blood-type typology, proffered a unique influence to the history of psychology in Japan (Sato and Mizoguchi 1997). Originally proposed by Takeji Furukawa (1891–1940), a pedagogist, during the 1920s, he looked for a relationship between ABO blood type and children's temperament. The published theory was submitted to the *Japanese Journal of Psychology* in 1927. One aim of Furukawa's study was to warn against reading too much into the results of any

intelligence test students take for their entrance examination. No matter that Furukawa's blood-type theory was repeatedly disproved at meetings of the Japanese Society of Legal Medicine and elsewhere in the 1920s and 1930s, many army officers proposed substituting the time-intensive aptitude test for the blood test because it would be a fast and easy way to assess soldiers. The officers even imagined controlling occupied areas like Taiwan or Korea with blood-type typology based on Furukawa's belief that those with blood types A and AB had passive temperaments. Thus, the officers also proposed emigrating more Japanese with type A blood to those occupied areas to marry into the local Asian population, which would lead to many more babies with a passive temperament, a better situation for the dominating Japanese government.

Though completely refuted, the ABO theory was reborn in the 1970s as "blood-type typology," which proposed a relationship between blood-type and a person's personality. Though unscientific, it remains popular for Japanese lay people. As well, many people in China, Korea, and other parts of Eastern Asia believe the theory, likely a reflection of the influence of Japanese occupation during the wartime.

Future Directions

Since the historiography of psychology in Japan has been influenced only recently by the international progress of theories and the history of science, most studies on the subject have employed presentism and internalism (i.e., psychologists reconstructing history by substantially relying on the subjective recollections of others without validation from external sources). Thus, further studies demand more concrete evidence to verify the early views. Moreover, the subject has not been fully investigated: for example, the extent Japanese psychologists were involved in the war effort, or how American officers evaluated and censored Japanese psychological writings during the Occupation. While the impact of Western psychology has been thoroughly analyzed, the influence of Japanese psychology on other Asian countries (especially countries Japan occupied during the late nineteenth century to mid-twentieth century) has been scarcely studied. International perspectives are needed to advance such studies and gain greater knowledge of the history of psychology in Japan.

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Jastrow, Joseph

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Basic Biographical Information/Major Accomplishments

Born in 1863 and died in 1944.

Within the history of psychology, a special place is reserved for Joseph Jastrow. He holds more “firsts” than perhaps any of the early American psychologists: the first to receive a doctoral degree in psychology from an American university (from The Johns Hopkins University in 1886); the first chair of the Department of Psychology at the University of Wisconsin (1888); the first secretary of the American Psychological Association (1893); the first psychologist to make a national radio address (1926); and the first English major (B.A., University of Pennsylvania, 1882) to enter a Ph.D. program in psychology(!).

Born in Warsaw, Poland, on January 30, 1863, Jastrow immigrated to America with his family in 1866. He had a long and illustrious career in psychology that spanned more than 50 years. He was first an experimental psychologist conducting studies in perception and learning, and then a promoter of psychology through public speaking, syndicated newspaper

columns, books, and radio broadcasts. Jastrow typifies the character of many early American psychologists, such as James McKean Cattell, G. Stanley Hall, and George T. Ladd, who were trained in laboratory methods of psychology and later worked to apply psychological theory and principles (Boring 1950).

Jastrow's earliest experimental studies were conducted at The Johns Hopkins with the notable and infamous logician and mathematician, Charles Sanders Peirce (Cadwallader 1974). Peirce was a major influence on Jastrow's thinking about the importance of logic and reason applied to formulating propositions and arguments. They collaborated on an important study in psychophysics, which provided a proof of sorts for the proposition that judgment at the threshold of perception (in the visual field) is affected by subconscious registration and influences correct conscious judgments (Jastrow 1930). Jastrow's doctoral dissertation was a study of the differences in perception by the senses. At Wisconsin, he began the custom of publishing experimental reports from his laboratory as "minor studies." Other universities quickly followed, such as Cornell, Michigan, and Vassar (Boring 1950).

Jastrow was led to promote the "new" psychology because much of what passed for psychology in popular culture was not based on sound science or reason. His popularizing addressed important psychological topics: spiritualism, hypnosis, psychic research, the subconscious, human character, and "mental hygiene," or what we would today call mental health (Blumenthal 1991).

For example, Jastrow led in a crusade among psychologists and other scientists from the early 1900s through the late 1920s against spiritualism, the widely held belief in psychic phenomena, such as clairvoyance and telepathy. In 1909, The Society for Psychical Research published a list of "scientists" willing to form a committee to investigate the claims of the notorious medium, Eusapia Paladino, an Italian who held claim to psychic powers of telepathy and clairvoyance. In addition to Jastrow, G. Stanley Hall, Hugo Muensterberg, and William James assented to investigate Paladino's claims, but Jastrow was the only psychologist to eventually become a member of a 3-person committee in 1910. Ten years later, when two prominent Spiritualists, the British physicist, Sir Oliver Lodge and Sir Arthur Conan Doyle, the famous mystery writer and infamous believer in psychic photography, traveled to the USA for

lecture tours, Jastrow was intent on discrediting them. He announced that he would follow Lodge on his tour around the country, and he shadowed Lodge, lecturing one week, respectively, after Lodge's visits to Toledo, Milwaukee, and Kansas City in 1920. In these efforts to discredit spiritualism, Jastrow argued that the basis for belief in scientifically discredited ideas arises out of a human propensity to accept that which is presented in the context of authority, wonder, and sensationalism. Jastrow termed this a "will to believe," even in the presence of a coherent scientific rebuttal (Jastrow 1930).

A second arena of promoting sound psychological theory and practice for Jastrow was the study of abnormal behavior and personality, particularly the subconscious and unconscious, as proposed by Sigmund Freud. Wholly consistent from his training in experimental psychology at Hopkins and the influence of Charles Peirce was Jastrow's suspicion of any purely psychical interpretation of mental phenomena that did not have, at least, a hypothesized connection to evolutionary biology. Freudian doctrines, he claimed, form but one interpretation of the unconscious, but not the only one. Any interpretation must be consistent with what is known about the neurological basis of behavior.

Jastrow's views on the role of psychology for human welfare became a matter of international consequence with the calamities that were World War I and World War II.

Yet, he saw psychology as the key for understanding the relationship between war and peace and pathology and sanity. He argued that war and aggression were the consequences of unhealthy and repressive personal and social factors. The individual could be expected to be bound by emotion, instinct, and habit on the one hand, or, if nurtured by a modern, civilized society based on reason, science, and psychology, would be free from superstition, irrationality, and incredulous beliefs. In this regard, he undertook analyses of war and militarism through psychological studies of Kaiser Wilhelm after World War I and Adolf Hitler at the outset of World War II. The public, he believed, could be persuaded that psychology offered the best hope for personal and social redemption (Jastrow 1935).

Jastrow and others of the first generation of American psychologists became known for putting psychology "on the map" for the general public. He skillfully harnessed the venues, such as public lectures,

newspaper syndication, and even broadcast radio, to educate and enlighten a curious, if not skeptical, public on the benefits offered by psychology for mental health, adjustment, and personal well-being. For all of Jastrow's "psychologizing," however, his writing often lacked substance and impact, even though he was his own best promoter. He died in Stockbridge, Massachusetts on January, 8, 1944. It would be a decade or more following Jastrow before better formulations of psychological theories of Freud, Alfred Adler, and Erik Erikson, for example, were applied to an understanding of the human condition in more convincing forms.

See Also

- ▶ [Hall, G. Stanley](#)
- ▶ [Parapsychology](#)

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Jevons, W. S.

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Basic Biographical Information

William Stanley Jevons was born in Liverpool, England, on September 1, 1835, the ninth child in a prosperous iron merchant family. Jevons's mother died when he was 9. When he was 12, the family lost nearly all its savings in a financial panic. Jevons gained his early education at home, then at the Liverpool Mechanics Institute, as well as at a preparatory school in London. He pursued higher education at University College,

London, a Benthamite institution where he studied chemistry, mathematics, and logic. In 1854, Jevons took time away from school to work for 5 years in Australia, at Great Britain's new Mint of Sydney. He returned to London to complete his B.A. (1860), followed by an M.A. in Logic, Philosophy and Political Economy (1862), both at University College. Jevons's decision to add economics into his education was stimulated, in part, by his interest in a local Australian dispute over railway funding.

The scholarly life of Jevons spanned from the early 1860s to the early 1880s, and blended work as a logician and as an economist. As a logician, Jevons attempted nothing less than to reform the very foundation of formalized philosophy. As an economist, he focused especially on the psychology of consumption, both at individual and societal levels. Jevons is best known for playing an essential role in the nineteenth-century debate over the "mathematization" of social and behavioral science, and he is especially recognized for cofounding a version of mathematical, behavioral economics known as the "theory of marginal value." Jevons died young, at age 46, in a drowning accident in the ocean on August 13, 1882 (Schabas 1990).

Major Accomplishments/Contributions

Jevons's chief point of fame is his publication of *The Theory of Political Economy* (1871), a work that made him (along with Leon Walras and Carl Menger) one of three independent codiscoverers of the theory of marginal utility, which is the theory that each added unit of a consumable commodity becomes less and less valuable to a consumer (Jevons 1871). This theory sometimes is called the "principle of diminishing marginal utility."

Within the well-known triumvirate who participated in a near simultaneity of scientific discovery, it is Jevons who is usually considered to have provided the clearer and more penetrating statement of the new theory. In addition to stating the core of marginal theory as being founded upon individual psychological pursuits, Jevons added a second dimension to the theory, which is his "equation of exchange." Such an equation establishes that for a consumer to maximize his or her individual utility, equality must be achieved in the ratio of the marginal utility to price for each and every

item consumed. When this equality is not met, consumption must be reallocated, since there is an incentive to redistribute one's purchases until the equation of exchange holds. Sometimes this part of Jevons's theory is called the "principle of equimarginality" (Peart 1996).

Taken altogether, Jevons's theory was able to explain relative prices of commodities in terms of a psychological principle joined with a principle of exchange – with both being represented in mathematical forms. The central theoretical problem of economics was now framed as maximizing the utility obtained from a given set of resources. Jevons described this end goal thusly: "Given, a certain population, with various needs and powers and production, in possession of certain lands and other sources of material; required, the mode of employing their labour which will maximise the utility of the produce" (1871, Ch. VIII). Such a form of economic activity is known as "constrained maximization," and the foundation of such activity is, in essence, a psychological theory.

Jevons had other important ideas, which spanned numerous fields of science and philosophy. As we stick with those ideas that are psychological theories, we should consider Jevons's work on logic and scientific method, which Jevons expounded through a series of writings.

Between 1863 and 1874, Jevons published four significant philosophical tracts, three on formalized logic and one on scientific method – titled *Pure Logic* (1863), *Substitution of Similars* (1869), *Elementary Lessons in Logic* (1870), and *The Principles of Science* (1874). Throughout these writings, today's historians can identify a system of logic in which Jevons aims to do away with an older-style scholastic classification of syllogisms and rules for conversion, by recasting the whole of formal logic into a simple and improved shape, doing so by adopting two principles: "quantification of the predicate" and "substitution of similars." The basic underlying idea throughout Jevons's work on formal logic is that all logical problems can be restated by framing them as deterministic algebraic equations, which should be done by stating the initial conditions in clean symbolic terms and then substituting elements with similar properties. Once so stated, any trained person need only repeatedly apply the same small set of simple, mechanical rules. By 1870, Jevons even

constructed a machine – described as a "logical piano" – that with keyboard, pulleys, and switches all properly manipulated would produce conclusions consistent with the given premises. Jevons believed it should be evident to any person who studied the machine that the principle of mechanism is capable of substantially replacing "the action of thought" required in the performance of logical deduction.

Taking all these philosophical books together, Jevons's logical analysis generally begins with some investigation into the nature of the "action of thought" and the "laws of thought." And, when it comes to Jevons's analysis of science in particular, science is not *in things*, but is *in the mind*. As such, the laws of scientific method ought to be presupposed, in part, as "the prior conditions of all thought and all knowledge." The laws of thought are objective laws; they are fundamental mental powers for knowledge acquisition, including the powers to discriminate, to detect, and to retain. Jevons takes these three fundamental mental powers and attempts to somehow map them upon three standard laws of formal logic: the law of identity ("Whatever is, is"); the law of contradiction ("A thing cannot both be and not be"); the law of duality, or excluded middle ("A thing must either be or not be") (Wood 1988).

With respect to Jevons's philosophy of scientific method, *Principles of Science* is a book with a wealth of examples drawn from across the physical sciences. Throughout the book, Jevons discusses probability, which he understands to be a measure of the incompleteness of knowledge; hence he introduces what we now label an "epistemological theory" of probability, since probabilities are nothing other than "measures of ignorance" or "degrees of rational belief." In an attempt to closely connect together the two most fundamental epistemological methods – deduction and induction – Jevons offered an "inverse probability" theory of induction to argue that the human mind is well suited to deducing the "most probable" cause of an event by examining all possible hypotheses and deducing all possible consequences from these hypotheses, after which these deduced consequences can then be compared against empirical facts. The basic idea is that if many observations suggest some kind of regularity, it becomes highly improbable that the observed outcome happened by chance (Schabas 1990).

Another place where we find some degree of psychological theorizing is in connection with Jevons's ideas about statistical measurement of human attributes. While Jevons is most commonly recognized for his employment of various series of aggregate price and wage statistics, Jevons was also inspired by Adolphe Quetelet's notion of an "average man." Some of this influence comes through when Jevons considers average consumption versus aggregate consumption, and he reasons that in any large community, a law of average tendencies sets into play, while at a strictly individual level of behavior there can be a strong influence of random tendencies. Jevons supposed that if all individuals have essentially the same physical and psychological features (at least of those features pertinent to consumption), then the average laws of supply and demand would be equal to the conduct of every individual. If, however, the "powers, wants, habits, and possessions" of different people were widely different, then the average would not represent "the character of any existing thing." People are recognized as not homogeneous, and so it would be wrong to create "representative agents." There are even group differences in the human ability to be rational, such as in anticipating future utility within one's mental calculations; this Jevons specifically contemplated in the second edition of *Theory of Political Economy*, when he wrote of "the intellectual standing of the race, or the character of the individual" (1879, Ch. 2), and noted an example of one particular "race" about which he did not think so highly, namely, the Irish (who he believed were innately more subject to drunkenness).

Jevons also had a psychological theory embedded within his writings about business cycles. Here he included a psychological dimension within his somewhat notorious attempt to introduce a "sunspot theory" of business booms and busts. In a series of short papers over many years (but especially some published during the mid- to late-1870s), Jevons argued through multiple steps of logic as he deduced how specific economic consequences should follow from purely meteorological data. These steps went as follows: variations in sunspots occur; these variations affect the sun's rays, which in turn affect harvest qualities on earth; times of weaker harvests send food prices higher; these higher prices impact "mood" and "confidence"; shaken confidence can alter investment decisions,

which in turn can give rise to financial panics and commercial crises. Jevons was thus among the earliest economists to argue that phases of business activity have regular and predictable periodicity, and that an aggregation of individual states of mind can play a role in causing fluctuations in a national economy (Black and Könekamp 1972–1981).

In his later years, Jevons got interested in the economic value of education. His papers "On a National Library" (1874) and "The Rationale of Free Public Libraries" (1881) were part of an argument about comparative social utility, in which Jevons argued that library impacts on the educated mind yield a higher quantity of social utility than something such as horse racing tracks, which only yield quick and intense pleasure (Inoue 1993).

See Also

- ▶ [Keynes, John Maynard](#)
- ▶ [Perception](#)
- ▶ [Smith, Adam](#)
- ▶ [University College London, History of Psychology at](#)

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Jones, Ernest

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Basic Biography

Alfred Ernest Jones, renowned British psychoanalyst, physician, and author, was born on January 1, 1879, in Gowerton, Wales. He died in London, on February 11,

1958, one of the most influential psychoanalysts of the twentieth century. Ernest, as he was called by his parents, was the first born and only son of Thomas Jones and Mary Anne May-Lewis. In addition to Ernest, the couple had two daughters, Elizabeth and Sybil, each born 20 months apart. Later, Elizabeth married his professional associate and closest friend Wilfred Trotter. His youngest sister Sybil was represented in an open-ended sign for infinity and the mythological and literary *Sibyl*, a *dramatis personae*, whose name evoked divination and prophecy. Jones scribed the symbol beneath his signature, and retained this practice a good portion of his life.

This salutary symbolic gesture concealed both tender early feelings that Jones retained for his sister and family, as well as his lifelong love of fate and the mystery of time. After completing studies at University College, Cardiff, Jones received his Medical degree from University College London. Equipped with a medical degree, Jones elected to stay in London, continuing he studies, which became increasingly more psychological and psychotherapeutic in nature.

Shortly after making his decision to stay in London, he made the acquaintance of Wilfred Trotter, a physician and surgeon who made a powerful impression on Jones. Trotter possessed an extraordinary blend of scientific mastery with a philosophical temperament. He encouraged Jones in his desire to understand the psychic expression of both normal and abnormal conditions as a vital relation to material and biological facts. In 1905, Thomas Jones purchased a house on London's Harley Street, where Ernest Jones, Trotter, and Elizabeth (the oldest sister of Ernest) lived for several years. Elizabeth and Trotter were married in 1909, the year that Mary Anne May-Lewis Jones died of a massive brain hemorrhage. Jones's youngest sister Sibyl returned from America, and her study of Art, to take care of things in Gowerton. These important life events presaged the psychoanalytic transformation of Alfred Ernest Jones.

Major Contributions

In August 1907, Jones traveled to Amsterdam to attend *The International Congress of Neurology* and present a paper. While at the gathering, Jones made the acquaintance of Swiss psychiatrist, C. G. Jung, who at that time was an unabashed supporter of Freud's theory of

psychoanalytic theory. Jung was already famous for demonstrating scientifically, the efficacy of the word association method for discovering the presence of unconscious feeling-toned complexes in disturbances of memory. Jung demonstrated experimentally, with ample reference to Freud, that these complex disturbances were caused by displaced or repressed affect and emotion. The complex is the mask that conceals a painful experience or event that the individual would rather forget: evident in the inability to react appropriately or convey painfully personal self disclosures.

Favorably impressed by the presence and psychological acumen of Jones, Jung invited the young English psychiatrist to visit him in Zurich and glimpse firsthand the analytic work that Jung and his staff were conducting at the Burgholzli Psychiatric Hospital. On November 30, 1907, days after attending a rather intense seminar on psychodiagnostics with Emil Kraepelin in Munich, Jones arrived in Zurich.

Jones, accompanied by Jung and American psychiatrist A. A. Brill, made his way to the first *International Psychoanalytic Congress*, at Salzburg in April 1908. The Congress provided Jones with the opportunity to have his first face to face encounter with Sigmund Freud.

Jung had already informed Freud of Jones in a letter sent after leaving the Amsterdam Congress the previous September. From Salzburg, Jones and Brill accompanied Freud back to Vienna. Here, we recognize the beginnings of the translation and dissemination of Freud's works and vernacular into English. Given Jung's doubts and subsequent defection concerning the pansexual aspects of psychoanalytic theory, Jones, from the Vienna encounter with Freud onward, became the most loyal and influential member of Freud's inner circle. This circle consisted for the most part of Jung, A. A. Brill, Otto Rank, Ludwig Binswanger, Karl Abraham, and from Hungary, Sandor Ferenczi. Incidentally, the monumental meetings with Jung at Amsterdam and then the Burgholzli in Zurich, and with Freud at Salzburg and Vienna had the practical purpose of understanding in analytic terms, concept of *rationalization*, an original and lasting contribution by Jones to modern psychology. Together with Brill, Jones left Vienna for Budapest, and further analytical work with Ferenczi, followed by additional analysis with Otto Gross in Munich, and study in Paris, the work of Pierre Janet, and the *Salpêtrière* School of psychiatry.

The psychoanalytic transformation of Alfred Ernest Jones occurred with a cost. There were misunderstandings among the English. In fact, the medical community remained both suspicious and hostile. In the course of treating a young girl suffering from hysterical paralysis, Jones employed psychoanalytic practices and cured the girl. This infuriated both her physician and parents. An ethical complaint was lodged against him, and he was forced to resign his various posts in London, all but ruined by the public's presumption of guilt and the lingering stench of the scandalous. When an opportunity for an Academic position at a teaching hospital in Toronto came up immediately after the London intrigue, Jones quickly accepted. His stay in Canada which lasted 5 years, beginning in 1909 and ending in 1914, must be considered as a complete success. The foundation for several of his most notable publications occurred during this time period. Among them, *On the Nightmare, Hamlet and Oedipus*, and *On Symbolism*.

He also began a study of aesthetics, and gradually focused on Italian renaissance art in particular. After a torturous 7 year relationship with Loe Kahn ended, Jones married Morfydd Owen, a English pianist, composer, and singer. The marriage was a happy one but short lived, for as fate would have it, she died of appendicitis in the summer of 1918. He married his second wife Katherine in October of 1919. The couple had three children, one of whom, a daughter named Gwenda, died in February 1928. With Anna Freud now living in London conducting her pathbreaking work with children, Jones found his analytic and organizational skills very much in demand. Given the death of Karl Abraham in 1925, and with his passing, the ascent of Melanie Klein and the object-relations school of analytic thought, these skills were sorely needed. Early in 1938, amid the rise of the Nazis and the provocative innovations proposed by Jacques Lacan and the French school, Jones secured passage to London for Freud and his wife Martha. His three volume biographical study, *The Life and Work of Sigmund Freud*, began to take shape at this time. In 1948, Jones published an expanded version of *On Symbolism* and, in 1953, published the first of three volumes of his biography on Freud. Parts two and three of this study appeared in 1955 and 1957. He then returned to work on his *Memoirs*, which he began in 1944, and which remained

unfinished during his lifetime. His autobiography, titled, *Free Associations*, was published posthumously in 1959, 1 year after his death at the age of 79.

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Judd, C. Hubbard

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Basic Biographical Information

Born: February 20, 1873; Died: July 18, 1946.

Judd was born in India to Methodist missionary parents and came to the United States in 1879. He graduated with the B.A. from Wesleyan University and, sponsored by a minister friend, proceeded to Leipzig where he studied with Wilhelm Wundt. After obtaining the Ph.D. there in 1896, he returned to Wesleyan and began its laboratory tradition that was carried on by Raymond Dodge after Judd left for New York University in 1898. After 3 years at New York, Judd then went to the University of Cincinnati, where he stayed for a year until he was called to Yale in 1902. There he became Professor of Psychology and director of the laboratory in 1907 after the departures of Scripture and Ladd. While at Yale, Judd contributed to the development of eye movement research. In 1909, Judd moved to Chicago where he became head of the Department of Education and Director of the School of Education. He remained at Chicago, chairing the Department of Psychology between 1920 and 1925, until his retirement in 1938.

Major Accomplishments/Contributions

Judd was probably the most personally close to Wundt of all of the Americans who studied with him: after

quickly completing the doctorate with a thesis on space perception and touch, he began a translation, authorized by and in consultation with Wundt, of the *Grundriss der Psychologie*, which appeared in English in 1897 as *Outlines of Psychology* (Wundt 1897) and in two subsequent revised editions in 1902 and 1907. While Judd said that he tried to read everything Wundt wrote (Baldwin 1921) and while he was among the most faithful to Wundt's worldview (Rieber 2001), nonetheless he developed his unique applied variation in the area of educational psychology. Judd studied pedagogy alongside psychology in Germany and attempted early in his university career to put curricular reform into practice. His first substantial publication in the area was his *Genetic Psychology for Teachers* (Judd 1903), which appeared again in 1911 and to which Judd returned for ideas and illustrations over the next 30 years. He was a member of the group that addressed the National Educational Association in 1907 on the elements necessary in the training of high school teachers. After his American Psychological Association presidential year in 1909 and his appointment at Chicago, he immersed himself entirely into the life of education, becoming involved at all levels of the process from the direct observation of schools in several areas of the country to participation in national educational affairs. He authored several books that reflected his ongoing interests in teacher preparation and practice and which identified specific points of connection between teaching and theoretical psychological principles. For an example, drawn from his *Psychology of High School Subjects* (Judd 1915), Judd advocated, based on contemporary theories of relational space perception, teaching three-dimensional geometry by using models of figures to generate spatial perceptions. Judd also advocated including vocational education in the curriculum because of the opportunities it offered for developing precise control of action in the environment. His 1918 *Introduction to the Scientific Study of Education* (Judd 1918a), informed by Judd's background as member of the APA committee on standardizing mental tests in 1911, was a clear programmatic statement for the development of an educational psychology based on measurement. In another book from that year, *The Evolution of a Democratic School*

System (Judd 1918b) Judd defined the undemocratic German educational system and its survivals in America as the object of reform, and proposed several methods of democratic involvement in reform efforts including educators' self-reflection and self-analysis. Judd saw the highest level of civilization being the achievement of ideation against instinctive behavior, and he saw that achievement in light of the Herbartian idea, also a part of the *Völkerpsychologie* of Wundt that few other psychologists remembered by that time, that the individual is nothing without society. In his *The Psychology of Social Institutions* (Judd 1926), he insisted on necessary conformity to social realities in domains ranging from language through art and music. He saw order and punctuality as fundamental to the development of accurate thinking. For the rest of his career he was a distinguished spokesman for the civilizing effects of education (e.g., Judd 1939), continuing the theme of the evolution of consciousness advanced much earlier in his work (Judd 1910).

See Also

► [Wundt, Wilhelm](#)

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K

Kagan, Jerome

BRITTANY SWETT, NAVA R. SILTON

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Kagan, Jerome (born in 1929) was a pioneer in the area of Developmental Psychology. One of his principal areas of study centered on the stability of temperament from infancy through adolescence to adulthood.

Biographical Information

Jerome Kagan was born in Newark, New Jersey in 1929. Kagan was born to Myrtle Libermann and Joseph Kagan. Joseph was a businessman. Kagan attended Rutgers University in New Jersey and graduated in 1950 with his B.S. degree.

In 1951 Jerome married Cele Katzman. They then went on to have a daughter.

Kagan went on to earn his master's degree at Harvard University. Upon completion he began his Ph.D. at Yale University, which he completed in 1954.

Major Contributions

Kagan went on to work as a Professor of psychology at Ohio State University. He remained in this position for a year. He then spent 2 years at the US Army hospital in West Point as a psychologist. Following the completion of this venture, he became employed in Yellow Springs, Ohio where he worked for the Fels Research Institute as a research associate. By 1959, Kagan had been named chairman of the Institute's Department of Psychology.

At the Fels Research Institute, Kagan began his most renowned research. His research focus was on individual personality traits and to what extent the traits from infancy and childhood would be carried over to

adolescence and adulthood. Kagan worked with Howard Moss on his research at Fels. After completing their basic research, they reexamined the participants during adulthood. Initially, the researchers did not find strong correlations among the personality traits including traits of dominance and aggression. It was not until 19 years after the initial study was completed that Kagan was able to finally draw some conclusions on this case study.

Kagan and other researchers conducted a study at Harvard on how day care affects infants. The researchers found that more fearful and shy children tended to be Chinese. Caucasian children tended to exhibit fewer of these characteristics. This provided a solid study group for Kagan because of the very young age of the children. Their age made it clear to Kagan that these characteristics could not be a result of learned environmental situations. Kagan began to doubt the widely popular belief that environmental situations are what determine the social behavior of children. It was at this point in time that Kagan really began to find his niche within the field of psychology. He began to focus all of his professional energy on the connection between certain human behaviors and psychology.

After working at the Fels Research Institute, Kagan returned to his Alma Mater, Harvard University. He began his work at Harvard in 1964. Kagan began by spending a year in a rural portion of Guatemala. While in Guatemala, he focused on how biological influences could have an impact on the differential development of children. After an extended study, Kagan came to the conclusion that important stages of child development occurred in a specific order during the first 2 years of a child's life. The specific developmental skills that Kagan focused on included morality and self-awareness. After examining these specific areas of development, Kagan stated that children are resilient, and despite difficult challenges they may face within their living situations,

they are adaptable. Their biological makeup will allow them to progress in a standard way. Kagan published a book on this subject in 1982, which was titled *The Nature of the Child*.

Over the course of his many years as a researcher, Kagan has turned many of his research findings into popular books. Some of his published works include *Understanding Children: Behavior, Motive, and Thought* (published in 1971), *Growth of the Child* (published in 1978), *The Second Year: The Emergence of Self-Awareness* (published in 1981) and *Unstable Ideas: Temperament, Cognition, and Self* (published in 1989).

As a result of his success, Kagan has often been asked to serve on various committees and boards. He has been a member on the National Academy of Sciences committee and the Social Science Research Council. He is also on the Child Development and Developmental Psychology editorial board. Kagan also serves on the President's Science Advisory Committee.

Kagan is now viewed as one of forefront leaders in his field. He is one of the most important developmental biologists of this time period. He has allowed for the scientific community to gain a better understanding of the connection between biology, mainly relating to the brain's neurochemistry and how the activity in the brain influences behavior by building temperamental types. Kagan has been awarded the Daniel and Amy Starch Professor of Psychology at Harvard University. He was also awarded the G. Stanley Hall Award by the American Psychological Association (APA) in 1994. In 1963 he was also awarded the Hofheimer Prize by the American Psychiatric Association. Yale University awarded Kagan the Wilbur Lucius Cross Medal in 1982.

Selected Publications

- *Personal development* (1971)
- *The growth of the child. Reflections on human development* (1978)
- *The nature of the child* (1982)
- *Galen's prophecy: Temperament in human nature* (1994)
- *An argument of mind* (2006)
- *What is emotion?: History, measures, and meanings* (2007)

- *The three cultures: Natural sciences, social sciences, and the humanities in the 21st century* (2009)
- *The temperamental thread. How genes, culture, tTime, and luck make us who we are* (2010)

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Kantor, J. R.

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Basic Biographical Information

Jacob Robert Kantor was born in Harrisburg, Pennsylvania, on August 8, 1888. He died on February 2, 1984, at age 96. Kantor is known for his conceptualization of the system of psychology known as Interbehaviorism, which was influenced by Watson's behaviorism, Darwinism, and other sciences, including physics and ecology. Although Kantor conducted little experimental research, his theoretical work contributed to the philosophical assumptions underlying the discipline during the twentieth century and helped to promote psychology as a natural science.

Kantor earned his Ph.D. from the University of Chicago in 1914 and served as an instructor at the University of Minnesota from 1915 to 1917. His Ph.D. was awarded in 1917, and he served as an instructor at the University of Chicago from 1917 to 1920. J. H. Tufts was the Head of the Department of Philosophy, and J. R. Angell, who is credited with establishing The Chicago School of Functional Psychology, was the Head of the Department of Psychology at the University of Chicago during Kantor's time there, although Interbehaviorism shows little resemblance to

Functionalism. Kantor was appointed as an Assistant Professor of psychology at Indiana University in 1920 and was promoted to Associate Professor in 1921 and Professor in 1923. He served on the faculty at Indiana University for 39 years. His publication record spans 1915 through 1984, and includes 20 books, over 120 published papers, and numerous presentations.

Major Accomplishments

Kantor can be credited with establishing the first naturalistic system of psychology since Aristotle. Troubled at an early age by the dichotomy between scientific and religious explanations, he argued throughout his career that the mind was a construct invented by Descartes and Freud, and the belief in such a construct had prevented psychology from aligning itself with the natural sciences. These views were articulated in his dissertation, *The Functional Nature of the Philosophical Categories* and his first major work, *Principles of Psychology* (Kantor 1924/1926), in which Kantor described all available psychological data of the early twentieth century using only naturalistic, as opposed to mentalistic, terms. Kantor chose the name Interbehaviorism because it captured the dynamic nature of psychological events. In *Principles of Psychology* a two volume work, Kantor defined “interbehavior” as interactions between the responding organism, stimulus objects in the environment, the media of contact between them, and the setting factors in which they are embedded Kantor 1957/1959. The interaction between the organism and the environment is thus a field of interaction between a number of factors, all of which are interdependent. An organism’s physiology contributes to, but is not the cause of, the organism’s interaction with the environment.

In *Outline of Social Psychology* (Kantor 1929) Kantor provided a behavioral conceptualization of social psychology. In *Objective Psychology of Grammar* (Kantor 1936) Kantor critiqued linguistic theories of language, and *Problems of Physiological Psychology* (1947) focused upon the role of physiological factors in psychological events. The two volumes of *Psychology and Logic* (Kantor 1945/1950) and *The Logic of Modern Science* (Kantor 1953) focused upon scientific system building and the role of constructs in science. Kantor

argued that the verbal constructs used by scientists to describe events are different from the events themselves (See also Midgley and Morris 2006).

Kantor established the Principia Press around the time of World War II to support the publication of his own books. In 1937, Kantor founded *The Psychological Record*, a journal of naturalistic psychology that was intended to represent all areas of scientific psychology and is still active in the publication of articles reporting new and innovative methodologies today. From 1968 onward, he contributed a number of brief theoretical commentaries to the journal under the name “Observer.” Kantor maintained a relationship with B. F. Skinner over the course of his career, inviting Skinner to the University of Minnesota while he was on the faculty and appointing Skinner as an Associate Editor for *The Psychological Record*.

Many of Kantor’s former Ph.D. students obtained faculty positions at private 4-year liberal arts colleges, making it difficult for Interbehaviorism to be widely disseminated. Renowned behavioral psychologists whose work was very influenced by Interbehaviorism include Sidney Bijou and William S. Verplanck. A note found on Kantor’s bedside table prior to his death in 1984 read, “No spirits, wraiths, hobgoblins, spooks, noumena, superstitions, transcendental, mystics, invisible hands, supreme creator, angels, demons. (Kantor 1984).”

See Also

- ▶ Behaviorism
- ▶ Indiana University, History of Psychology at
- ▶ Skinner, B. F.

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Keynes, John Maynard

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Basic Biographical Information

John Maynard Keynes was born June 5, 1883, in Cambridge, England. His father, John Neville Keynes, was a lecturer at Cambridge University, while his mother was a social reformer. Keynes had two younger siblings. Keynes was schooled at home for a time, then attended Eton College (for boys up to 18 years old), before arriving at King's College, Cambridge, on scholarship. Keynes enjoyed studying classics and history, and he especially liked mathematics. Upon graduating in 1906, Keynes served for 3 years at Britain's India office while in the British civil service. During the 1910s and into the 1920s, Keynes mingled with members of the "Bloomsbury Group" of writers and artists (including Vanessa and Clive Bell, E.M. Forster, Duncan Grant, Lytton Strachey, and Virginia Woolf). In 1925, at age 37, Keynes married Russian dancer Lydia Lopokova. Beginning in 1909, Keynes published many dozens of papers and quite a number of books. Keynes is generally considered the "father of modern macroeconomics," by which is meant a breed of macroeconomic theory based on "micro-foundations" to describe human economic behavior. Keynes died on April 21, 1946, and was survived by his father (Skidelsky 2003).

Major Accomplishments/Contributions

Keynes's first book, *Indian Currency and Finance* (1913), was strictly an economic analysis, focused on

effects of the global economy on India's economy. His second book, *The Economic Consequences of the Peace* (1919), was an analysis of a national economy that included the factor of a collective mindset or mentality. Keynes argued that post-war reparation penalties imposed on Germany were so excessive that, upon "depriving a whole nation of happiness," the "abhorrent" scale of the penalty would likely "sow the decay of the whole civilized life of Europe" and speed along "that final war between the forces of Reaction and the despairing convulsions of Revolution, before which the horrors of the late German war will fade into nothing."

Keynes's third book, his *Treatise on Probability* (1921), is considered a breakthrough work. He described the idea of probability with both formal and philosophical discussions, and concluded that a statement of probability is a special-case truth value intermediate between complete true and complete falsity. Keynes launched what has become known as the "logical-relationist" theory of probability.

Next came Keynes's *Revision of the Treaty* (1922), where he extended his discussion from his 1919 book. Keynes's fifth book, *A Tract on Monetary Reform* (1923), introduced discussion of the psychological value of a person choosing to hold some portion of personal wealth in a highly liquid cash balance – a choice soon to be called "liquidity preference." Keynes also advocated depreciating a nation's currency so as to increase demand for the nation's exports. Keynes also began exploring the idea of strategic use of government spending on public works, with the goal of boosting jobs. It was this latter idea that, over the next dozen years, Keynes transformed into a theoretical proposition established upon psychological attributes of consumers, savers, and investors.

During the 1930s, Keynes published his sixth, seventh, and eighth books: his *Treatise on Money* (1930), which included an argument that one cause of unemployment is a combination of high interest rates and a fearful psychology that results in savings exceeding investments; his shorter essay, *The Means to Prosperity* (1933), explored an argument that increased public spending during a recession can make use of an income–expenditure "multiplier effect" (which stems in part from perceptions of confidence); and, *The General Theory of Employment, Interest and Money* (Keynes 1936), which established a unified understanding of

macroeconomics. *The General Theory*, despite its fully economic-sounding title, is largely about human-behavioral justifications for interventionist government policies. Keynes takes direct aim at the “neo-classical” point of view in economics, which (dating from 1870s and 1880s writings by W.S. Jevons, F.Y. Edgeworth, and others) advanced a belief that the best outcomes from market activity come from markets left unfettered (Leijonhufvud 1969).

What Keynes challenged in *The General Theory* was the main principle underlying neo-classical arguments about perfectly rational consumers whose minds continuously calculate marginal costs and marginal benefits. While Keynes did not outright reject the marginal principle, he rejected certain outcomes of marginal reasoning. He concluded: Rational calculative behavior by many individual consumers does not necessarily aggregate into collectively rational outcomes, but instead operates according to individual and societal “consumption functions”; calculative behavior by workers does not always result in acceptance of lowered wages during recessionary times (when such lowering of wages would likely help decrease the number of persons laid off); calculative behavior by savers does not always result in every last dollar of saved money turning into invested money; and, people can behave collectively irrational when driven by “animal spirits,” such as during financial market panics. The most psychological of the chapters in *The General Theory* (and in many ways two of the keystone chapters in the book) are Chap. 9 on “The Propensity to Consume: Subjective Factors” and Chap. 15 on “The Psychological and Business Incentives to Liquidity” (Keynes 1936).

Based on his series of brief arguments about mind and behavior, Keynes overturned three previous conventional wisdoms: (1) no longer would there stand the neo-classical notion that “supply creates its own demand,” (2) no longer would there stand the neo-classical notion that an entire economy in stable equilibrium will have full labor employment, and (3) no longer would there stand the assumption that the economy works best without government interference. Within a unified theoretical argument, Keynes established that demand is the key variable governing the overall level of economic activity, that an economy can have high labor unemployment even in a state of stable equilibrium, and that public spending is

necessary to help speed up or slow down an economy that has a low level of labor employment. The essence of the “Keynesian Revolution” is that labor employment levels are determined not by wage levels, but by aggregate spending – including both consumer spending and government spending (Fletcher 1989).

Keynes’s last book was *How to Pay for the War* (1940), and for the most part the answer was not by voluntary buying of war bonds, but by imposing higher taxation and compulsory saving requirements. Altogether Keynes provided a series of reasons, through numerous articles and books, that government’s legitimate and, indeed, necessary role is interventionist economic policy, using both fiscal and monetary measures to mitigate recessionary economic conditions and to dampen expansionary conditions.

See Also

- ▶ Jevons, W. S.
- ▶ Smith, Adam

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Kinsbourne, Marcel

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Marcel Kinsbourne was born in Austria in 1931. His family fled the Nazis in 1939, and he spent the remainder of his youth in England. He obtained his Medical degree from Oxford University and later received the British equivalent of a Ph.D. He specialized in pediatric neurology and behavioral neurology and has served on the faculties of Oxford University, Duke University Medical Center, University of Toronto, Harvard

Medical School, and Tufts University. He is currently a professor at the New School, a university in New York, where he received an award for Teaching Excellence. He is the author of more than 400 scientific papers, the author or editor of nine books, and has served on the editorial board of 26 scientific journals.

Relationship Between the Central Nervous System and the Conceptual Nervous System

Kinsbourne has spent much of his life questioning, challenging, refuting, and reconstructing several previously accepted ideas about how the brain works. He studies clinical syndromes in patients for clues about brain function and uses his knowledge and discoveries about the brain to devise treatments for neurological disorders. He is also an experimentalist who has invented many paradigms in order to test his theories. Thus, Kinsbourne is both a scientist and a philosopher of science. He moves effortlessly through two levels of neural function: the central nervous system (CNS) and the *conceptual nervous system (cns)*. Within his “cns,” Kinsbourne respects Brodmann’s cytoarchitectonic areas, but acknowledges that functional neural networks are distributed and overlapping both within and across the boundaries of these regions. In a sense, Kinsbourne is the grandfather of what is currently referred to as the cognitive neuroscience view of regional specialization. This view does not attribute functions to one specific brain location, but claims that neural networks are either recruited or inhibited on the basis of competing task demands, changes in arousal, or reaction to damage in the brain. His view of the brain is that of a dynamic organ constantly changing in response to the internal and external environments.

Development of the Notion of Overflow of Activity Between Adjacent Neural Circuits

Kinsbourne (1972, 1974a) was fascinated by the influence of activity in one neural circuit upon another seemingly independent circuit. He demonstrated that when the left hemisphere is occupied with a verbal task (such as memorizing a series of words), visual and auditory attention shifts rightward and the eyes involuntarily move to the right. When primed with

a visuospatial task, attention shifts leftward and so do the eyes. He then proved that the converse is also true: rightward orientation improves verbal processing and leftward orientation improves spatial processing.

Depending upon the task or type of stimuli, *overflow* of activity into adjacent neural circuits can facilitate or interfere with task performance. Elaboration of this novel overflow phenomenon led to the discovery that voices heard by schizophrenics can be inhibited merely by occupying some of the relevant circuits by either widely opening the mouth or humming (Green and Kinsbourne 1990).

Application of Dual Task Methodology Leads to Principle of Functional Cerebral Distance

Kinsbourne elaborated on his theory of hemispheric interaction by examining dual task performance. He created a variety of tasks requiring involvement of neural networks that are either tightly connected to one another within a single hemisphere or widely distributed between the two hemispheres. The two tasks were performed concurrently. For example, Kinsbourne and Cook (1971) asked subjects to balance a dowel rod while repeating sentences (a left hemisphere task) and found that balancing time decreased for the right finger (controlled by left hemisphere) but not the left finger (controlled by right hemisphere). With this “dual task methodology,” they found that young right-handed children already showed the adult pattern of greater disruption of right- rather than left-sided finger tapping when asked to perform oral language or verbal memory tasks (Hiscock et al. 1987). Similarly, as the phonetic difficulty of the verbalizations increase, control of the right hand is increasingly affected. In fact, hand and oral-articulatory neural structures occupy adjoining neocortical space.

These results in both adults and children led Kinsbourne to his principle of *functional cerebral distance*, which states that the degree of connectivity between two regions predicts dual task performance. For example, while speaking, the ability to simultaneously track, manually sequence, position, or maintain stabilization of the arms and hands is disrupted, particularly on the right side because both verbal ability and control of right-sided motor functions are in the

left hemisphere (Kinsbourne and Cook 1971). This paradigm was the first to offer investigators a motor test for laterality, and in various forms it continues to be used for this purpose.

There is reason to suppose that functional cerebral distance increases with age. As networks become pruned and the corpus callosum completes its maturation, incongruent simultaneous processing is able to occur in separate hemispheres better than within a single hemisphere. This makes sense since the number of interhemispheric connections is a fraction of the number of intra-hemispheric connections. This was demonstrated in the study by Merola and Liederman (1985), who showed that children can read upright and inverted letters more accurately when upright letters were presented to one hemisphere and inverted letters to the opposite hemisphere compared to when both letter types were presented to a single hemisphere.

The Developmental Invariance of Cerebral Lateralization

Kinsbourne (1974b) was an early critic of the widely accepted theory of progressive lateralization of cerebral localization of function. Progressive lateralization stated that when a child first develops a skill, it is bilaterally represented in the brain, and with further development, the representation shifts to one hemisphere or the other. Progressive lateralization claimed that the two hemispheres were equipotential at birth and that there was no intrinsic advantage for one hemisphere to predominate in a particular function, such as language, until development of that function (Lenneberg 1967). Evidence for this was based on data that there was equal recovery of language from lesions to either hemisphere in childhood. Kinsbourne (1975) critically reviewed that literature and showed that a) the lesions that were claimed to have been unilateral were secondary to infection and therefore almost certainly bilateral and b) that even at an early age left hemisphere lesions were less well compensated for in terms of language than right hemisphere lesions.

Kinsbourne's theory of the *developmental invariance of cerebral lateralization* stated that the two hemispheres have a small but important bias in the way they process inputs that is already established at birth and subsequently elaborated on by experience. Kinsbourne called attention to the rightward bias of the tonic neck

reflex in infants which consists of turning the head and eyes sideward, opening the mouth, and pointing the ipsilateral arm in the direction of the gaze. He proposed that the extended hand would develop into the preferred hand for reaching and grasping (Caplan and Kinsbourne 1976). The notion that this bias was genetically mediated was established when Liederman and Kinsbourne (1980) showed that the offspring of two right-handed parents were more likely to exhibit a rightward turning bias in the tonic neck reflex than the offspring of parents with at least one non-right-handed member. This was demonstrated in newborns between 1 and 4 days old, thereby eliminating possible effects of parental handling.

Hiscock and Kinsbourne (1980) reviewed their own and others' behavioral data and concluded that there was no time at which hemispheric activation swung from symmetry to asymmetry. For example, when right-handers are presented with competing verbal messages to both ears (referred to as dichotic stimulation), they identify more of the right-sided material. When the material is musical, the left ear has the advantage. Children as young as 3 years of age manifest such dichotic listening asymmetrical effects which are as strong as those of older children (Hiscock and Kinsbourne 1977).

The concept of invariance of lateralization with increasing age remains the standard in this field.

The Scaffolding of Circuits Mediating Basic or Reflexive Behavior Evolves into Circuits That Mediate Related Higher Order Behaviors

Kinsbourne promulgated the view that circuits mediating early onset behaviors become the scaffold upon which later onset behaviors were based. For example, he was captivated by the relationship between the onset of right-handed pointing and the onset of babbling. He posited that naming is based on a perceptual change that engages the child's attention and engenders an orienting response. First words are most often objects of contemplation rather than objects of action. Objects of contemplation are known through orienting (pointing, looking, and turning), whereas objects of action are known through grasping. Naming during the first 2 years occurs as part of an orienting response (almost always occurs with pointing) and orienting is

right-biased in right-handers and in the offspring of right-handed people. This association may reinforce the bias to the left hemisphere control of speech very early in life (Kinsbourne and Lempert 1979). More recently, he has pointed out that infant imitation foreshadows entrainment between people as they converse, similar to how a crowd entrains to a unified point of view (Kinsbourne 2005).

Kinsbourne's Theory of Cerebral Hemispheres as Opponent Systems

Kinsbourne developed a theory of cerebral processes as *opponent systems*. It is based on the notion that if there is damage to one polar element of the system, symptoms arise that do not occur when both elements are impaired. Areas of cortex that subserve specific functions inhibit other areas that are potentially capable of that same function. Destruction of primarily responsible areas releases homologous areas from inhibition and compensatory functioning is effective in proportion to the severity and extent of the lesion (Kinsbourne 1974b). For example, in left hemispherectomized patients, the right hemisphere is able to compensate for much loss of function because it is free of competitive inhibition from the (absent) left hemisphere. Extrapolating this concept to the control of attention in the normal brain, Kinsbourne suggested that reciprocal inhibition between the hemispheres mediates the balance of attention.

Reconceptualizing the Syndrome Known as Unilateral Neglect as Hemispatial Neglect

Damage to the parietal region of the right hemisphere had been claimed to cause unilateral neglect, a lack of awareness for all stimuli located in the contralateral (left) side of space. Kinsbourne (1987) showed that neglect was not for one side of space, but was actually on a gradient across space and was therefore *hemispatial* not unilateral. Thus, even when stimuli were clustered in the intact (i.e., right) side of space, the patient with right parietal lobe damage neglected the left-most stimuli (Reuter-Lorenz et al. 1985).

Kinsbourne (1977) posited that *hemispatial neglect* results in an imbalance in the opponent system that controls lateral orientation with excessive orienting toward the side of the lesion. Kinsbourne explained

why right-sided lesions induced more severe neglect than left-sided lesions. He argued that from birth, there is a strong lateral bias to turn rightward mediated by the left hemisphere. Damage to the right parietal lobe diminishes the ability of the right hemisphere to keep this left hemisphere-mediated rightward orientation bias in check.

The concept of unilateral hemispatial neglect as an imbalance of hemisphere activations remains the basis for continuing research into this syndrome.

The Corpus Callosum as an Interhemispheric Activation Equilibrator

Kinsbourne (1974b) was particularly fascinated with the experiments by Levy et al. (1972) in which patients who had surgical section of the interhemispheric commissures were presented with faces composed of two halves of two different familiar faces (chimeric faces). It struck Kinsbourne that these "split-brain" patients never noticed that the faces were odd looking. Instead, when asked to *name* the person, they spoke the name of the person on the right side of the face. When asked to *point*, they pointed to the person on the left side of the face. The common interpretation was that this is due to a lack of interhemispheric integration. However, Kinsbourne took this as a demonstration that one hemisphere can gain ascendancy over the other depending upon task demands. He conjectured that the callosum (which was absent in these patients) normally functions as an *equilibrator of interhemispheric activation* and that its absence in split-brain patients allows extreme shifts in hemispheric activation and wild swings in attention. Kinsbourne (2003) elaborated on the concept of transcallosal equilibration.

Left Hemisphere Specialization for Positive Emotion; Right Hemisphere Specialization for Negative Emotions

Kinsbourne (1986) hypothesized that the left hemisphere mediates focusing on a detail or a single point and is oblivious of everything else. This outlook promotes approach. Kinsbourne pointed out that the right hemisphere is specialized for recognizing and depicting existing relationships and is therefore responsible for establishing context and setting a framework for the

point of focal attention. The right hemisphere sees the whole picture, what is really going on, and promotes withdrawal. The approach/withdrawal dichotomy for hemispheric differences is able to accommodate laterality effects for both cognitive and affective processes. He elaborated on this idea to state that the right hemisphere is associated with negative emotions and the left with positive emotions. Kinsbourne and Bemporad (1984) reviewed the literature. They pointed out that patients with left hemisphere damage are often gloomy and depressed, whereas those with right hemisphere damage are often cheerful and elated. Conversely, overactivation of the right hemisphere during seizures causes epileptic patients to cry, whereas left hemisphere seizures induce laughing. In an experiment by Root et al. (2006), participants were presented with happy or angry faces at fixation point, and asked to identify the emotion of each with either their right or left index finger. There were faster response times for angry faces when the left finger was used, indicating right hemisphere dominance for negative emotions, and faster response times for happy faces when the right finger was used, indicating left hemisphere dominance for positive emotions. Kinsbourne's ideas have been confirmed and elaborated by Davidson in a series of papers which demonstrate that this asymmetry is readily observed specifically within the left vs. right prefrontal cortices (Davidson and Fox 1982; Davidson 2004).

The Dominant Focus of Consciousness and the Notion of Multiple Drafts of Responses

Kinsbourne's recent work has revolved around developing and refining a unique neural model of consciousness. Dennett and Kinsbourne's model (1992) rejects the notion that reaction time reflects the sum of the time required for three serial and independent processes: stimulus perception, decision analysis, and response execution. Instead, they propose that every stimulus immediately provokes a stream of responses based on increasing analysis of the situation. Thus, when encountering threatening or dangerous stimuli, an immediate response is often required (if you see a fire, run). Which of the *multiple drafts of responses* that are prepared is actually executed is influenced by threat level, amount of competing information,

competing response demands, and individual differences in what constitutes sufficient support for a response decision. Thus, the combination of interacting neural networks mediating these aspects of decision making determines how fast the response will be and from which part(s) of the brain the dominant activation pattern will emerge.

Given this notion that "the decision maker" is whatever network at a given moment (Kinsbourne 1988) has achieved sufficient activation to dampen down (by lateral inhibition) competing networks, Kinsbourne declared that there is no one seat of consciousness. He states that there is no privileged region that receives and processes information and from which information must be transported. Simultaneously perceiving multiple stimuli and at the same time preparing multiple responses relies on the "winner-takes-all" notion of lateral inhibition. The network with the greatest degree of activation inhibits surrounding networks and therefore becomes the dominant focus. This is an ephemeral process. Within milliseconds, another network can become the most active, and therefore become the *dominant focus*. The apparently single and unified stream of consciousness is actually composed of many different, largely independent, constantly reforming regional activations. These activations can conflict with or mutually support each other, thereby rapidly shifting the dominant focus, which incorporates the contents of attention.

Kinsbourne's Argument That There Are No "Multimodal Convergence Zones"

Many theorists including Damasio (1989) argue that information from various points of the brain project upon "multimodal convergence zones" and that conscious awareness emerges from such cortices. However, Kinsbourne forcefully argues that a loss of the ability to simultaneously perceive different modalities or simultaneous (but spatially distributed) stimuli has never been shown to be a consequence of damage to the association cortices. In addition, he argues that the number of meaningful ways in which modalities may be combined is astronomical and well beyond the space available for "association regions." Instead, he argues that the base state of the brain is largely multimodal and that in real life people are rarely confronted by

a single modality situation. In Kinsbourne's view, it is the simultaneous activation of representations distributed throughout the brain that leads to the unification of neural activity and conscious thought. Cross-modal integration is not accomplished by convergence, but is anchored in the shared topography and timing of its referents. Single modalities are appreciated via an abstraction from the multisensory whole. There is growing evidence that intermodality crosstalk occurs even in the primary areas of the cortices Falchier et al. (2002).

Kinsbourne's theory of consciousness rests on the idea that the brain is a self-organizing and self-stabilizing network. The brain does not wait idly for stimulation. It is a constantly active network that seeks to maintain equilibrium. Taking this one step further, Kinsbourne (2000) believes that human experience is the direct reflection of the dynamic activity of the brain or "the chatter of neurons." Subjective awareness is not a product of the brain, but the functioning of the brain itself.

Individual Differences in Criterion Setting for Decision Making

Kinsbourne (2001) theorized that there were individual differences in the amount of information processing required for readiness to make a decision. Individuals with low decision criteria are apt to be impulsive, sensation seeking, and risk taking. This tendency is exemplified by individuals with attention deficit hyperactivity disorder (ADHD). In contrast, individuals with high thresholds for decision making are those that are obsessive compulsive and seek to gather information long past the time needed to inform the decision. Such personality traits as well as their extensions into psychopathology can be seen as arising from the need to self-regulate the overall level of cortical neural activity to an unusually high or low level.

A New Subtype at the Highest Functioning Level of Autistic Spectrum Disorder

The notion that there are *individual differences in criterion setting for decision making* led Kinsbourne (1991) to identify *an apparent subtype of ADHD that he called overfocusing*. He defined this disorder in terms of his theory of the brain as a network striving to

maintain a homeostatic level of arousal. In contrast to the underfocused person with ADHD, who constantly seeks stimulation so as to raise arousal levels into a subjective comfort zone, the overfocuser's arousal system continually threatens to overshoot; overfocusers try to dampen arousal by avoiding situations and interactions that are novel or unpredictable. Overfocusers are often diagnosed with ADHD because of their inattention due to persisting concentration on some other topic of interest. Unlike the hyperactive patient who has trouble concentrating, the overfocuser has perseveration of mental set and task orientation. Indeed, overfocusing is on the cusp between the cognitive mainstream and high functioning autism, and an overfocusing factor describes significant properties of autistic behavior (Liss et al. 2006).

Early Contributions

In an early collaboration, Marcel Kinsbourne and Elizabeth Warrington set a new standard of experimentation in the analysis of neuropsychological deficits, which ushered in the cognitive neuropsychology movement. They also discovered visual masking by pattern, which is widely used in experiments in which visual stimuli are briefly presented (Kinsbourne and Warrington 1963). Kinsbourne was the first to describe two neurological disorders (Kinsbourne and Warrington 1962; Kinsbourne 1964), the former of which is often called Kinsbourne disease.

In conclusion, Marcel Kinsbourne is truly a man with a protean mind. He has strived throughout his career to think beyond the constraints of popular opinion and accepted theories and has succeeded in restructuring our ideas about the brain to an extent that knows no bounds. What can be a better example than a recent paper titled "Morality without God: Is human brain biology enough?" (Kinsbourne 2000).

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Klein, Melanie

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Basic Biography

The British child psychoanalyst Melanie Klein was born Melanie Reizes on March 30th, 1882, in Vienna, Austria, and died in London, England, on September 22nd, 1960. Klein's family was of the Jewish middle-class and they ensured that she received a grammar school education, but her father's death in 1900 left the family in financial difficulties and prevented Melanie from pursuing the medical training she desired. Instead, she married her second cousin, Arthur Klein, and had three children before moving to Budapest in 1910. In 1914, she began treatment for depression with the Hungarian psychoanalyst Sandor Ferenczi, who encouraged her intellectual interest in psychoanalysis (Grosskurth 1986).

Major Contributions

Klein began by psychoanalyzing her own children, and presented one of the earliest papers on child analysis to the Budapest Psychoanalytic Society in July 1919 when she became a member. In 1921, Klein left her husband and took the children to Berlin where she joined the Berlin Psychoanalytic Society and, with the support of its president, Karl Abraham, developed her method of child analysis: the psychoanalytic play technique, which treated children's play activity as symbolic of unconscious phantasies (this British spelling is preferred in Kleinian theory to emphasize the unconscious nature of the phantasies, in contrast to conscious fantasies, or daydreams). When Abraham died suddenly in 1926, Klein lacked support in Berlin for her new approach, so she moved to London to join the British Psychoanalytical Society which was enthusiastic about her play technique.

Meanwhile, Anna Freud in Vienna was also developing a method of child analysis and disagreed with Klein about theory and methodology. In a 1927 debate between the Kleinians and Freudians, Klein and her followers advocated a deep analysis of oedipal phantasies because they believed that a young child

has a rudimentary superego and is capable of transference, while Anna Freud argued that analysis should seek to strengthen the child's ego, with the analyst serving as an external superego for the young child who, in her view, lacked a superego in any form. Klein's psychoanalysis of children led her to develop theories challenging the Freudian account of child development, for example, she proposed the existence of aggressive phantasies in the infant psyche derived from the death instinct, but her most important contribution was the idea that the infant has a primary object relationship with the mother. In Freud's view, the infant feels love for the mother only because she satisfies its basic physiological needs, but Klein argued in her first book *The Psychoanalysis of Children* (1932) that the infant is predisposed to seek a relationship with a caregiver independent of any other needs. In other words, the relationship to a love object is primary.

In Klein's view, this relationship is represented within the psyche in the form of a complex world of mental representations called internal objects. Klein and her followers developed this idea into object relations theory, which emphasizes the importance of the mother-infant bond in shaping the adult personality (Segal 1979). Object relations theory also proposes the existence of two fundamental phases in development: the paranoid-schizoid and the depressive positions. In the paranoid-schizoid position, the infant mind is dominated by psychotic defense mechanisms such as projective identification and splitting of objects into good and bad, and by phantasies of attacking and destroying the bad objects. This leads into the later depressive position in which the child's psyche is dominated by feelings of unconscious guilt for having attacked the objects in phantasy. The child works through the depressive position by making successful reparations toward the object, i.e., the mother, and develops a healthy personality based on a mature internal object world (Hinshelwood 1989).

Klein's innovations in psychoanalytic theory sparked a second debate with Anna Freud in the early 1940s, soon after the Freuds moved to London, fleeing from the Nazi invasion of Austria. Anna Freud quickly became a powerful member of the British Society and, with the support of a few British analysts and other émigrés, she argued that Klein's ideas were incompatible with traditional psychoanalysis. The goal of the

Freudians in these so-called Controversial Discussions was to throw Klein and her supporters out of the Society, and the debate went on for several years. The situation was eventually resolved when the Freudians and Kleinians agreed to disagree and instituted separate training programs for their groups (King and Steiner 1991). Klein's famous case-study Narrative of a Child Analysis (1961) was published shortly after her death from cancer. Her papers were placed in the Wellcome Institute for the History of Medicine in London. Kleinian theory is still practiced by a strong Kleinian group in London and is popular among South American psychoanalysts, but it is largely rejected by American psychoanalysts, primarily because they disagree with the notion of the death instinct. However, Klein's ideas have had a much larger, although indirect, influence on academic developmental psychology through the work of the psychoanalyst John Bowlby, who trained with Klein and who formed his theory of infant attachment out of object relations theory.

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Klemm, Otto

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Basic Biographical Information

The career of Otto Klemm, born on March 8, 1884 in Leipzig, Germany, shows the transformation of an experimental, laboratory psychologist to one of the most important psychologists engaged in a multitude of applied psychological investigations in the period between the First and Second World Wars. His research was deemed important to agriculture, education, transportation, sporting competition, and even radio broadcasting (Klemm 1936).

Klemm's scientific career began when he constructed a homemade telescope to study sunspots. He published his findings in a popular journal of astronomy when he was 15 years old (Klemm 1936). From 1903–1904, Klemm studied philosophy, mathematics, physics, and philosophical psychology at the University of Munich, Germany. In the Fall of 1904, he returned to his native Leipzig and enrolled in Wilhelm Wundt's Institute of Experimental Psychology. He conducted archival research that compared the writings of the Italian philosopher Giovanni Battista Vico (1668–1744) with Wundt's psychological system published in his *Voelkerpsychologie (Folk Psychology)*. This work won him an award and a doctoral degree from the university, as well as a position as a senior assistant to Wundt at the Institute. After completing an experimental dissertation in Wundt's laboratory, Klemm became an untenured and unsalaried lecturer at Leipzig, until 1923, when he was at last appointed a tenured professor of applied and educational psychology. Klemm divided his time among teaching, conducting research, and consulting with government bureaus (Hartmann 1939). He was forced by the National Socialist government in Germany to retire from the university at the end of 1938 at the age of 54, and he died of his own hand on January 5, 1939. His eulogy was delivered by Wilhelm Wirth, the first director of Leipzig's Psychophysical Seminar. Wirth referred to Klemm in the context of Klemm's own *History of Psychology (Geschichte der Psychologie)* of 1911 and said: "Now we must become accustomed to the painful thought that he belongs to the history of psychology, in which he will always have a place of honor" (Wirth 1939, p. xi).

Major Accomplishments/ Contributions

Klemm's earliest experiments at the Institute were concerned, quite understandably, with the traditional psychological problems that occupied the early years of experimental psychology, such as the study of attention, sensation, and perception. In a major work in 1910, for example, Klemm examined the ability to localize sound with various ancillary stimuli. His techniques determined constant errors, and, importantly for some of his later applied work, compared localization of sound with and without the simultaneous

presentation of nearby visual stimuli (Klemm 1910). On the basis of this kind of work, he was promoted to a salaried professorship, but remained untenured. Klemm's studies in these years on sound localization and related auditory illusions were classic experiments of human perception and had an unexpected application to targeting and sound localization. During the First World War, he conducted investigations as a training officer and field observer with a German artillery unit (Klemm 1936).

When Wundt retired from Leipzig in 1917, the role of Director of the Institute passed to one of his able assistants, Felix Krueger (1874–1948), with Klemm remaining on as Krueger's assistant. Following the death of Wundt, Krueger and Klemm led the Institute in important new directions based on a psychological and philosophical orientation known as holistic psychology (*Ganzheitspsychologie*). Klemm explained holistic psychology as distinct from the Gestalt approach in this way at the International Congress of Psychology at Yale University in 1929: "All experience of meaning is an awareness of belonging to a whole" (Hartmann 1939). Krueger and Klemm adapted holistic psychology to the work at the Institute, to the difficult social, economic, and political conditions that confronted Germany following the First World War. New sections of the Institute were created and devoted to applied psychology, developmental psychology, Gestalt psychology, and character psychology (Hammer 1993).

Klemm pursued a variety of practical applications holistic psychology that promised to support German redevelopment. His research related to social, economic, and educational concerns that faced the German state in the areas we now know as industrial psychology, sports psychology, forensic psychology, and mental abilities and testing. Klemm himself had trouble with the logical organization of his research, and upon reflection admitted to the "motely conglomeration" of published studies that had thus far characterized his career (Klemm 1936). In all, he produced 15 books and more than 80 articles, mostly in areas of applied psychology.

Several examples of Klemm's research will illustrate the breadth of his interests. Just after assuming his tenured position at the university in 1923, he began a series of studies on human work and equipment control design, which represented a very practical

direction of economic benefit in postwar Germany. These studies included, for example, an analysis of handle designs with both male and female subjects. Largely, the studies and reports were published in journals specifically devoted to applied psychology.

An area of research in forensic psychology focused on the selection of police detectives for the purpose, among others, of enhancing the interrogation process. He devised a series of tests to measure recruits' cognitive abilities, such as sentence completion and immediate recall, but also included measures of judgment, such as with handwriting, the comparison of photographs, and with observation of slight-of-hand performances. Within sports psychology, Klemm studied the benefit of physical exercise (knee bends, pull-ups, diving, and running) and school performance among girls. One group received 1 hr of physical exercise per week, and the second group received 5 hrs. Klemm noted that the intellectually weakest students, tested by standard ability measures, generally benefited more from the intensive physical training than the intellectually stronger students. Finally, the area of greatest productivity for Klemm and his students in applied psychology concerned human mental functioning, or what we may call today *cognitive psychology*. He demonstrated the superiority of logical prompts, or cues, for learning sequences of numbers and studied the role of verbal prompting in learning. Altogether, Klemm published 21 papers investigating mental functioning.

See Also

- ▶ Forensic Psychology
- ▶ Wundt, Wilhelm

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Klineberg, Otto

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Prof. Klineberg, Paris, In his 70s Frieman (Photo courtesy of Richard Frieman) (Nov 2, 1899–March 6, 1992)

Basic Biographical Information

American social psychologist, born in Quebec City, he was raised and educated initially in the multilingual, multi-ethnic milieu of Montreal, and became an American citizen in 1938. He credited his parents, brought to Canada as youngsters from central Europe and modestly educated, for stressing education's importance to all of their eight children, four of whom went on to graduate degrees. Though they did not have much money, "We were brought up in a friendly and warm atmosphere and conservative Jewish tradition, with a strong emphasis on education and scholarship" (1974, p. 164).

Klineberg graduated from McGill University in 1919, with a major in psychology and philosophy, receiving a first-class honors bachelor's degree. He was awarded the Prince of Wales Gold Medal with a tuition scholarship to study for an M.A. in philosophy at Harvard. There he encountered what he called "eye-openers" about psychology, by hearing Floyd Allport's social psychology lectures and attending a psychology seminar with H.S. Langfeld. After earning

his M.A. in 1920, he intended to obtain a Ph.D. in psychology, but was advised instead to get a professional degree because of poor academic job prospects in Canada. He then entered McGill's medical school thinking of becoming a psychiatrist, but on earning his M.D. in 1925 was still drawn to an academic career in psychology.

Klineberg took the major step in 1925 of studying for a psychology Ph.D. at Columbia. There he was influenced by the teachings of Robert Woodworth, who said that all psychology may be social psychology, and who later encouraged him to write his eminent text, stressing culture. This emphasis came from working with Franz Boas, a founder of anthropology, who also was very Frieman influential in Klineberg's development. He was the first chair of Columbia's Anthropology Department, and began the field's first U.S. Ph.D. program there. Klineberg's peers, such notable anthropologists as Ruth Benedict and Margaret Mead, with a master's degree in psychology, furthered Boas's views of culture's importance in their doctoral work. Pickren (2010) says, this was at a time when "culture became a boundary object" in the emerging identities of psychology and anthropology as scientific disciplines.

Others with whom Klineberg studied were Gardner Murphy, who became a close friend; Edward Sapir in anthropology; and the psychologist of learning, Edward Thorndike at Teachers College. Klineberg brought these latter streams together in his doctoral dissertation by studying the speed of reaction on performance tests among Yakima children in Washington State. He found that they were less concerned with speed than with accuracy, compared with white children there, which raised significant issues about culture's effects on tests of learning.

On completing his Ph.D. at Columbia in 1927, Klineberg went to Europe on a 2-year fellowship to study national differences among children. His results showed greater similarities than differences between nations. Returning in 1929, he took up a position as research associate in anthropology offered him by Boas. In 1931 he was appointed to the first of his psychology faculty positions at Columbia, where he remained until his retirement in 1962. He was the first chairman of a short-lived social psychology department, with Richard Christie, Stanley Schachter, and William

McGuire, among others. It followed Columbia's interdepartmental doctoral program, codirected by Paul Lazarsfeld in sociology and Goodwin Watson at Teachers College, joining Klineberg. This program was where the writer received a Ph.D. in 1952 in social psychology, with the latter two on his dissertation committee and Robert L. Thorndike, eminent psychometrician son of Edward L.

Major Contributions

A much admired figure in the social sciences internationally, Klineberg brought social psychology to the world, and the world to social psychology, by his influential books and far-reaching research on race and intelligence, international relations, and cultural comparisons (Hollander 1993, 1998).

The headline on Klineberg's obituary in *The New York Times* featured his study that contributed to the Supreme Court's 1954 *Brown v. Board of Education* decision overturning "separate but equal" schools. He found that children from all-Black schools in the South who migrated to integrated schools in the North had improved their intelligence test scores to a level equaling Northernborn Blacks. This work played a significant part in his long-time challenges to racial superiority theories. His seminal books in 1935 on *Race Differences* (Klineberg 1935a, b) and *Negro Intelligence and Selective Migration* (Klineberg 1935a, b) placed him at the center of a continuing controversy about beliefs in racial superiority, from which he did not flinch, even when faced with a reviewer's statement that his work was "hidden dynamite" (Klineberg 1990, p. 39).

In his talk to the New York Academy of Sciences in 1984 (published as Klineberg 1990), he considered his major contributions to be in cross-cultural studies, race differences, international relations, and mental health and illness. At home in New York, Paris, Rome, or São Paulo, he was fluent in most Romance languages, in addition to English, German, and Chinese, which he had acquired on his Guggenheim fellowship to China in 1935–1936. He later learned Portuguese to lecture as a visiting professor at the University of São Paulo in 1945–1947, receiving an award from Brazil for his contributions to the development of psychology there. Among his other influential roles on the international scene, he was president of the World

Federation for Mental Health, the International Union of Scientific Psychology, and the Inter-American Society of Psychology. He also authored a widely used and translated text, *Social Psychology* (1940, 2nd ed., 1954), and credited his wife, Selma, for helping him write it.

Invited by Jean Stoetzel to join him in teaching social psychology as a visiting professor at the University of Paris in 1960, Klineberg took up full-time residence there in 1962 to continue his research at the International Center for the Study of Intergroup Relations, which he established, with Marissa Zavalloni, a Columbia Ph.D. who had studied with him there, as Assistant Director. Among their publications together was *Nationalism and Tribalism Among African Students* (1969; Paris, Mouton), commissioned by UNESCO. During his year in China researching the emotional expression of the Chinese, he found traditional views of their non-expression were stereotypes. As Director of his Center, he and his students studied race problems, minorities, immigrants, national characteristics, the effect on student attitudes of study abroad, and other issues of culture and personality.

After teaching and doing research for two decades in Paris, he returned to New York in 1982 and was appointed to the adjunct faculty of the then called City University Graduate School and University Center. Harold Proshansky, its president at the time, had been a doctoral student of his, as were others of us, and we established a lecture series there to honor him in his 90th year. He and his wife were present for the Inaugural Klineberg Lecture on racial prejudice by John Dovidio, then at Colgate, in September 1990. The second lecture, on evaluation apprehension, was given in May of 1992 by Claude Steele, then at Stanford. Among subsequent lecturers in the series were Rupert Brown of the University of Kent and Marilyn Brewer of Ohio State University. Two doctoral dissertations in ethnic relations were also supported with these funds, contributed in honor of Klineberg.

The impact of Klineberg's international leadership extended also to his two appointments at UNESCO in Paris. He was Director of the Applied Social Science Research Division in 1953–1955, after serving there in 1948–1949, when he headed the "tensions project," from which he produced his book *Tensions Affecting International Understanding* (1950). As Director, he

took pride in having supported the funding of research by Gardner and Lois Barclay Murphy on the partition of India, leading to the book, *In the Minds of Men* (Murphy, 1953). He also authored the integrative book on persisting cross-national problems, *The Human Dimension in International Relations* (1964). In the early 1960s, he worked on these issues with Ralph White, Morton Deutsch, Charles Osgood, Herbert Kelman, Irving Janis, Urie Bronfenbrenner, and myself, all members of the Committee on Psychology in National and International Affairs at APA. Klineberg made the initial contact for us to perform research for the United Nations, set up during our 1963 visit with him to UN Undersecretary General Ralph Bunche, who hugged him as a dear friend.

Klineberg served in several US government roles, including with the Office of War Information in World War II and the US Strategic Bombing Survey in Germany afterward. APA gave him its award for Contributions to Psychology in the Public Interest in 1979, and posthumously in 1992 APA's first award for Distinguished Contributions to the International Advancement of Psychology.

His other honors include the Kurt Lewin Award in 1956 from the Society for the Psychological Study of Social Issues (SPSSI), for which he was seventh (1942–1943) president. He was the first recipient of the Klineberg Award for Intercultural and International Relations created by SPSSI in 1989 to recognize the significance of his work and encourage others to perpetuate it. Awards have been given yearly for research and publications on these topics, of such meaning to him. At its inception, he said, “[W]hat a wonderful, heartwarming experience it is for me to find toward the end of a long career that the kind of research I have been doing is considered worthy of being continued by others. I can no longer do it properly myself. . . . This is a very precious gift you have given me, and I thank you for it” (Quoted in Hollander 1992, p.20).

Among Klineberg's overriding achievements was the legacy he left of his inspirational values and character. His inexhaustible optimism was expressed by his son, Stephen, professor of sociology at Rice University, who spoke at the centennial honor of his father's birth held by the psychology section of the New York Academy of Sciences, saying, “He supported the decision to raise his children as Quakers, the religion my mother

joined but he did not, remaining an agnostic ‘humanist,’ as he often described himself. His philosophy of life was marked by a deep faith in human beings, in the power of reason and evidence to solve disputes and to move humanity forward. . . . [H]is belief in their essential goodness more than anything made him so beloved by so many. Life is filled, he used to say, with self-fulfilling prophecies: If you treat people in the firm belief that they are essentially good people who mean well, they will be likely to act in ways that confirm those expectations. And the most important and enduring body of his scholarly research was predicated on his deep conviction about the essential equality of all peoples, his absolute confidence, long before it became generally accepted, that the evidence would disprove any and all theories of ethnic or racial superiority” (S. Klineberg 1999).

A devoted family, Otto and Selma Klineberg's three children are Rosemary Coffey, a freelance editor and former teacher in Pittsburgh, PA, Stephen at Rice in Houston, and John, an aeronautical engineer, whose last NASA position was as Director of the Goddard Space Flight Center in Maryland.

See Also

- ▶ [Boas, Franz](#)
- ▶ [Cultural Psychology \(General\)](#)
- ▶ [Langfeld, Herbert Sidney](#)
- ▶ [Murphy, Gardner](#)
- ▶ [Osgood, Charles](#)
- ▶ [Social Psychology](#)
- ▶ [Thorndike, Edward](#)

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Klüver, H.

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Basic Biographical Information

Klüver (1897–1979) was born in Schleswig-Holstein, Germany, and he died in Oak Lawn, Illinois. He immigrated to the USA in 1923, and became a naturalized US citizen in 1934. Before immigrating in 1923, Klüver had studied at the University of Berlin and had 3 years of graduate study at the University of Hamburg where his principal mentor was Max Wertheimer. Klüver received the Ph.D. degree at Stanford University in 1924. Klüver's first academic position was at the University of Minnesota where he became a friend and research colleague of Karl Lashley. From 1926 to 1928, Klüver was at Columbia University. He rejoined Lashley in 1928 at the Chicago Institute for Juvenile Research. Both joined the faculty at the University of Chicago in 1928 where Klüver remained until his death (Nahm and Pribram 1979).

Major Accomplishments/Contributions

Initially, Klüver gained notice for his research comparing eidetic imagery with perceptual experiences under the influence of mescal where Klüver mostly experimented upon himself. Subsequently, and to some extent influenced by Lashley, Klüver began the research that culminated in his best-known book, *Behavior Mechanisms in Monkeys* (Klüver 1933). The

book is well remembered for Klüver's behavioral methods applied to sensory, perceptual, and learning mechanisms. Klüver did not work in the era after it became both acceptable and fashionable to speak of "animal cognition," but had he done so, he might have been one of its ablest innovators and severest critics. A subject of overriding interest to Klüver was that of stimulus equivalence. His interest in equivalence is not easily summarized, but Klüver's view corresponded well with Henry Nissen's who wrote, "... all reasoning reduces to three processes, responsiveness to identity ... [and] ... difference, and, ... the balance, or relative weight given to each. ..." Substitute equivalence for identity and it summarizes what Klüver deemed important about equivalence.

Klüver's work with monkeys led to the theoretical contribution for which he is best known, the Klüver-Bucy syndrome. Before discussing that, when Stephen Polyak died (1955), the research for his monumental *The Vertebrate Visual System* was complete but the book was not ready for publication. Taking 2 years away from his own research, Klüver saw it through to publication. Klüver also provided some of the research that established that the striate cortex serves as the primary visual cortex, and he is remembered for developing neuro-histological methods, including an effective stain for white matter and the Klüver-Barrera method that combines in a single brain section one stain for the gray matter and another for the white matter.

Working with Paul Bucy, a neurosurgeon, and in a quest to understand the role of the temporal cortex in visual perception, temporal lobotomies were done on rhesus monkeys. Unanticipated, what became known as the Klüver-Bucy syndrome resulted (Nahm 1997). The syndrome, which it may be noted has also been reported to occur fully in humans, added significantly to understanding the neural substrates of emotion. The syndrome had been observed earlier (1888) by Brown and Shafer who apparently failed to realize its significance. Most striking following the temporal lobotomies was a behavioral tameness rarely seen in these feral monkeys. Eventually, this tameness was attributed to the removal of amygdala, and some of the other syndrome components were eventually attributed to structures in the temporal lobe other than the cerebral cortex. Nevertheless, a significant perceptual deficit

was attributable to the temporal cortex. It has been said that Klüver's research on striate cortex showed its role in the visual identification of objects, and his research on temporal cortex showed its role in knowing what the objects meant to the observer.

Klüver received so many high honors during his lifetime that only a select few can be mentioned here. He was a member of the American Academy of Arts and Sciences and of the National Academy of Sciences. He received the Gold Medal Award from the American Psychological Association in recognition of his scientific contributions, and he received an honorary Ph.D. degree from the University of Hamburg and honorary M.D. degrees from the University of Basel and the University of Kiel. Klüver also received the Karl Spencer Lashley Award in Neurobiology from the American Philosophical Association.

See Also

► [Lashley, Carl](#)

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Koffka, Kurt

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Basic Biographical Information

Born: March 18, 1886; Died: November 22, 1941.

Koffka's first encounter with philosophy and psychology was via Alois Riehl at the University of Berlin. After a year in Edinburgh, which confirmed Koffka in his Anglophilia, he returned and concentrated on psychology, obtaining the doctorate in 1908 under Carl Stumpf with a dissertation on auditory and

visual rhythm. Koffka then moved to Freiburg and Würzburg for short stays, and then to Frankfurt in 1910, where he encountered both Wolfgang Köhler and Max Wertheimer. Together they formed the “big three” of the emergent psychological movement *Gestalttheorie* (Gestalt Theory or Gestalt psychology). Many philosophical and psychological insights were blended in this movement, which rapidly gained adherents in Europe and soon also in America as an alternative to established psychologies, structuralism on the one hand with its narrow and atheoretical stance, and behaviorism on the other with its exclusion of mind. Koffka moved to the University of Giessen in 1911 and, while maintaining contact with the Frankfurt psychologists, began a diverse independent program of research including work on brain injury and aphasia in conjunction with Robert Sommer parallel to the work of Gelb and Goldstein at Frankfurt. His appointment also covered education, which directed Koffka's toward developmental ideas that led to his most significant work, *Die Grundlagen der Psychischen Entwicklung*, published in 1921. Postwar privation in Germany limited Koffka's future, and Gestalt ideas had become very attractive to Americans. Ogden, R. M. at Cornell, who had taken his Ph.D. with Külpe in 1903 and was the head of the Department of Education, encouraged Koffka to publish a summary of Gestalt psychology in English in 1922, which is often acknowledged as essential to the growth of the movement in America (Koffka 1922). Ogden translated Koffka's developmental book, titled in English *The Growth of the Mind*, which was widely read, and also arranged the first of Koffka's American visits, to Cornell in 1924. Koffka, attracted by the economic opportunities in America, accepted, after several subsequent stays in America, a research professorship at Smith College in Massachusetts in 1927, where he remained until his death. Although Koffka had one Jewish parent, he did not directly experience the persecution that drove many of the rest of the Gestaltists into exile after 1933. At Smith, with freedom to work on his interests, he took advantage of opportunities to travel, to Uzbekistan in 1932 under the aegis of the Soviet government, where he conducted perceptual studies along with his required work in educational testing, and to Britain in 1939 to study head trauma.

Major Accomplishments/ Contributions

The essence of Gestalt theory as conveyed by Koffka was its focus on the perception of objects as meaningful within a context, its emphasis on the constructive and creative character of the mind, actively taking a role in organizing its understanding of the environment, and its wholism and molar point of view. In place of laws of stimulus and response, Gestalt offered laws of perceptual organization that conditioned all transactions between organism and environment. In 1935, Koffka published *Principles of Gestalt Psychology*, which became the central reference of its time for Gestalt ideas (Koffka 1935). By this time, however, Gestalt had another generation of adherents and practitioners who had themselves become well established in the USA, and also it had broadened to include other related streams of thought, for instance Lewin's field theory, R. M. Wheeler's idiosyncratic Gestalt-related laws, and younger psychologists such as Karl Duncker, Hans Wallach, and Rudolf Arnheim. So in a way the original Gestalt psychology was swallowed up in the stream of its successful derivations. Even so, Koffka had a profound influence on psychology. His accessible writing and his early and easy adaptation to America made him an excellent representative of the movement. Even though he worked at a smaller institution away from the American mainstream and died prematurely, he did have influential students and colleagues there, including Molly Harrower, Eugenia Hanfmann, Mary Henle, and Fritz and Grace Heider. He was also an undergraduate teacher of Bettye Goldstein (later the eminent feminist Betty Friedan) and Eleanor Jack (later Eleanor Gibson, James J. Gibson's wife). Probably his greatest influence was through his contacts with major psychologists who either adopted or resisted his ideas. Of these the two most significant in American psychology were E. C. Tolman and ► [Gibson, James J.](#) Tolman was one of the first Americans to have contact with Koffka when, after Herbert Langfeld suggested it, Tolman traveled to Giessen in 1912. Tolman continued this relationship after the war and eventually produced a hybridized psychology that had strong Gestalt influences. Gibson had written a dissertation at Princeton arguing against a Gestalt interpretation of perception

and then found himself on the Smith faculty with Koffka. Though he emphasized the primacy of environment and was even considered a perceptual behaviorist, much of what Gibson thought about the readiness of the organism for information pickup was anticipated in Koffka's *Growth of the Mind*. Gibson himself acknowledged a great debt to Koffka as well as attesting to his paramount importance in setting the direction for perceptual studies in the USA (Gibson 1971).

See Also

- [Gibson, James J.](#)
- [Köhler, W.](#)
- [Ogden, R. M.](#)

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Kohlberg, Lawrence

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Kohlberg, Lawrence (October 15, 1927–January 19, 1987) was a professor of Education and Social Psychology at Harvard University and is most renowned for his work in moral development and moral education.

Biographical Information

Lawrence Kohlberg was born on October 15, 1927, in Bronxville, NY to Alfred Kohlberg, an importer of Asian merchandise and to Charlotte Albrecht, a chemist. Charlotte was Alfred's second wife and

Lawrence was the youngest of four children. While Kohlberg was born into an affluent family, his parents separated while Kohlberg was still a child. Lawrence's Jewish family roots inspired his later interest in justice as well as his interest in putting his theories into practice. For instance, Kohlberg demonstrated an early concern for the welfare of others when he volunteered as a Merchant Marine in World War II and later when he smuggled Jews through the Jewish blockade into Palestine as a member of the Haganah, the Israeli defense force.

Kohlberg completed his secondary education at Phillips Academy in Andover, Massachusetts, a private boarding school. Following his service to the Merchant Marines, he attended The University of Chicago where he received a bachelor's degree in 1 year (he had been excused from many of his requirements due to outstanding scores on admissions exams). He then went on to complete a doctorate in developmental psychology at Chicago. It was during the writing of his dissertation and through the influence of Jean Piaget that Kohlberg began to develop his stages of moral development for which he is renowned today.

In 1955 Kohlberg married Lucille Stigberg. They had two sons, David and Steven, but later divorced. He was later linked with Ann Higgins, who is currently a professor of Applied Developmental Psychology at Fordham University.

Major Contributions

Following completion of his graduate studies, Kohlberg went on to teach psychology first at Yale University from 1961 to 1962 and then at the University of Chicago from 1962 to 1967. He then moved east to Harvard University where he taught social psychology and education for 10 years. It was at Harvard where Kohlberg met Carol Gilligan, who would later challenge his work and amend his theory to incorporate a woman's voice and a feminist ethic. Gilligan noted that Lawrence Kohlberg's conventional stage theory was limited by the fact that his sample primarily included 72 Caucasian male youths, who were largely lower and middle class. She suggested that women may express morality more from a care and relationship

perspective than a solely male-oriented justice perspective. Later, he improved upon another criticism, that his theory dealt more with moral reasoning than moral action, by introducing the notion of a "just community approach." This idea was initially inspired by a trip to Israel in 1969 where he observed children's interactions on a Kibbutz. Kohlberg believed that children on a Kibbutz demonstrated greater moral development than those living off a Kibbutz. Upon returning to the USA he tried to create "just communities," mostly in school environments, where students and faculty would work in a democratic fashion to create moral school policy. The first of these schools, the Cluster School located in Cambridge, Massachusetts, opened in September 1974. Unfortunately, many of these schools disbanded following Kohlberg's death.

In 1971, while conducting cross-cultural research in Belize, Kohlberg contracted a rare parasitic illness that affected him both physically and mentally for 16 years. On January 17, 1987 he requested a day of leave from the Mount Auburn Hospital in Cambridge, Massachusetts wherein he was being treated for his illness. After missing for a few days, his car was found abandoned on a residential street in Winthrop, Massachusetts on January 21. Although controversial, it is speculated that he committed suicide in the Boston Harbor at the age of 59. One year later, the Harvard Graduate School of Education declared April 15th as Lawrence Kohlberg Day.

Kohlberg's greatest influence on the field of psychology came from his conventional stages of moral development. He first began to identify these stages while writing his doctoral dissertation. By expanding upon ideas originally described by Piaget, Kohlberg analyzed the moral decision making of individuals at various ages to specific moral dilemmas. One of the most well-known dilemmas presented by Kohlberg is the "Heinz Dilemma." In this scenario, a man named Heinz is faced with the decision of whether or not to steal a drug to save the life of his sick wife (which he cannot afford) or to let his wife die. The pharmacist, who is selling the drug for ten times its cost will not allow Heinz to purchase the drug cheaper or to pay him the remainder of money later. Kohlberg presented

numerous other scenarios, including a scenario involving a boy working to afford camp, a girl working to afford a special rock concert, and other relevant moral dilemmas as well. Based upon his findings, he was able to classify moral development into three levels, with each level featuring two stages. The first level, Preconventional Morality (including Stage 1 [Obedience and Punishment Orientation] and Stage 2 [Instrumental-Relativist Orientation]) extends from ages 4–10 years. The second level, Conventional Morality (including Stage 3 [“Good Boy/Nice Girl” Orientation], and Stage 4 [Law and Order Orientation]) spans the ages of 10–13. His final level, Postconventional Morality (including Stage 5 [Legalistic Orientation] and Stage 6 [Universal, Ethical Orientation]), begins in adolescence and lasts through adulthood.

Major Publications

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See Also

- Piaget, Jean

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Köhler, W.

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Basic Biographical Information

Wolfgang Köhler (1887–1967) was born in Tallinn, Estonia, where his father worked as headmaster in a school for German citizens living there. The Köhlers returned to Germany when Wolfgang was 6 years old. In a family that valued educational achievement, Wolfgang’s older brother became an academic and his sisters became either teachers or nurses. The German university system was arguably the best in the world as the twentieth century began, and Köhler followed the common practice of selecting professors from different schools. He attended classes at Tübingen and Bonn before studying physics at the University of Berlin under Max Planck. He earned his Ph.D. in psychology there with Carl Stumpf in 1909.

Major Accomplishments/Contributions

Köhler’s professional career began at the University of Frankfurt’s Psychological Institute. There, in the summer of 1910, Max Wertheimer (1880–1943) enlisted Köhler’s aid in studies of illusory movement. By varying the intervals between successive presentations of static images, Wertheimer created perceptions of movement whenever an interval was sufficiently brief. Wertheimer’s participants, Köhler, Kurt Koffka (1886–1941), and Koffka’s wife, all reported seeing illusory movement (Köhler 1967/1971a; Sekuler 1996). Wertheimer, Koffka, and Köhler became convinced that such findings could neither be predicted nor explained by any theory proposing that the conscious mind constructs perceptions out of constituent sensory elements. Instead they concluded that the mind organizes incoming discrete sensations and gives them meaning beyond the sensations themselves. Thus, Gestalt Psychology was born. In emphasizing the top-down role of higher mental processes, it opposed the reductionism of Wundt’s voluntarism, Titchener’s structuralism, and varieties of behaviorism that later arose in the United States (Köhler 1929).

During World War I Köhler conducted seminal research on cognitive processes in apes. The Prussian Academy of Science appointed him director of the anthropoid research station on Tenerife, one of the Canary Islands off the west coast of Africa. Beginning in 1914, he conducted a series of studies of human and nonhuman problem solving that supported the construct of *insight learning* (Köhler 1925, 1967/1971a). The studies included *Umwege*, or detour problems, presented to a child, a dog, and several hens – the child and the dog found their way around barriers to reach desired objectives after brief periods of reflection, which were marked by a discontinuity between their behavior before and after the problem's solution was initiated. The hens did not perform well and many kept butting up against the wire fence barrier obstructing their path until the problem was simplified by shortening the barrier. Chimpanzees solved these simple problems so easily and quickly that Köhler felt no conclusions could be drawn from their behavior. Therefore, he created more complicated problems for them. He suspended a weighted basket containing bananas set to swinging back and forth from their enclosure's wire roof. When their attempts to jump to the basket failed, several chimpanzees independently solved the problem by climbing a nearby scaffold and catching the basket when it swung within their reach. One chimpanzee even learned by observing another's successful solution and then imitating her. In another test a banana was suspended from the top of the enclosure. One chimpanzee tried unsuccessfully to knock it down with a stick but then succeeded when he dragged a box over, climbed up on it and used the stick to knock down the fruit. In variations of this test problem, chimpanzees built towers of up to four boxes to retrieve the fruit. Köhler documented chimpanzees' insightful use of implements in several different problem situations, and by designing novel problems demonstrated their intelligence and insight. Some controversy surrounds Köhler's activities on Tenerife, which the Allies blockaded during the war. Ley (1990) alleged that Köhler illegally sent intelligence information about offshore naval traffic to the Germans via wireless radio. Teuber (1994) challenged that allegation, asserting that Köhler's activities on Tenerife were purely research, not espionage.

In 1920, Köhler returned to Berlin to become acting director of the Psychological Institute, and

within 2 years was appointed professor at the University of Berlin. His *Physical Gestalten* (Arnheim 1998; Köhler 1920/1997) extended Gestalt psychology and tied it to other sciences. Köhler's former teacher, Max Planck, the originator of quantum theory, clearly influenced him and *Physical Gestalten* remains a noteworthy attempt to integrate ideas from physics into psychology. Köhler applied concepts from field physics and proposed that force fields in the brain accounted for the Gestalt phenomena of perception (see also Köhler 1967/1971a).

Although Germany endured years of hardship following its defeat in World War I, Gestalt psychology flourished at the University of Berlin. But, when the National Socialists assumed control of the government in 1933, the acclaimed German university system could not sustain the depredations imposed almost immediately by the Nazis. The Nazis fired Jewish professors and expelled Jewish students. Books unacceptable to Nazi ideology were banned and public book burnings soon followed. Reacting to these developments, Köhler wrote in April of 1933 what was to be the last anti-Nazi article published openly in Germany during Hitler's regime. Expecting to be arrested for this act, Köhler and some close associates at the Psychological Institute spent the night playing chamber music (Henle 1968/1971). The Gestapo never arrived, and Köhler, who had twice accepted brief teaching assignments in the United States, emigrated to accept a position at Swarthmore College thereby joining the other founders of Gestalt psychology who likewise had emigrated to America.

Köhler's later work explored *isomorphism*, a form of psychophysical parallelism in which the dynamics of brain processes should correspond with conscious experience (Köhler 1960/1971b). Based on the thesis originally formulated in *Physical Gestalten*, it proposes that two events adhere together as one if brain excitation associated with these events overlaps, but separation between fields of brain excitation embodies two events subjectively perceived as separate in space and time. Although some evidence supported the construct (Köhler et al. 1952), other research ultimately led to isomorphism's abandonment (Hilgard 1987).

Köhler's acceptance of the position at Swarthmore in 1935 placed him in the minority of American

psychologists who held an explicitly cognitive perspective during the mid-century heyday of American behaviorism. In 1956 he became a research professor at Dartmouth College, and in 1959 he was elected president of the American Psychological Association. Near the end of his professional career, Köhler saw the dominance enjoyed by behaviorism begin to decline as perspectives opposing it became increasingly popular. Structural linguistics provided convincing alternatives for behaviorist accounts of language acquisition, and Piaget's cognitive stage theory gained acceptance in American developmental psychology (Hilgard 1987). Thus, Gestalt psychology's critiques of behaviorism were joined by others as American psychology once again recognized the study of cognitive phenomena as legitimate. Köhler died in New Hampshire on June 11 in 1967.

See Also

► [Koffka, Kurt](#)

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Krippner, Stanley

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Basic Biographical Information

Stanley C. Krippner, an American psychologist, was born on October 4, 1932 in Edgerton, Wisconsin, of Norwegian, German, and Irish ancestry. In 1954, he received his B.S. in speech education at the University of Wisconsin, Madison, and worked as a public school speech therapist before attending graduate school, receiving his M.A. and Ph.D. degrees from Northwestern University in 1957 (in counseling and guidance) and 1961 (in educational psychology) where he was the graduate assistant for Paul A. Witty, the first of his distinguished mentors. While at Northwestern University, he met Dr. Martin Luther King, Jr., attended all of his on-campus seminars, then personally guided him on a tour of the campus; he credits King for stimulating his interest in social activism, a theme that was to characterize Krippner's later work on behalf of children with special needs, combat veterans, Native Americans, and other marginalized groups. In his earlier years, he spent his summer vacations working as a program director at YMCA youth camps and in 1959 he received the YMCA Service to Youth Award, the first of many awards he was to receive during his career.

Currently, Krippner is the Alan Watts Professor of Psychology in the College of Psychology and Humanistic Studies at Saybrook University in San Francisco. Formerly, he was director of the Kent State University Child Study Center (Kent, Ohio), which houses his archives in the Special Collections department of its library. From 1964 to 1973, Krippner was the director of the Maimonides Medical Center's Dream Research Laboratory (in Brooklyn, New York), having been suggested for this position by Gardner Murphy, a long-time mentor for whom he had served as teaching assistant during Murphy's guest professorship at the University of Hawaii. For 36 years he was married to Lelie Harris, and retained a friendly association with her after their divorce.

Major Accomplishments and Contributions

At Kent State University, Krippner's classes for graduate students in the School of Education emphasized the neuropsychology of learning disabilities. As early as 1967, he published a pioneering paper on the role played by central nervous system dysfunction in reading problems, at a time when many specialists in the field were emphasizing emotional difficulties and poor schooling as the primary etiological factors. He continued to contribute articles on this topic after leaving Kent State for Brooklyn, New York, where he and his colleagues studied anomalous effects in dreams for 10 years. This was the first long-term laboratory study of the topic and is described in the 1974 book *Dream Telepathy* coauthored with the renowned psychiatrist Montague Ullman, the founder and director of the Maimonides Community Mental Health Center. This work was the basis for career achievement awards that Krippner received from the International Association for the Study of Dreams (in 2006) and the Parapsychological Association (in 1998). In 2002, he received Andrah University's Award for Life-Time Achievement in Parapsychology, named after J.B. Rhine, another of Krippner's long-time mentors. In 2010, he co-edited *Debating Psychic Experience: Human Potential or Human Illusion* an historic volume in which parapsychologists and their critics confront each other in the form of presentations and rebuttals.

Krippner's next position was at the Humanistic Psychology Institute in San Francisco, later renamed

Saybrook University, where he designed a series of courses focusing on the study of consciousness. Krippner was an early leader in Division 32 of the American Psychological Association (APA), the Society for Humanistic Psychology, serving as the president of the society from 1980 to 1981. He received the Charlotte and Karl Buhler Award from this society in 1992; Charlotte Buhler had been an early mentor, introducing him to the basic principles of humanistic psychology. Krippner was given the Pathfinder Award by the Association for Humanistic Psychology (AHP) in 1998, "for enduring contributions to the exploration and expansion of human consciousness." Krippner served as the president of AHP in 1992. Krippner has written many articles about humanistic and existential psychology, linking them with chaos theory, Jungian thought, and postmodern perspectives. He has served as the president of the National Association for Gifted Children, the International Association for the Study of Dreams, and APA's Division 30 (the Society for Psychological Hypnosis) from which he received its Award for Distinguished Contributions to Professional Hypnosis in 2002, the same year that he received APA's Award for Distinguished Contributions to the International Advancement of Psychology. In 2003, he received the Ashley Montagu Peace Award from a Russian-American consortium for his "service toward the advancement of an international culture of peace." In 1996 the First Church of Humanism, New York City, named him "Humanist of the Year" for his years of social activism.

For 4 decades, Krippner had a close association with the celebrated psychologist Albert Ellis, attending many of his seminars on Rational-Emotive Behavior Therapy. Krippner drew on the principles of REBT (especially his distinction between rational and irrational beliefs) to conceptualize, with the psychotherapist David Feinstein, "personal mythology," the life narrative and worldview that impact one's attitudes and behaviors. Their book, *Personal Mythology* served as the basis for several doctoral dissertations at Saybrook University and Krippner and Feinstein conducted personal mythology workshops and seminars jointly or separately in a dozen different countries. It also served as a theme for Krippner's co-edited anthology *The Psychological Impact of War Trauma on Civilians* (2003) and coauthored book *Haunted by Combat:*

Understanding PTSD in War Veterans (2007). Another pioneering co-edited anthology was *Varieties of Anomalous Experience: Examining the Scientific Evidence* published by APA in 2000, becoming one of their best-sellers. Krippner became a Charter Member of the International Society for the Study of Dissociation, a Charter Fellow of the Association for Psychological Science, and a Founding Fellow of the American Academy of Clinical Sexologists, having published the first studies of the dreams of pregnant women and, in a separate study, the dreams of male-to-female transsexuals.

His co-edited book, *Broken Images, Broken Selves: Dissociative Narratives in Clinical Practice* (1997), reflects his long-standing investigation of dissociation, a phenomenon that he encountered in visits and field research with shamans and other indigenous practitioners from six continents, among them the Mazatec shaman Maria Sabina and the intertribal medicine man Rolling Thunder. Krippner regards one of his greatest honors as being the Lakota Sioux name, *Wicasa Waste*, given him by a Native American elder, which can be roughly translated as “*mensh*.” Krippner met Rolling Thunder through his association with the Grateful Dead musical group, and is a member of the Grateful Dead Scholars, having published the first scholarly article in 1973 about this legendary rock band. Krippner was the first recipient of the Ruth-Inge Heinze Memorial Lecture Award (2008) named after

his colleague, Dr. Heinze, who founded an annual shamanism conference, held at Dominican University, San Rafael, California, where Krippner currently lives. Krippner published the first article on shamanism to appear in APA's flagship journal, *The American Psychologist* taking the position that shamans served many psychological functions for their communities and that their contributions to health care, the expressive arts, mental imagery, ritual and mythology, and even the placebo response are worthy of academic investigation. In 2007, Krippner received the Woodfish Award for his collaborative work with Native Americans.

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La Mettrie, J. O. de

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Julien Offray de La Mettrie. Public domain image.

Basic Biographical Information

Julien Offray de La Mettrie (1709–1751) was born on December 25, 1709 in Saint-Malo, a city in Brittany along the English Channel whose inhabitants championed independence. In fact, in the last decade of the fifteenth century, Saint-Malo attempted to establish itself as an independent republic. They adopted the motto, “not French, not Breton, but Malouins.” La Mettrie’s independent-mindedness represented well the reputation of the city of his birth. His father’s successful merchant business made a good education possible for the young La Mettrie. At the age of 15, he wrote in support of Jansenism, a heretical theology formulated during the Roman Catholic Counter-Reformation. In 1725, he entered the College d’Harcourt, which pioneered a Cartesian curriculum of philosophy and natural science. After 5 years studying medicine at the University of Paris, he avoided the steep graduation fees

there by finishing his degree at the University of Rheims. Convinced his training was inadequate to actually practice medicine, La Mettrie undertook 2 years of additional study under Hermann Boerhaave (1668–1738), the highly respected physiologist and clinical practitioner at the University of Leiden, before returning to practice medicine in Saint-Malo. There La Mettrie translated several of Boerhaave’s works, emphasizing the mechanistic perspective expressed in them. He also wrote treatises on specific diseases and medical satires that ridiculed Parisian physicians. The satires antagonized the medical establishment in Paris. Further outrage provoked by his subsequent philosophical works drove him from France to Holland, then to the Berlin court of Frederick the Great (1740–1786) who appointed him to the Royal Academy of Sciences. La Mettrie remained in Prussia until his death on November 11, 1751. Most of the biographical information on La Mettrie comes from the eulogy given by Frederick the Great. Although La Mettrie’s published works survive, no personal papers and little of his correspondence remain (Wellman 1992).

Major Accomplishments/Contributions

La Mettrie was considered radical during the French Enlightenment but much of what he wrote is uncontroversial for twenty-first century psychology. His first major philosophical work was inspired by a bout of fever while he was on a military campaign serving as a physician in 1744. He observed within himself changes in his thinking that he attributed to the physiological effects of his fever. Published in 1745, *L’histoire naturelle de l’âme* (*Natural History of the Soul*) proposed an empirically based understanding of thought as a product of activity within the human body. The reaction in France was banning the book and exiling La Mettrie to Holland. In 1748 he published his most famous work, *L’Homme Machine* (*Man a Machine or Machine Man*) which described

mechanistic effects of the body on the mind, and also pointed out similarities between humans and animals. La Mettrie argued that conscious, volitional activity differs from reflexive, instinctive activity only in the complexity of the mechanistic substrate that supports it. Most introductory treatments of modern neuroscience agree with this assertion, correlating working memory and volition with activity in the cerebral cortex, especially the frontal lobes, whereas reflexes are associated with the hindbrain or spinal cord. Regarding the similarities between humans and animals, one of La Mettrie's assertions seemed remarkably prescient of twentieth century comparative psychological research. He proposed that an ape could learn a language via the methods of Jean Coenrad Amman, a Swiss teacher of the deaf. If Amman's pedagogical techniques were applied, an ape should learn a language just as a deaf person can. (The use of sign language in twentieth century research with apes was more successful than the use of spoken language, but confusion remains about La Mettrie's prediction. The seemingly simple question of whether he thought an ape could learn a spoken or a signed language has much to do with the history of deaf education. Two pedagogical approaches have divided educators of the deaf for centuries. One approach emphasizes the use of signs or manual gestures whereas the other oralist approach emphasizes speaking and lip-reading. It is noteworthy that France in the eighteenth century accorded sign language education unprecedented legitimacy – the abbé de L'Epée, used signs in his deaf education program in the 1760s, not long after La Mettrie's death. La Mettrie's use of the phrase "*faire des signes*" (La Mettrie, 1912/1748, p. 29) clearly refers to gestural communication. Still, Amman (1972/1694) was undisputably an oralist whose goal was to teach his deaf students to read lips and speak. Thus, it remains unclear whether La Mettrie truly anticipated attempts to teach signs to apes.)

In February of 1748, La Mettrie took refuge in Berlin after publication of *L'Homme Machine* triggered a public outcry and the burning of his books in Holland. There he continued to write and practice medicine until his untimely death. At a feast held in his honor, he consumed pheasant pate, fell ill, became delirious and died (Vartanian 1960).

La Mettrie is significant in psychology's history as a thinker who espoused a biological basis for mental

phenomena. He carried forward Descartes' ideas of a mechanistic body but rejected the corresponding notion that an immaterial soul exists separately within the human body. Thus, he connects Descartes with the mechanism that emerged in European physiology of the nineteenth century and that characterizes significant areas within psychology to the present day.

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Langfeld, Herbert Sidney

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Basic Biographical Information

Born: July 24, 1879; Died: February 25, 1958

Langfeld's early education was gained in Philadelphia schools and Haverford College. His first career was as a secretary to the US Naval attaché in Germany. There, in 1903, he decided to pursue advanced studies in psychology under Carl Stumpf in Berlin, receiving the doctorate in 1909. One of the last Americans to study psychology in Germany, he returned to America and taught at Harvard until 1924, mentoring Floyd Allport whose dissertation he supervised. Langfeld also counseled Gordon Allport. When E. B. Titchener complained about Allport's choice of personality traits as a subject for research, Allport said that Langfeld remarked "You don't care what Titchener thinks," confirming him in his vocation (Allport 1967). In 1924, after the arrival of E. G. Boring at Harvard, Langfeld became Howard C. Warren's colleague at Princeton University, bringing

with him Leonard Carmichael and also enticing E. B. Holt out of retirement for 10 years. Together Holt, Warren, and Langfeld had a hand in the education of James J. Gibson, who revolutionized perception. Langfeld became department chair in 1932, retiring in 1947.

Major Achievements/Contributions

Although very capable as a laboratory psychologist, Langfeld proved to have his greatest influence through his ubiquitous activity as an editor, collaborator, teacher, and committeeperson. Langfeld was well versed in knowledge of the range and content of textbooks (he was the regular reviewer, during the early 1910s, of textbooks for the *Psychological Bulletin*) and a close colleague of psychologists preeminent in establishing the working vocabulary of the field, Howard C. Warren and E. G. Boring. During the 1930s and 1940s, He co-edited, along with Boring and Harry Porter Weld, the multiauthored *Psychology: A Factual Textbook* (1935) and participated in its several revisions. He also was part of the team that produced the widely read *Psychology for the Fighting Man* (1943), an outline of psychology that was widely disseminated among the US Armed Forces. His most significant publishing contributions were, however, his journal editorships, especially of the *Psychological Review* from 1934 through 1947, where he directed the publication of many of main articles of psychology's era of grand behavioristic systems. The most important of his contributions there was his organization, following the suggestion of E. G. Boring, of a *Review* symposium on operationism in 1945 (Langfeld 1945). Multilingual and with a background in practical diplomacy, he was acknowledged as an important facilitator of international cooperation among psychologists in the inter- and postwar eras, and served for a time in the late 1940s as Secretary-General of the International Union of Scientific Psychology. Theoretically he was strongly influenced by E. B. Holt who was a close friend and frequent correspondent, and he reflected many of Holt's ideas, especially those relating to a motor theory of consciousness (Langfeld 1931). While his commitment to a generally physicalistic psychology is reflected in his association with Boring, Langfeld's most comprehensive theoretical statement is found in his 1920 monograph *The Aesthetic Attitude* (Langfeld 1920). There he expressed not only his agreement with Lipps's

theory of *Einfühlung* (empathy) as well as with many of the ideas advanced by the Gestalt school on the influence of structure and form on perception, but also embodied a wide-ranging integration of various other areas including social and developmental considerations, which imbued his later contributions as well. Langfeld was also a highly cultured individual and was as comfortable referring to artists, playwrights, or poets as to scientific psychologists, and helped continue an interest in psychological aesthetics during a particularly nonaesthetic interregnum. It is unfortunate that few of Langfeld's papers have survived, as he was a major facilitator of the emergence of eclectic modern psychology.

See Also

- ▶ Boring, E. G.
- ▶ Carmichael, Leonard
- ▶ Holt, E. B.

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Lashley, Carl

ROBERT W. RIEBER

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Basic Biographical Information/Major Accomplishments

American psychologist. Born in Davis, West Virginia. June 7, 1890. Studied at the University of West Virginia. Morgantown. B.A. 1910; University of Pittsburgh, Pennsylvania, M.S. 1911; Johns Hopkins University, Baltimore, Ph.D. 1914. Married Ann Baker in 1919; married Claire Schiller in 1957. Instructor, 1917–1918, Assistant Professor, 1920–1921, Associate

Professor, 1921–1924, and Professor of Psychology, 1924–1926, University of Minnesota, Minneapolis; Research Psychologist, Behavior Research Fund, Institute for Juvenile Research, Chicago, 1927–1929; Professor of Psychology, University of Chicago, 1929–1935; Professor of Psychology, 1935–1937, Research Professor in Neuropsychology, 1937–1955, and Professor Emeritus, 1955–1958, Harvard University, Cambridge, Massachusetts. Hughlings Jackson Memorial Lecturer, Montreal Neurological Clinic, 1937; Vanuxem Lecturer, Princeton University, New Jersey, 1952. Investigator, United States Interdepartmental Hygiene Board, 1919–1920. Director, 1937–1955, and Director Emeritus, 1955–1958, Yerkes Laboratories of Primate Behavior, Orange Park, Florida. Associate Editor, *Journal of Genetic Psychology*, *Quarterly Review of Biology*, *Genetic Psychology Monographs*, and *Journal of Psychology*, President, American Psychological Association, 1929, and Society of American Naturalists, 1947. Recipient: Howard Crosby Warren Medal, Society of Experimental Psychologists, 1937; Daniel Giraud Elliot Medal, National Academy of Sciences, 1943; William Baly Medal, Royal College of Physicians, London, 1953. Honorary M.A.: Harvard University, 1942. Honorary doctorate: University of Pittsburgh, 1936; University of Chicago, 1941; Western Reserve University, Cleveland, 1951; Johns Hopkins University, 1953; University of Pennsylvania, Philadelphia, 1954. Member, National Academy of Sciences; American Academy of Arts and Sciences. Foreign Member, British Psychological Association; Royal Society. *Died August 7, 1958.*

After completing his doctorate on cortical learning in rats, K.S. Lashley worked with Shepherd Franz at the Government Hospital for the Insane in Washington, DC. In 1917, the two of them published work on the effects of cerebral destruction on habit-formation and retention in rats. Lashley soon took over this work from Franz and produced an important series of studies on the effects of cortical lesions on sensory discrimination and speed and ability in learning mazes in rats. It was during this time that Lashley created the jump stand, an apparatus used in studying operant conditioning. A rat is placed on a small stand and forced to jump through one of two doors, each of which is marked with a stimuli, such as vertical and horizontal lines. If he jumps through the correct door, the rat finds some

food or other reinforcement behind it. If he attempts to jump through the incorrect door, he finds it locked, bumps his nose, and falls down into a net. In order to avoid the possibility that the rat is learning a position preference – that is, jumping through the right or left door – Lashley switched the doors back and forth at random.

Lashley summed up his general conclusions in a monograph entitled *Brain Mechanisms and Intelligence* in 1929. In this work, Lashley plotted the number of errors rats made in learning a maze against the amount of destruction of cortical tissue and against the difficulty of the maze. Lashley found that the more difficult the maze and the more extensive the cortical destruction, the more rapid was the increase in the number of errors the rats made. From this work, Lashley laid down his principle of mass action, which stated that the more cortical area available the more rapid and accurate the rat's learning. Lashley was unable to discover whether any specific area of the cortex was responsible for any specific function, and he determined that in general it was the size of the lesion, rather than its location, which impaired the rat's learning abilities. Although all of the lesions had some effect, none of them completely obliterated the rat's capabilities. Some years later, surveying the work he had done over the years, Lashley said facetiously that he was tempted to conclude that learning was impossible.

Lashley developed the principle of equipotentiality from this work. Equipotentiality stresses the complexity of habit-formation. According to this principle, which is an extension of the principle of mass action, the cortex is able to substitute new areas for control in performing a task when the old areas are destroyed. Nonetheless, Lashley concluded that there were certain tasks where specific areas of the cortex were responsible for learning. For instance, the visual area is necessary for the rat to discriminate visual patterns; they are not, however, necessary to discriminate brightness. Thus, while more difficult learning tasks may indeed require extensive cortical use, simpler tasks, such as pattern discrimination, may after all have only one specific area of control available for use.

As early as 1929, Lashley raised a number of questions involving this matter of specific versus general areas of control. How do you put a relationship

between two stimuli on a common path which carries the report of what is discriminated? How especially can this be done when the two stimuli are simultaneous? When they are successive? And how do you get temporal organizations within the cortex which take account of order? Lashley's research shows just how it is possible for a physiological psychologist to study the neural bases of learning and discrimination, both of which can be measured through behavioral techniques, without resorting to the concept of consciousness.

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Latin America and the Caribbean, History of Psychology in

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The history of psychology in Latin America and the Caribbean has followed a diverse path, strongly influenced by philosophical and the scientific movements of the time, while attempting to develop an autonomous psychology that reflects the uniqueness of the specific countries. Since this can only be a brief synopsis of some of this history, we will only present

three sampled countries (namely, Argentina, Dominican Republic, and Mexico) so as to give the reader a sense of how the psychology movement operated differently in different Latin-American countries. Early accounts of the history of psychology in other Latin-American Countries, such as Cuba, Colombia, Nicaragua, Puerto Rico, Venezuela, and Brazil, were chronicled by Sexton and Hogan (1992) and by Whitford (1985) for Uruguay. Some of the history of psychology in Mexico can be seen in the biographical entry for Rogelio Diaz-Guerrero, one of the most prominent psychologists in Mexico, prepared by Rolando Diaz-Loving.

A History of Psychology in Argentina: Its Theories, Research, Contribution, and Future

The media frequently comments about the large number of psychologists practicing in Argentina and the strong psychoanalytic bend that many of these psychologists tend to maintain. The Argentinean philosopher and physician Mario Bunge (2010) provided an interesting analysis regarding the state of psychology in Argentina. According to him, of the 50,000 psychology graduates, 38,000 practice in Buenos Aires (or 150 professionals per 100,000 inhabitants), with 800 in the Federal Capital. His analysis has psychology as the third most popular degree in La Universidad de Buenos Aires, which has several departments, all with a strong psychoanalytic orientation.

Current programs in psychology at the *Universidad de Buenos Aires* are characterized by a variety of training programs which, in addition to psychoanalysis, also include different psychological schools of thoughts. However, the problem has been the issue of disconnect of the focus of psychology training in Argentina and the rest of the world. According to the Historian Lucia Rossi (1994), when one looks at the national and international arena, we can see clearly the endemic absence of contributions of the Faculty at the University of Buenos Aires (UBA) in international psychology congresses. This absence is due to the clear incompatibility of the training model in Argentinean universities with the emphasis on the cognitive-behavioral theme predominant in these events. The over-reliance on psychoanalytic principles to explain the range of psychopathological formations sets Argentina apart from other countries.

Thus, explaining the history of psychology in Argentina inevitably also implies the need to articulate the role of psychoanalysis in this regard, its influence in the field of mental health to which it belongs, and in the area of philosophy and psychiatry. This is the case because, before becoming an independent program, psychology programs at the University of Buenos Aires were originally housed in the Faculty of Philosophy and Liberal Arts, and were strongly influenced by theories on positivism, phenomenology, existentialism, materialism, and idealism. As we will see later, the formation of psychologists, psychiatrists, and psychoanalysts was strongly influenced by the contribution of various thinkers with these intellectual foci.

Critical Moments in the Development of Psychology in Argentina

The importance of the philosophical influence in Argentinean psychology can be clearly seen in the International Philosophy Conference in Mendoza in 1949. At this conference, attended by world-renowned authors, such as Jean Hyppolite, Julián Marías, Karl Jaspers, and Bertrand Russell, among others, we see that of the 30 plenary sessions, 6 were from psychology and of the 90 papers presented, 22 were of psychological nature (Rossi 1994). We can also see the influence of psychiatry in the training of psychology, where many of the faculty involved in Argentina's psychology degree programs came from a medical background; an example of the affinity between the two disciplines can be seen in the numerous papers written by psychologists that were presented at several psychiatry congresses in Argentina.

But the history of psychology in Argentina goes back to the colonial times when psychology focused its attention to the study of the soul, from the point of view of Aristotle and St. Thomas Aquinas. According to Nidia Georgina De Andrea (2009), this movement was predominant in Europe and to a lesser extent in the United States and had an impact on the intellectual and scientific community in Latin America, including in Argentina, with its main proponents being Juan Crisóstomo Lafinur and Diego Alcorta. It is in this context that at the end of the nineteenth century, psychology as a science was born in Argentina. Thus, formally, the beginning of psychology as discipline can be said to have started with the establishment of

the first chairs of psychology toward the end of the nineteenth century, with a strong positivistic influence. Soon after, the first experimental psychology laboratory was created and, in 1908, the Argentinean Psychology Society was established, founded by José Ingenieros, Horacio Piñero, Víctor Mercante, and Francisco de Veyga, the first of its kind to be created in Latin America (Alonso and Eagly 1999; Klappenbach 1987, 1998, 2000). It is in the *Colegio Nacional Buenos Aires*, institution dependent of the *Universidad de Buenos Aires*, where the first experimental research is performed by Víctor Mercante, framed in the physiological tradition. A year later, Dr. Rodríguez Etchart introduced in this same college, Wilhelm Wundt's experimental psychology which had a strong psychophysiological basis. Dr. Horacio Piñero also organized there the first experimental psychology laboratory in 1900 and which made possible for him to be appointed as Professor of Experimental Psychology in the Philosophy Faculty in 1902, creating the first ever experimental psychology laboratory there. These events demonstrate that the first inclusion of psychology as a discipline was influenced by the European wave, which itself was influenced by the German wave. Additionally, authors, such as Janet, Charcot, and Binet from the French tradition and later on Charles Darwin, William James, and Herbert Spencer, with biological bases, were introduced in Argentina by José Ingenieros.

With regard to psychiatric influence, it is important to note that from 1880 to 1910, psychiatry in Argentina was dominated by the French psychiatric tradition and positivism (Alienism). It is at this time when not only the first psychiatric hospitals were built but that the first academic psychiatry departments were created. A few years earlier, the Women's Hospice (1854) and the Men's Hospice (1863) were inaugurated. These hospices are now the "Braulio Moyano" and "José T. Borda" hospitals, which are the largest psychiatry hospitals for men and women in Argentina and where the psychiatry and psychology residents of the *Universidad de Buenos Aires* do their practicum.

Thus, the first psychiatry chair of the Faculty of Medicine of the *Universidad de Buenos Aires* was created in 1886 and headed by Dr. Lucio Melendez, who was also the Director of the Men's Hospice. Its model for curing mental illnesses was to isolate the patients in locked inpatient wards where they were treated with

physical and social interventions. A departure from this model was the creation in 1899 by Domingo Cabred of the *Colonia Nacional de Alienados Open Door* (a hospital for mental patients), which was to pave the way for one of the entrance points for psychologists in the mental health field. As its name indicates, Cabred's intention was to break away from the traditional culture and view of mental health patient, which emphasized more a view of mental illness as incurable and hence as requiring an isolation from society. His proposed "open door" alternative introduced a series of reforms which highlighted the role of the environment and external organizations in the treatment of the patients and clearly showed the influence of the North American Mental Hygiene movement, thus cementing psychotherapy as a treatment for mental illnesses.

Another important development in this regard was the creation of the Argentinean League for Mental Hygiene, founded in 1929 by a psychologist from Rosario, Gonzalo Bosch, the Director of the *Hospicio (Hospice) de las Mercedes* and psychiatrist Mauricio Goldemberg's teacher, who would become an influential figure in the field of Mental Health in Argentina. During this time, different institutions were created to address the problems of mental illness from two different perspectives: One based on treatment given as solidarity (such as the *Sociedades de Socorros Mutuos* or *Mutuales* and *Asociaciones de Colectividades*) which highlighted the work of José Ingenieros in the treatment of mental patients. Ingenieros saw these patients in his private office and in the local *Centro Socialista Femenino* (Feminine Socialist Center), as well as institutions that followed the hygienists' traditions, such as the *Patronato de la Infancia* (Children's Welfare), *Liga Argentina contra la Tuberculosis* (the Argentinean League against Tuberculosis), *Sociedad de Asistencia a Domicilio de Enfermos Pobres* (Society to Assist the Poor at Home), and *La Liga Argentina de Higiene Mental* (the Argentinean League for Mental Health). Gonzalo Bosch became its first president.

In 1931, Bosch published a book entitled *El pavoroso aspecto de la locura en la República Argentina* (The Horrific Aspect of Madness in the Argentinean Republic) in which he criticized the state for failing to solve the problem of psychiatry in Argentina (Carpintero and Vainer 2005). Around the same time, in 1936, Gregorio Bermann, a psychiatrist from

Cordoba, founded the magazine *Psicoterapia* (Psychotherapy) and, in spite of only publishing four issues, it was of great relevance in that it emphasized the importance of using 'words' as a means for the treatment of mental illnesses. With this emphasis, the field of psychology went on to progress as an important clinical force in the understanding and treatment of mental illnesses. These events coincided with the advancement of psychoanalysis in Europe, which engendered a great deal of interest among young psychiatrists first, and then psychologists, in Argentina.

A Critical Figure in Argentinean Psychology

Jose Ingenieros is considered one of the most fundamental figures in the history of psychology in Argentina. A philosopher and political activist, he was the first psychologist who tried to establish an integral psychological system in South America. His long list of publications includes 484 articles and 47 books, which are generally classified in two time periods: studies of mental and criminal pathology (1897–1908) and studies of philosophy, psychology, and sociology (1908–1925).

At the beginning of his studies in biological psychology, he analyzed the development, evolution, and social context of mental functions. Being the first in South America to try to establish an integral psychological system, his work has a special emphasis on the biological basis of mental phenomena. In 1904, he was offered a temporary position as the Chair of Psychology, a position which was made permanent in 1906 when he was named professor. Ingenieros, whose prestige transcended borders, in addition to having written the first history of psychology in Argentina, wrote the first two most recognized publications in Argentina. In 1904, he published a study of hysterical phenomena and their relationship with art and, particularly, music. The study was honored by the Medical Academy in Paris. Ingenieros based his critical studies on the works of Charcot and Janet, with some additional references to the works of Breuer and Freud. Ingenieros was first introduced to Freud through French authors, especially Pierre Janet's critical work on Freud in 1913. His 1919 book on hysteria and suggestion sold various editions at a time when many Argentine intellectuals were back and forth from Europe, especially Paris, and with an increasingly growing interest in the

subconscious and dream interpretation (Vezzetti 1988, 1998, 1999). Ingenieros later abandoned psychotherapy and wrote his influential book *Madness in Argentina* which centered on his interest in dementia as a social phenomenon (Triarhou and del Cerro 2006).

Development of Psychology Departments

In 1910, the First Psychology Congress of South America, presided by Dr. Piñero, took place and in 1954 the First Argentinean Psychology Congress opened. In this latter congress, there is a recommendation to establish psychology as a profession, something that started to occur almost immediately in 1956 in Rosario and the following year at the *Universidad de Buenos Aires*; in 1958, psychology programs were established in Cordoba, La Plata, and San Luis, in 1959 in Tucuman and in Mar del Plata in 1966. At that time, there was no clear delineation of what psychology as a profession was all about and there were no graduates of the discipline, something which propelled the discussion about the role and identity of the psychologist and the practice of the profession (De Andrea 2009). Those teaching psychology were professionals who came from a medical and philosophical background and, in general, lacked training in psychology.

During the following decades, it was not unusual to have psychologists treat patients in public hospitals and private practices, but they were only considered psychiatry assistants legally who had to follow the orders of and under the direct supervision of psychiatrists. The law prohibited psychologists to exercise psychotherapy although in public hospitals they were the principal backbone of the mental health staff. At the same time, group treatment started to take place which included family and institutional treatment, psychodrama, social psychology, children's psychoanalysis, and schools for parents (Carpintero and Vainer 2005). The new profile of the psychologists was first and foremost as clinicians, who put empirical research on the backburner in terms of its relevance to clinical practice (De Andrea 2009). According to Carpintero and Vainer (2005), it is in the city of Rosario that an important movement in psychiatric practice takes place and moves the practice of psychology away from its exclusively medical environment. Gonzalo Bosch and Lanfranco Ciampi's professorships produced a set of

medical, sociological, and psychological concepts which had as its core the prevention of mental health problems. The ideological foundation of this work was based on a mental hygiene movement, which allowed the acknowledgment of nonmedical specialists in the treatment of mental illnesses, such as specialized teaching staff, psychopedagogical professionals, educators with psychological backgrounds, and visiting social workers. Between 1945 and 1955, mental hygiene was part of a health bill which was consolidated in 1949 with a proposal by the Health Minister Ramón Carrillo. In this way, psychology left the field of medicine and experimental psychology to enter the field of "human sciences."

Psychology Comes of Age in the Argentina Society

Following the International Psychology Conference in Tucuman in 1954, clinical specialization started to take supremacy and the practice was no longer dictated by medical doctors from Rosario but was replaced by psychoanalysts of *Psychoanalytical Association of Argentina* (APA). José Bleger was one of its more notable figures who, among other psychoanalysts, began to teach psychoanalysis at the university. This expansion of psychological culture which had started in Rosario was determined by two fundamental facts which consolidated it: (1) The creation of a specific editorial house, *Paidós*, founded by Jaime Bernstein and Enrique Butelman; and (2) the so-called Rosario experience, created by Enrique Pichón Riviere, from which the "operative groups" and social psychology emerged (Carpintero and Vainer 2005). The influence of the psychology degree in Rosario extended to the one in Buenos Aires. Enrique Pichón Riviere and José Bleger are two scholars with great standing in generations of psychologists in Argentina.

Bleger is unique in that, while he was still a young man, he reached notoriety in the psychological field with the publication of his emblematic book entitled *Psychoanalysis and Materialistic Dialectic*, which provoked intense controversy within the *Communist Party* to which he belonged. His intentions were to link psychoanalysis and Marxism, taking inspiration from George Politzer. His membership of both APA and PC created a conflict which culminated in his expulsion from the party in 1961, because the dominant ideology

of this political party considered psychoanalysis to be bourgeois. The dominant position of psychiatrists of the *PC* usually followed the line of thought of reflexology which discredited its position by denouncing that “in psychology, dialectic materialism is Pavlovism” (Lertora 1959).

Bi6n and Balint’s contributions in England were to reach Argentinean shores soon after and added to the enrichment of group studies, whether with patients or with the professionals themselves. For instance, Pichon Riviere suggested the idea to Gonzalo Bosch, the Director of the hospice, to introduce group courses to train the nursing staff, so as to prepare them to deal more effectively with conflicts involving the patients and their families. The idea for this practice emerged when, due to a nurses’ strike, the patients had to be trained in nursing care in order to be able to provide the necessary services. The application of group therapy showed a notable amelioration in the patients. The year 1954 saw the creation of the Argentinean Foundation for Group Psychology and Psychotherapy. With this development, it began the institutional phase of group therapy in Argentina.

Among other precedents for the change in the role of the psychologists in their practice of psychotherapy, we found that in the 1960s, in addition to the creation of the majority of psychology degrees, two other important events took place: The National Institute for Mental Health was created (based on the English model of National Mental Health Care and the Social Psychiatry Model predominant in the United States) and one of the first psychopathology services was established in a general hospital. The first mental health residencies, the intern rooms in general hospitals, day clinics, and therapeutic communities were created during these years. The importance of the creation of the Mental Health Institute (INSM) is that since its creation, there has been an active participation by the state in problems related to the mental health field which, until its formation, had been only part of the psychiatry domain.

The 1960s represented a change in psychoanalytical influences. Until that time, the predominant influence was the English School. In Buenos Aires, the ideas of Melanie Klein found fertile ground and came to be dominant for many years. Many based their works on the *kleinian* theory but in a creative way; among these

we find Pichon who applied it consistently in psychosis, Garma y Rascovsky to psychosomatic medicine, to dreams, and to child development, and Heinrich Racker to technique with its transference and counter-transference theory, which later enriched Grinberg’s concept of projective counter-identification. The Barangers, Willy and Mad6, also applied Klein’s ideas to the psychoanalytical process and its field theory, Bleger to the study of personality, and Resnik to psychosis and culture. Others, like Cesio, used Melanie Klein to construct his lethargy theory, while Liberman used it to explain the psychoanalytical dialogue and to support his linguistic theory of interpretive styles. In this context, we should also mention Rebe Alvarez de Toledo who used Klein’s formulations to demonstrate the effect of the “Word” and its free association in psychoanalytic dialogue. Finally, we should also mention in this regard Marie Langer who applied Klein’s theories to her exploration of femininity, Joel Zac to understand separation anxiety and “acting out,” and Benito L6pez to the study of addictions and of borderline patients (Etchegoyen 2001).

Another important influence in the development of the Argentina psychology was that of Lac6n. According to the history, Pich6n Riviere invited Oscar Masotta to give a conference in the Social and Psychological Institute. Masotta’s speech entitled “Jacques Lac6n or the subconscious in philosophy” was published the following year in the magazine *Pasado y Presente* (Past and Present), the first article in Spanish to be dedicated to the French psychoanalyst. Indeed, Masotta is recognized worldwide for introducing Lacan’s teachings and practices to the Spanish language. His introduction of Lacan’s works to Argentina produced in time a change in the psychoanalytic hegemony of the English School to that of the French School. In 1969, the *First Lacanian Congress* in Monte Grande took place. In October of the same year, the *Second Lac6n Congress* was organized in the Center of Medicine in Buenos Aires. In 1970, *An Introduction to the Reading of Jacques Lac6n* was published and in 1971 the first issue of the magazine *Cuadernos Sigmund Freud*, with the title “Themes about Jacques Lac6n.” In 1974, Buenos Aires Freudian School was founded by Masotta together with 18 others, the first Lacanian psychoanalytic institution which would later be succeeded by many more.

In 1975, Masotta traveled to Paris where he was invited to present in the *Ecole Freudienne de Paris* and where he was given the title of Practicing Analyst for his contribution to the cause of Freudian psychoanalysis. The political situation in Argentina took him to London where he settled and taught in the Arbous Association and the Henderson Hospital in Surrey, later moving to Barcelona which was to become his last home and where he founded the Freudian Library of Barcelona.

In Search of a Scientific Foundation

In an interesting study entitled “Scientific psychology and behavioral analysis in Argentina,” Alba Mustaca (2006) explores the different non-psychoanalytic investigations that have taken place in Argentina. In her study, she examines the creation in 1969 in Buenos Aires of the *Centro Interdisciplinario de Investigaciones en Psicología Matemática y Experimental* (Interdisciplinary Center for Research in Mathematical and Experimental Psychology), directed first by Horacio Rimoldi and, since 2001, by María Cristina Richaud de Minzi, of the *Facultad de Ciencias Exactas y Naturales* (on the faculty of the Exact and Natural Science Department).

Professor María del Rosario Lores Arnáiz of the Psychology Faculty in the UBA should be mentioned in this regard for her work with rats on memory and environmental enrichment and with humans on treatment for hypertension and the treatment of social abilities with patients who suffer from mental illness. The General Psychology Department is also notable for its program of cognitive studies, dedicated to the research of cognitive processes.

Current State of Affair and Future of Psychology in Argentina

There are two innovative approaches, which speaks well about the current and future state of psychology in Argentina: One is the “*Cuidar Cuidando Program*” (Care by Caring) (Massei et al. 1990), which is part of “the Dra. Carolina Tobar Garcia Hospital”, a psychiatric children’s hospital in Buenos Aires. The other is the Communication Rehabilitation Program (Orlievsky et al. 1997) in the same hospital.

The *Cuidar Cuidando Program* aims to treat children with problems such as autism, psychosis, and other illnesses in a nonhospitalized setting, working

closely with other outside institutions. This program works closely in partnership with the local zoo in Buenos Aires so as to provide more community-based treatment to these patients. This is not a cure in itself, but the reinsertion into society through a means which allows them to move from the condition of dependency normally associated with institutionalization, to being able to care for others. Thus, through working closely with the zoo staff to care for animals, it is assumed that patients’ pathology becomes less controlling of their lives. The types of tasks performed by each child are defined according to his or her condition. Later, they are assigned a companion or partner who is the link between the hospital and the zoo. At some point, this companion is trained to progressively distance himself or herself from the child as he or she begins to develop ties with the caretaker who works in his or her area. Under the mentorship and the supervision of the professional staff at Tobar García, the children learn to acquire the necessary skills which will help them to face society and integrate into the workplace. This program has the support of UNICEF and was declared of National Interest. It was recognized by the Episcopate through the San Martín of Tours Prize and the S.O.S- VIDA prize. This program has been successful for many of these patients; some even have found permanent jobs at the zoo.

The other innovative program focuses more specifically on working with autistic children. This is still a pilot communicational rehabilitation program that was created in 1997 to stimulate language and communication skills in autistic patients through the use of writing. In 1999, through Resolution number 23, the Director of Education of the Health Secretary from the City Council of Buenos Aires, Dr. Nestor Perez Baliño, appointed Daniel Orlievsky and Susana Massun de Orlievsky as Educational Coordinators of the program.

Since 2001, three research projects have been developed with UBACyT funding, according to an agreement between the *Dra. Carolina Tobar García Hospital* and the *Universidad de Buenos Aires*, particularly, the *II Cátedra psicología Evolutiva: Niñez* (Under the great contribution of Professor Juan José Calzetta). The findings have already contributed a great deal to helping us understand more about language function, the communication process, and the psychological structure of people with severe developmental problems. It has

already been recognized in a 2005 award by the *Universidad de Buenos Aires* for its “Contributions to the Psychology of Childhood Problems.”

The findings of this innovated program has not only encouraged research interest in Argentina but also resulted in a growing interest abroad, including the *Universidad Autónoma de Madrid*, the *Universidad de Barcelona*, the *Universidad de Gerona*, St. John’s University, etc., to name a few. The program has also attracted the attention of the Massachusetts Institute of Technology (MIT) in Boston, United States. The program is currently in collaboration with the Media Lab at MIT which is interested in using their technology to augment further the work of the Communicational Rehabilitation Program. They are interested in finding a biological correlate that can explain the effect of the program with regard to the language aptitude mechanism. Since May 2010, Drs. Daniel Orlievsky and Sebastián Cukier have been using this technology to record physiological stress patterns (cardiac rhythm, external behavior, temperature) without any cables: usable movement sensors which record stereotypic behaviors, flapping, and rocking. It is too early to tell, but it is expected that data collected will help us enrich/increase our understanding of the autistic spectrum with regard to specific mechanism responsible for the phenomenon and which we hope will lead to more targeted interventions in support of the capabilities of people affected by different types of autism.

Development of Psychology in Dominican Republic: A Brief History

A Look at the Early Development: On Describing the Dominican Character

In August 2009, the journal *Psicología para América Latina* published a brief history of psychology in the Dominican Republic by Enerio Rodríguez Arias which provided an important account of that history beginning with early attempts by various intellectuals, and the development of early departments of psychology in the country. The brief history by Angel Enrique Pacheco published in 1992 by Sexton and Hogan also provided important information about that history. According to these accounts, although the history of psychology proper in the Dominican Republic did not start as a discipline until 1967 with the establishment of

the first psychology departments, there were a number of early attempts by Dominican intellectuals, not trained in psychology, who tried to provide early descriptions of the Dominican character in terms of its unique characteristic. One of these descriptions was provided by José Ramón Lopez (1866–1922), a journalist with a strong sociological intuition. In his essay “La Alimentación de las Razas,” Lopez saw good nutrition and balanced diet as having a crucial role on the proper psychological development of the Dominican individuals, the lack of which was thought to result in the development of poor character, poor cognitive ability, proneness to violence, gambling, intellectual laziness, naïveté, etc. In Lopez’ formulation, mental disorders were seen as deriving directly from this condition. Since the poor and disenfranchised individuals from the countryside were most affected by poor nutrition, these individuals were most likely to be considered at risk for the poor psychological conditions described by Lopez.

Between 1945 and 1950 a number of interesting publications began to emerge which attempted to elucidate further the nature of the Dominican Character. The first one in 1945 was by Fernando Sáinz, an exiled Spaniard writer; the second one in 1946 was by Antonio Román Durán, also a Spaniard exiled with a degree in psychiatry, and Rafael Fco. González. Finally, in 1950 Enrique Patín published a series of essays about the Dominican character. These different publications generated a variety of reactions in the psychological discourse in the Dominican Republic. For instance, Professor Sáinz (1945, as cited by Rodríguez Arias 2009) compiled in a book form a number of newspaper publications about the psychology of the Dominican personality that had been published earlier in *El Diario La Nación*, one of the leading newspapers in the nation. Sáinz viewed the Dominican as much more complex in its appearance. His thinking was considered more theoretical and opinionated. He was described as courteous and kind, generous, and as someone who likes to be of service to others; he is given to conformism, is stoic, and traditional. With regards to action, he is pragmatic and positivist but without much concern about what science has to offer.

Both of these descriptions of the Dominican character were found to be very problematic at their basic

foundation. Lopez' conceptualization was strongly criticized at the time as lacking any empirical validation for the thesis and as relying mainly on inferences and the prejudices of that time. It was also alleged by Rafael Castillo, one of his contemporaries, as fraught with reductionism and unilateralism, and of intellectually poor explanatory paradigm (cited by Rodríguez Arias 2009). Similarly, Rodríguez Arias (Op. cit.) found Sáinz' description of the Dominican personality as based on anecdotal information and too general to be useful. He found Sáinz's thesis as lacking the scientific rigor necessary for a more accurate and valid description of the Dominican identity. It was Rodríguez Arias' view (Op. cit.) that we cannot speak about people as if they have a homogenous reality since there are differences due to cultural expectations that are linked to gender, age, social class, and educational level. Nevertheless, he thought that Sáinz's thesis was a good foundation for the beginning of a productive dialogue as to what constituted the unique characteristics of the Dominican character. This is particularly the case because Sáinz's thesis had a solid philosophical and cultural merit and showed great familiarity with the psychological theories of the time, prevalent in Europe in the first half of the twentieth century.

More clearly psychological formulations on issues affecting the Dominican society are seen in publications by Dr. Antonio Román Durán in the *Diario la Nación* who in 1946 attempted to elucidate specific psychological subjects, such as stuttering from a psychodynamic perspective, the gambling behavior, the instincts, masculinity and femininity, alcoholism, and issues of taxonomy. In the same year, Rafael Fco. González published an article in the *Revista Jurídica Dominicana* about psychoanalysis and the penal laws. Finally, Enrique Patín's publications ("Los Complejos del Pensamiento Dominicano" and "El Alma de Nuestra Plebe") provided an important analysis of the sources or reasons behind, what he called, the inferiority complex in the Dominican thinking. He posited that the source can be found in the lack of a clear notion and appreciation of the uniqueness of the Dominican self-definition, in the poor appreciation of its value, the poor knowledge of its history, etc. (Rodríguez Arias 2009). According to Patín, this quality of the Dominican thinking is responsible for the tendency to look at the outside for affirmation of the national identity,

where the foreign is seen as more valued than the local, and where there is a tendency to understand everything that happens in the country as the result of its colonial history. It is in this context that Dominican costumes become supplanted by North American ideals and costumes, both seen as more desirable. Again, Rodríguez Arias' criticism on this formulation is that Patín's descriptions about the Dominican identity, particularly of individuals living in the slums, are fraught with negative stereotypes about these inhabitants and with a strong class prejudice already promulgated by the ruling class at the time. He suggests again that only descriptors that are based on comparative studies, those which follow clear scientific methods of observation, will make it possible for us to arrive at more valid descriptions of the Dominicans in general and particularly of the underclass living in the slums.

Critical Moments in the Development of Psychology in the Dominican Republic

It was not until 1940 when the study of psychology began to appear in the Dominican Republic in any meaningful way with the inclusion of the first course in psychology at the *Universidad Autónoma de Santo Domingo* or UASD (Autonomous University of Santo Domingo), as part of the Philosophy Department. Thus, the first course in abnormal psychology was taught to students of philosophy by Fabio Mota, a medical doctor with solid philosophical knowledge and who was professor of psychiatry at the university. Similarly, Professor Salvador Iglesias, who had a degree in philosophy from Rome and who has taken several courses in psychology from various American universities, taught a course in general and applied psychology and education at the same university (Rodríguez Arias 2009).

Nevertheless, according to Rodríguez Arias (2009), the impetus for the establishment of the first psychology department did not occur until the first Interamerican Congress of Psychology that was held in the Dominican Republic in December of 1953. This congress provided a unique opportunity for the Dominican intellectuals to become part of an important dialogue about psychology as a discipline that was taking place already in many parts of the world. Presenters in that congress featured intellectuals that presented the state of psychology in Latin-American and Caribbean

countries (including, Ecuador, Venezuela, Chile, Mexico, etc.), as well as in the United States and Canada. What became clear from the synopsis of that congress (Rodríguez Arias 2009) is that psychology all over of the world was a discipline in search of a more defined identity as a science and profession. Thus, questions such as what types of curriculum should be taught to those interested in pursuing the profession of psychology and whether training in scientific methodology should also be emphasized dominated the intellectual dialogue in the field.

Two of the most important concerns of the Dominican psychologists were the application of psychological knowledge and the philosophical and theoretical problems that were afflicting the discipline throughout the world. In this context, Rodríguez Arias (2009) referred to two critical contributions: The first is the work of G. Lockward (1955), which looked at the problem of applied mathematics to psychological phenomenon; and the second, the important work of the Dominican philosopher Andres Avelino García (1955), which challenged the scientifically based psychological paradigm in its ability to provide answers to important and complex questions about the human condition. According to Avelino García, part of the problem was the strong tendency of empirical psychology to simplify the complex phenomenon in order to be able to submit it to so-called scientific investigation. Avelino García was interested in the study of the existence of “consciousness” and “psyche.” From his perspective, one can only have relative evidence of the existence of these aspects of mental functioning as fluid categories, while empirical psychology treats these as absolute phenomena based on absolute evidence. According to Rodríguez Arias, Avelino García’s view is in keeping with the argument put forward by Edmond Husserl (1859–1938), the father of phenomenology, in his eidetic psychology where he claimed for the importance of a logical investigation of a phenomenon and the interrelation of truth, intuition, and cognition (Stanford Encyclopedia of Philosophy 2007). It calls for scientists to seek a clearer definition of the subject of study prior to venturing into scientific investigations. This can only be accomplished through the utilization of what he calls “the eidetic reflective paradigm” or the necessary theoretical framework which allows for clearer elaboration of the definitions

of the notions/phenomena under consideration prior to engaging in scientific investigation. This process can then elucidate more clearly the nature of the findings that emerge from the scientific enterprise.

The Birth of Psychology as a Discipline in the Dominican Republic

According to Rodríguez Arias (2009), what became clear in the first congress was the distinct difference between the theoretical and scientific influences guiding psychology in Latin-American and in North America. In the Dominican Republic, psychology was much more influenced by philosophical conceptualizations while in North America there was a much more intense influence of operationalism and logical positivism. As more Dominican psychologists received training in American universities, these influences began to take hold in Dominican Republic as well. This became evident in the first psychology department created on July 14, 1967, at the *Universidad Autónoma de Santo Domingo* (UASD) within the Faculty of Humanities. The same year a psychology department was also established at the *Universidad Nacional Pedro Enriquez Ureña* (UNPHU) (Pacheco 1992; Rodríguez Arias 2009). The UASD program was founded by Dr. Tirso Mejía-Ricard (1936–), a medical doctor with training in psychiatry and psychology from Bonn University in Germany, who also became its first director. A Dominican born intellectual, he published a series of books and textbooks on general psychology, social and forensic psychology, as well as on personality. Dr. Enerio Rodríguez (1939–), a graduate in psychology of the *Universidad Nacional Autónoma of México* who also possesses a doctorate in philosophy, followed from 1970 to 1981 and was influential in the teaching of functional analysis of behavior and cognitive psychology. He was also involved in disseminating the main issues that fueled the debate between phenomenology and behaviorism, which he translated into Spanish. Throughout the years, the psychology department in the UASD remained focused on a more scientific basis in its curriculum, with a strong view that applied psychology should be guided by scientific findings. Psychology was seen as a science and a profession and hence the emphasis of its training has these qualities. This emphasis is in keeping with the Boulder model followed by many universities in the United States.

The UASD is the first university that introduced a course in cognitive psychology but also included in its curriculum courses in the theories of personality, Freud's theories and the work of Allport, as well as the work of Karl Rogers in psychological interviewing. Students obtained a professional degree as *Licenciado* in psychology, originally a 4-year program and then a 5-year program. In 1991, the program was extended to include training with emphasis in clinical, organizational, school, social, and developmental psychology. It also required a period of supervised training and hence the length of training was extended to nine semesters. The prerequisite for admissions to these programs, as it was the case with any university in the Dominican Republic, was the completion of a *Bachillerato* or a high school with more college level requirements than most high schools in the United States.

As indicated earlier, another psychology department (*Departamento de Psicología y Orientación*) emerged also on October 16 of the same year 1967, within the School of Education, at the *Universidad Nacional Pedro Henríquez Ureña* (UNPHU), a private university. Its focus was initially on counseling and guidance, and courses in methodology were added much later. Dr. Jose Cruz was one of its early directors and became instrumental in the changes that took place in 1978 that gave birth to the current Mental Health Division, by separating it from the Division of Psychiatry and Mental Hygiene of the Secretary of Public Health and Social Assistance. In this context, he initiated community-based mental health services and started a joint master's level training program in community psychology with the Psychology Department of the UASD. It also required completion of a thesis. UNPHU, on the other hand, followed a humanistic focus with a strong philosophical and applied basis (or scholar-practitioner model). It was not until 1983 when courses in animal psychology, behaviorism, training in therapy in behavior modification, as well as courses on investigation and methodology and statistics were added to the curriculum. In 2008, the program was discontinued for financial reasons.

Current State of Affairs of Psychology Training and Profession

According to Rodríguez Arias (2009), as of 2005, there were 14 programs at the level of *Licenciatura* and

several others at the master's level in clinical, organization, school, family therapy, and sexual therapy at various private institutions in the Dominican Republic, with about 15,000 professional psychologists and 16,000 students of psychology. This was an increase from the 1992 estimate of 900 professional psychologists (Pacheco 1992). These programs were also offered by the *Instituto Tecnológico de Santo Domingo* (or INTEC) and the *Universidad APEC*, among others. Rodríguez Arias expressed great concern with this proliferation of programs and the difficulty in assuring comparable quality of education across the different programs, something that he reaffirmed recently in a personal communication (January, 2011). He also raised great concern with (1) the flexibility of admission criteria held by many of these institutions, particularly in the master's programs; (2) the consequence that most students attend on a part-time basis, a situation that we see in many Latin-American Universities today; and (3) the lack of adequately trained professionals to provide the teaching and supervision of the clinical practices of psychology students. All of these issues make the overall training of psychologists quite problematic and challenging, a situation that is expected to improve with more qualified psychologists becoming involved in training and supervision.

It is clear that psychology as a discipline and profession has grown in respectability among the Dominican Society (Pacheco 1992; Rodríguez Arias 2009). More and more psychologists are now working and contributing their knowledge to society within a broader range of occupational practice, such as in public health, education, industries, etc. In 1975, the *Asociación Dominicana de Psicología, Inc* (ADOPSI) was founded and in 1978 the *Asociación Conductista Dominicana, Inc.* (Dominican Behaviorist Association) was founded but became inactive in 1982 (Pacheco 1992). These associations attempted to take a leadership role to guide the practice of psychology. Nevertheless, the practice of psychology was poorly regulated until recently, with few professionals even applying for the official permission (*exequatur*) from the executive branch of the government to practice the discipline, a permit that was given by just asking (Pacheco 1992). It was not until the creation of the *Colegio Dominicano de Psicólogos* (CODOPSI), through the passing of Law no. 22-01 on January 9, 2001, that

the profession became more clearly regulated. The law standardized specific requirements in the different areas of practice that all institutions involved in training of psychologists are expected to follow.

Current Status of the Dominican Psychology as a Scientific Enterprise

In 1999, the Psychology Institute was created under the leadership of Dr. Mayra Brea as a way to encourage more psychological investigation. This development had only limited success, due to the few numbers of students attending the institute. Nevertheless, the institute has reportedly published several volumes of the journal *Perspectivas Psicológicas*, which is the main venue for dissemination of scientific contributions made by Dominican scientists.

We also see new Dominican intellectuals, many graduated from foreign universities and returning to the country to become involved in the dialogues about the psychology of the Dominican individual. Of significance is the work of Huberto Bogaet García, who published *Enfermedad Mental, Psicoterapia y Cultura* (Mental illness, psychotherapy and culture, 1992) and *Los Enigmas de la Sexualidad Femenina* (The enigmas of female sexuality, 1993).

Other Dominicans of merit are Josefina Zaiter, for her work on the social and national Dominican identity (Zaiter 1987, 1996, 1999) and Antonio de Moya, for his numerous publications and investigations on the Dominican sexuality and the role that it played in the spread of AIDS (De Moya and García 1996, 1999; Garris et al. 1991).

According to Rodríguez Arias, the UASD has attempted to provide opportunities for the study of psychology as a science and practice with the initiation of a postgraduate training program in investigation to train investigators.

Enerio Rodríguez Arias: His Contributions to the Development of Psychology in Dominican Republic

Professor Enerio Rodríguez Arias (1939–) can be considered the first and one of the most influential psychologists in the Dominican Republic. He graduated from the *Universidad Nacional Autónoma de México* on December 11, 1968, although he previously had studied philosophy for 6 years at the *Universidad Autónoma de*

Santo Domingo, where he obtained his doctorate in philosophy after his return from Mexico. Dr. Rodríguez Arias then became an important and influential force in the Dominican psychology, helping to shape the future of psychology. In fact, he became director of the psychology department at the *Universidad Autónoma de Santo Domingo* from 1970 to 1981 and hence became intimately involved in the preparation of future psychologists. He is credited with introducing to the Dominican Republic one of the most important theoretical debates in the psychology of the twentieth century between behaviorism and phenomenology, which started in 1963 during the *Symposium of Rice* and extended for several decades. He was the first in introducing to the Dominican Republic Thomas S. Kuhn's ideas about the development of scientific knowledge and the first to teach a course on behavior analysis in 1970. He was also the first to make the concepts of Chomsky's generative grammar and its impact on the psychology of language familiar to Dominican students, as well as the central ideas from cognitive science. The first course on the psychology of reasoning was also introduced by him in the 1980s.

In terms of his intellectual legacy more specifically, we can distinguish five distinctive areas: (1) issues related to the philosophy of science; (2) elucidation of the problems in statistical analysis and inference procedures in psychological research; (3) metapsychology considerations; (4) relevance or irrelevance of learning research for educational practice and research on human reasoning; and finally (5) notions about behavior analysis and its applications.

Concerning scientific epistemology and research methods in psychology, Rodríguez Arias has been concerned throughout his life with the "relative character of the method." Over the years, he has emphasized the importance of first asking what the research problem is and to then determine what methods may be most appropriate to answer that research question, warning us about the danger of taking the inverse process.

With regard to statistics, he has emphasized the importance of reestablishing the supplementary and subordinated character of the statistical analysis in psychological research. By so doing, he is trying to bring to our attention the danger of confusing the inductive quality of statistical inference as a magical

instrument to determine “the truth” or certainty of a phenomenon, as if coming from a deductive process.

In looking at the philosophy of science, some of Rodríguez Arias’s recent works on the impact of the evolutionary theory on epistemology and philosophy of science call to task the “Popperian falsificationism” approach of Karl Popper to evolution and exposes the way this philosopher applies the natural selection mechanisms to the development of human knowledge. In this context, he was particularly concerned with the problem of demarcation between science and metaphysics.

The same (philosophical) analysis is seen consistently in his dealing with any aspect of psychology. Indeed, he is considered one of the most influential authorities in the Dominican Republic as a metapsychologist. His focus was on analyzing the history of psychology, establishing comparisons between its theories, deliberating over the validity of the arguments from these theories, and examining their relation to the efficacy of the professional practice. His strict loyalty to the scientific method has gained him tremendous respect among the Dominican scholars. He has brought to the psychological community of the Dominican Republic the only account on what may represent the history of the origins of the psychological studies in this country. Dr. Rodríguez Arias has been acknowledged (Ardila 1986) as the most prestigious Dominican psychologist for his scientific contributions. In February 2010, the Department of Psychology at the *Universidad Autónoma de Santo Domingo* published a special issue of its journal, *Perspectivas Psicológicas*, and included 24 Rodríguez Arias’s selected papers.

Dr. Enerio Rodríguez Arias is a member of Philosophy of Science Association (PSA) and an International Affiliate of American Psychological Association (APA).

Mexican Psychology Through Its Most Influential Pioneer, Rogelio Diaz-Guerrero

Diaz-Guerrero’s psychological thinking and research runs over with originality, accuracy, consistency, culture, and longevity. It is through his work and his leadership that he becomes the pioneer and guide of Mexican psychology, an icon to Latin-American

psychology and a referent of cross-cultural psychology decade after decade. As a researcher, he published abundantly and is the most cited Spanish speaking psychologist. As a mentor, he formed generation after generation of Latin Americas finest psychological minds. As a colleague, he championed international psychology and introduced indigenous psychologies into the main stream and carried universal psychology to majority countries.

Rogelio Diaz-Guerrero was born in 1918 in Guadaluajara, Mexico. His quest to understand human behavior begins at the National Autonomous University of Mexico where he studied medicine and psychology with a series of distinguished and prominent Mexican professors and thinkers: Enrique Aragon, Ezequiel Chavez, Guillermo Davila, Oswaldo Robles, Antonio Caso, Samuel Ramos, and Jose Gaos. Finishing his years in medical school, he received a scholarship for postgraduate studies at the University of Iowa, where he completed his master’s and doctoral studies in neuropsychiatry and psychology, being lectured by renowned psychiatrists such as Jacques Gottlieb and Paul Huston, eminent neurologists like Van Epps and Adolph Saks, and pioneers in psychology such as Kenneth Spence, Kurt Lewin, and Robert Sears.

His medical background became apparent in his first publications in the 1940s, where he shows his interest in the relationship between biological variables and behavior. Moving into the 1950s, his professional practice and the Mexican ecosystem sets the basis for his inclusion of culture in the understanding of mental health, which he developed with Abraham Maslow. At this stage, his research centered on the conceptualization and operationalization of psychological variables rooted in culture; such is the case of his work on anthropo-cultural values, which served as the immediate successors of the historic-socio-cultural premises, which he postulates a decade later as the operationalization of culture through norms and believes.

In the 1960s, Diaz-Guerrero’s interest in the socio-cultural basis of behavior flourishes and crystallizes in research with Wayne Holtzman, with whom he authors “Personality development in two cultures”; with Charles Osgood with whom he works on the pan-cultural study of meaning with the semantic differential; and with Herman Witkin in regards to cognitive development. Among his major contributions of

this decade is the clear, empirical, and theoretical definition of cultural concepts, the valid, reliable, and culturally appropriate manner of operationalizing universal psychological constructs, and the rules to adapt, change, and construct objective measuring instruments. He further indicates that the culture in which an individual develops will specify the foundations, structure, and acceptable and desirable norms of behavior. Hence, socio-culture becomes a system of thoughts, interrelated ideas, norms, and roles that offer a hierarchy of acceptable and desirable behaviors, habits, needs, and values for each cultural group. His work on the psychology of the Mexican conceptually solidifies the aspiration toward a scientific and cultural psychology, and additionally offers valid and reliable operationalizations that result in culturally relevant and interpretable data.

The center stone of his work is the historic-psychosocio-cultural premises. The norms and beliefs that compose them, regulate the formation of national character, and delimit the acceptable behavior in human interaction, depending of the level in which each person adopts and believes their cultural dictates. Thus, the socio-cultural ecosystem serves as the ontological ground on which individuals learn the correct ways of interaction with their world. A historic-socio-cultural premise is a simple or complex statement that provides a group the logic of understanding and guiding their world. Diaz-Guerrero extracted premises from proverbs, sayings, and other ways of popular communication. After carrying out careful content analysis based on the obtained representations, the crucial role of the family in traditional Mexican culture became evident. In sum, three prepositions describing the traditional Mexican family appear: the power and supremacy of the father, the love and absolute and necessary sacrifice of the mother, and the obedience of children. In other words, children and youngsters must always obey their parents and everyone should love their mother and respect their father. This means, that children must always show their regard to their parents, who in return must protect and care for them. The traditional factor is complemented with a gender dimension, with "machismo" and abnegation-virginity at the axis. In sum, it is considered that traditional Mexican society is built upon a hierarchical structure based on the respect for others, particularly parents and kin. The internalization of these premises produces

abnegation, a cardinal trait in Mexican culture, which is sustained as true by Mexican men and women who believe that satisfying others' needs is more important than satisfying their own.

In the 1970s, the ideal of integrating cross-cultural psychological perspectives into mainstream psychology began to consolidate. Keeping in mind the need of the majority of countries to work out solutions to substantial problems related with educational, social, economic, and individual development, Diaz-Guerrero, Harry Triandis, Martin Fishbein, and other collaborators research and publish profusely in applied areas. A few examples of these lines of study are the "Study in eight countries on occupational values in children and young adults when faced with violence." Other projects dwelled on the pertinence and effect of educational programs in general, such as "Sexual differences in the development of the Mexican student's personality," or specifically, through television, like the case of the *Formative Evaluation of Sesame Street*. As an epilogue to the 1970s, he coordinated a series of projects from which he postulated a transdisciplinary and cultural conception termed "Towards a historic-bio-psychosocio-cultural theory on human behavior."

The 1980s found Diaz-Guerrero in charge of several decades of solid and robust intercultural and intracultural findings. In addition to constructing a theory on the psychology of the Mexican, he added the study of masses, health, and led research toward understanding psychology from a socio-cultural perspective. The synthesis gave way to some of the first gender studies in psychology from a structural perspective depicted in "Roles, personality and the status of women." Continuing the task of integrating behavioral and cultural psychology, he stressed the need of incorporating the effect of contextual and cultural niches in which human beings develop into psychological studies, as is evident in his "The cultural ecosystem and life quality," and "The culture counter culture approach." In summary, his conjectures were summarized in the theoretical and methodological creation and delimitation of a new branch in psychology, *ethnopsychology*.

Diaz-Guerrero's accumulation of work by the 1990s showed three new clear tendencies. He continues his work characterizing and differentiating the effect of culture on visible psychological variables in "The subjective worlds of Mexicans and North Americans" with

Szalay, and “The effects of culture on national identity.” He established the basic precepts of “Mexican Ethnopsychology,” and he revises the work on coping styles due to the effects of time in “The new philosophy of life” and in the study and measurement of “abnegation.” A third line of inquiry relates to the roots of values where he shows that their expressions depend on the degree of satisfaction, difficulty and intensity of needs, described in “Human values and needs: the missing link.”

The seminal work of Diaz-Guerrero is culminated in the new millennium in the book *Under the Claws of Culture*. In it, he reports longitudinal and cross-sectional data spanning 50 years on the processes of socialization and enculturation responsible for the maintenance of structures that work for the permanency of the socio-cultural premises. In fact, he expands on the small effects that political, economic, and social changes have had on the way Mexicans think and act when it comes to the realms of family, male-female interactions, and the interaction of parents and their children. The book consolidates a life’s work dedicated to understanding human behavior from a historic-bio-psycho-socio-cultural perspective.

Brief Biography of Rolando Díaz-Loving

It is a complex task to describe a great human being, an extraordinary scientist, and a superb teacher. With his 56 years of age and a life that manifests the mixture of cultures of his parents – Mexican and Australian – as well as his innate intelligence and talent, regarded as one of the pioneers of social psychology in Mexico, there can be no doubt today that the career of Rolando Díaz-Loving reflects an equilibrium between lecturing, divulgation of science, training of students, and the exercise of strategic administrative responsibilities.

To describe Díaz-Loving as a university professor is to bring to mind the image of a teacher of vocation, an expert and authority in his area, committed, untiring, punctual to a fault, accessible, and close to his students and for whom teaching and the transmission of knowledge is an indispensable task in the advance of science. The primary beneficiary of these qualities is the UNAM’s faculty of psychology in Ciudad Universitaria, where he has taught since 1982 to the present day; this period – with the sole interruption of his four

sabbaticals – adds up to a total of 28 years devoted to teaching, during which he has imparted a total of 215 courses both at bachelor’s and higher-degree level. This is without taking into account the courses given as a visiting lecturer at 11 different institutions, including in Mexico the Universidad de Chapingo, the Universidad Autónoma de Yucatán, and the Universidad Autónoma del Estado de México; and abroad the Universities of Texas, Manitoba, and Palermo.

As regards the training of groups of students, his extraordinary capacity for leadership and considerable skill in the management of human relations stands out. These qualities yield fruit in his working groups, which have been open to both first-degree and higher-degree students and have also enjoyed the participation of colleagues from other universities in Mexico City and other parts of the Republic, as well as foreign researchers. It is worth emphasizing that most of those who are today his colleagues were at one time his students and tutees. In keeping with his interest in the consolidation of groups, in 1986 he became a founding member of the *Asociación Mexicana de Psicología Social*.

In his role as a disseminator of science, Dr. Díaz might be described as an academic globetrotter. He has visited the 31 states of the Mexican Republic, whether as a visiting lecturer or as a speaker at conferences – his visits to Yucatán, Puebla, Chihuahua, and the Estado de México being particularly numerous. Beyond Mexico’s borders, he has been a frequent visitor to Austin, Texas, and has also visited the Universities of California, Chicago, Indiana, Washington, Oklahoma, Wisconsin, Orlando, and New York; further afield he has visited universities in Puerto Rico, Canada, Japan, Greece, China, Australia, Belgium, France, Sweden, Poland, Great Britain, Spain, Cuba, Chile, Colombia, Guatemala, Brazil, Venezuela, Argentina, Costa Rica, and Peru.

As regards his publications, his first article was published in 1981 with Dr. Richard Archer (who also directed his doctoral dissertation at the University of Texas) under the title: “The role of dispositional empathy and social evaluation in the empathic mediation of helping.” In the same year he published the article “Comparación transcultural y análisis psicométrico de una medida de rasgos masculinos (instrumentales) y femeninos expresivos” with Rogelio Díaz-Guerrero,

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Lazarus, Richard S.

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Basic Biographical Information

Richard Lazarus was born on March 2, 1922, in New York City and died on November 24, 2002, at Walnut Creek, California. After graduating from City College of New York in 1942, he served in the United States Army for three and a half years, completed his doctorate at Pittsburgh University in 1948, and served in the psychology departments of Johns Hopkins University and Clark University before going to the University of California Berkeley where he conducted pioneer work on a variety of controversial issues until his retirement in 1990. In the decade that followed retirement, as professor emeritus, he published five books and numerous chapters and articles.

Major Accomplishments/Contributions

In a scientific sense, Lazarus was a revolutionary. He left a legacy of scientific inquiry, investigation, and theory that challenged the dominant theoretical framework of the time, Skinnerian behaviorism. He was ahead of his time in emphasizing the role of cognitive appraisal in affecting the individual's emotional and behavioral response to stressful situations. His book, *Stress, Appraisal and Coping* (Lazarus and Folkman 1984), coauthored with Susan Folkman, a former doctoral student, became the most widely read and cited academic book and text in the field.

His cautiously articulated defense of denial was a direct attack on the prevalent theoretical and professional view at the time that denial was self-deception and, therefore, tantamount to a mental disorder, while accurate reality testing was an indication of mental health. His defense of denial would appear to run counter to his overarching concept of cognitive appraisal, a cognitive activity that is presumably realistic. He was, however, consistent in promoting realistic appraisal in dealing with potentially solvable problems and in advocating denial of reality in situations that were not. On a universal philosophical level, Lazarus was comfortable with self-serving illusions and beliefs that sustain meaning, purpose, and vitality in face of the inevitability of death for all, and the frustrations, disappointments that many experience at some time in their lives. On a psychological level, he cited studies that show (1) optimists are happier and live more productive lives than pessimists, although the latter may be more realistic in their appraisals of events; (2) patients who avoid hearing details of imminent surgery enjoy more rapid postsurgical recovery than those who request and receive these details; (3) patients following stroke who deny the realistic consequences of their condition are more calm and relaxed than those who become sensitized to their limitations. Denial has positive benefits according to Lazarus, when people have done all that they can to achieve positive outcomes, and when eventual outcomes are beyond their control.

He demonstrated, contrary to conventional wisdom at the time, that the little irritations that occur daily may cause more damage than large sources of distress that occur once in a while or even just once. In psychological terms, daily hassles may exercise greater deleterious effects on one's physical and psychological well-being than major life stresses.

He was the recipient of many awards in recognition of his seminal work. Nationally, he received one of the highest awards of the American Psychological Association, the award in 1989 for Distinguished Scientific Contribution to Psychology. Internationally he received a Guggenheim Fellowship in 1969–1970, honorary doctorates from the Johannes Gutenberg University in Mainz, Germany in 1988 and the University of Haifa in 1995, and was invited to lecture at many other universities outside the United States (Australia, Denmark, Japan, and Sweden).

His comprehensive analysis of goal-congruent (positive) emotions as well as goal-incongruent (negative) emotions marked him as a pioneer in positive psychology long before the field achieved prominence. In this analysis, he cited happiness/joy, pride, love/affection, and relief/change for the better as the former, and anger, fright/anxiety, guilt/shame, sadness, envy/jealousy, disgust as the latter. He also created a separate category for hope, compassion/empathy, and aesthetic and religious emotions, because these emotional experiences have multiple meanings on the one hand, unique meaning for individuals on the other, and their valence (positive versus negative) is less clearly defined (Lazarus 1991).

He made many visits to Israel, the first of these in January 1975 when he was a keynote speaker at the First International Conference on Psychological Stress and Coping in Time of War and Peace. The conference took place in the aftermath of the Yom Kippur War, when Israelis were coping with the specter of near defeat on the battlefield, the loss of life, and the shattering of long-held beliefs about military supremacy. In an invited chapter based on the conference, Lazarus responded to these postwar crises at two levels. "first, as that of a psychologist whose theoretical and research commitment is stress, emotion and coping; second, that of middle-aged American Jew who keenly identified with the national struggle of Israel to establish and preserve a place in the world for Jews in a viable and humane society" (Lazarus 1982, p. 23).

He maintained scientific objectivity and theoretical consistency in analyzing Israeli society's appraisal and response to the war and to the challenge of reformulating its national coping strategy. He distinguished between active (problem-focused) mastery and passive (emotion-focused) mastery, and suggested that extreme reliance on either the one or the other is unwise for the individual or for any society in handling stresses and crises.

Richard Lazarus was a man for all seasons and intellectual pursuits. He was a scholar, a gentleman, and a generous mentor to all who knew him; a person whose extraordinary erudition was manifest not only in his command of the psychological theories extant during his lifetime, but also in his ability to glean from philosophy, history, and literature, insights that were relevant to whatever argument, assertion, or proof he

was demonstrating; he was an indefatigable thinker and writer who was wholly engaged in relating aging to emotion at age 80 until an untimely fall ended his productive life. He was a devoted husband to Bernice, his wife of 57 years, and a caring father to his children and grandchildren.

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Levitt, Harry

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Basic Biographical Information

Harry Levitt was born in Johannesburg, South Africa, in 1937. He received his Ph.D. in Electrical Engineering from the Imperial College of Science and Technology, London, where he studied with Colin Cherry. From 1964 to 1969, Levitt was a member of the Speech and Auditory Research Department of Bell Labs. He then joined the faculty of the Doctoral Program in Speech and Hearing Sciences at the Graduate School, City University of New York where he taught and mentored students for over 30 years. He is currently Distinguished Professor Emeritus at the Graduate School, City University of New York.

Major Accomplishments/Contributions

Levitt's areas of research include methodological issues in psychophysics, speech perception, and aural

rehabilitation. With substantial contributions in all three areas, Levitt is best known for his work on adaptive testing in psychophysics. His seminal paper on transformed up-down procedures for psychophysical testing (Levitt 1971) continues to influence the methodology used in psychophysical research to this day. According to Levitt, all measurements are adaptive in that they form a key link in the iterative cycle of measurement and theory. One does not measure without having some idea (theory) of the variables that are likely to affect the measurements. This philosophy, inherent to scientific method, has been much refined in the development of adaptive methods of measurement, in which data obtained in preceding observations are used to determine how to make the next observation. Levitt's transformed adaptive procedures emphasize simplicity, efficiency, and robustness of measurement. The simplicity and efficiency of measurement make these among the most widely used methods of measurements in psychophysics.

Another of Levitt's early research efforts has led to a better understanding of binaural hearing of speech in noise (Levitt and Rabiner 1967). He and Rabiner developed a model that combines information about masking level differences for pure tones in narrow bands of noise with the articulation index. The model predicts increases in speech recognition performance under several competing noise conditions. This model has been expanded by later researchers to explain binaural advantages for understanding speech in complex listening environments with noise at various azimuths.

Levitt's research has contributed substantially to an understanding of the relationship between hearing loss and speech production in deaf children and the nature of the speech production errors that negatively affect the intelligibility of deaf speech. It has also influenced approaches to aural rehabilitation of persons with hearing loss. His scientific contributions are data-rich, with important conclusions either supporting key assumptions of underlying theories or pointing the way to new, more general theories. His monograph on the development of language and communication skills in hearing-impaired children (with Nancy McGarr and Donna Geffner) is a good example of his

approach (Levitt et al. 1987). Rather than select a subset of children with characteristics likely to be supportive of a theory to be tested, his research team evaluated, with few exceptions, every child of a given age at schools for the deaf in the State of New York. The children were tracked over a 4-year period. The resulting data provided powerful tests of key assumptions. It was the first study to show a significant statistical correlation between early intervention and improved speech and language development 10–15 years later. Another finding, new at the time, was that speech and language development in children with hearing loss is neither delayed nor deviant. Rather, children with hearing loss develop their own phonology that is determined in large measure by the limitations imposed by the hearing loss. One outcome of this observation was the development of a general theory for predicting, in quantitative terms, how the speech of a child with hearing loss is likely to differ from that of a hearing child, given information on the child's hearing skills.

Levitt has been a leader in applying computer technology to the study of speech and hearing problems, as well as to the development of better sensory aids for people with hearing loss. He developed the first digital master hearing aid and has been a leader in investigating digital signal processing strategies that differ fundamentally from the signal processing approaches implemented in analog aids. These studies directly influenced the noise reduction and feedback reduction algorithms used in current hearing aids.

Harry Levitt has been and continues to be a prolific researcher. He has been honored for his work by the Acoustical Society of America, the American Speech, Language and Hearing Association, the American Auditory Society, and the American Academy of Audiology.

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Lewin, Kurt

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Basic Biography

Lewin, Kurt (September 9, 1890–February 1, 1947) was a revolutionary figure in the field of experimental psychology, a mentor to many, and an innovative theoretician. He developed *Topological Psychology*, and *Field Theory*, but is most remembered as the father of *Social Psychology*.

Kurt Lewin was born in 1890 to a small, Jewish, middleclass family in the village of Mogilno, Prussia, which is in modern-day Poland. In 1905 his family moved to Berlin, and in 1910 he began studying psychology at the University of Berlin. At the outbreak of WWI, in the year 1914, Lewin joined the army and received his doctorate from the University of Berlin in 1916. In 1918 Lewin was wounded and awarded the Iron Cross (Marrow 1969, p. 10). Subsequently, he returned to the University of Berlin and joined the remarkable circle of the three founders of Gestalt psychology: Max Wertheimer, Wolfgang Kohler, and Kurt Koffka. Although Lewin appreciated the principles of Gestalt psychology, he did not continue with the standard Gestalt methods but expanded the idea of looking at the Gestalt, or whole, of an issue and applied it to the experimental study of practical psychology questions. In 1921 Lewin was appointed *Privatdozent* (a professor that is paid based on student attendance) at the University of Berlin (Hothersall 1995, p. 239–241).

The reputation of Lewin and his ideas soon spread beyond the continent of his birth. A paper written by JF Brown in 1929, and Lewin's own contribution to the *Handbook of Child Psychology*, published in 1931, introduced Lewin's work to the United States. In 1932 Lewin was invited to teach at Stanford University for 6 months. The following year, due to the rise of Nazism in Germany, Lewin resigned from University of Berlin and immigrated to the United States taking a 2-year nonrenewable teaching position at Cornell University. He was placed in the School of

Home Economics and used his position to study the eating habits of adolescents (Hothersall 1995, p. 246).

After 2 years at Cornell, Lewin joined the University of Iowa's Child Welfare Research Station. There he carried out some of his most famous experiments, which demonstrated the efficacy of democratically led systems over autocratic and laissez-faire ones (Boring 1957, p. 727). He remained in Iowa from 1935 until 1944, when he returned to the east coast and founded the Research Center for Group Dynamics at the Massachusetts Institute of Technology. Lewin was serving as the director of his new research center when he suffered a heart attack and died on February 1, 1947 (Marrow 1969, p. 226; Hothersall 1995, p. 251).

Accomplishments

Kurt Lewin's contribution to psychology was more profound than is clearly discernable from his current reputation. Lewin's theories and experiments deeply affected the field of psychological research and the way psychologists think about human behavior and interaction. In contrast to the psychoanalysts, structuralists, and behaviorists of his time, Lewin brought psychological experimentation into the practical world in order to study the human psyche, with the hope of making society better as a whole. This approach to experimentation spawned the field of Social Psychology and dramatically changed the way experimental research is carried out.

Lewin was a strong proponent of working within a theoretical framework, as well as studying human dynamics through experimentation (Marrow 1969, p. 30). He wanted to solidify psychology as a science and felt the way to do that was by using certain mathematical language to create a unifying system of concepts and laws which would encompass the entire field of psychology (Marrow 1969, p. 116). Early in his career, while still in Germany, Lewin developed *Field Theory*. This theory postulates that every person is made up of complex fields of energy. Each person's field contains a unique and dynamic system of tensions and needs that interacts with the environment. Lewin used a specialized jargon with words such as *energy*, *tension*, *need*, *valence*, and *vector*, some borrowed from topology while others useful neologisms (Marrow 1969, p. 33). In this theory Lewin termed the interaction between the person and the environment *Life*

Space. *Field Theory* posits that behavior is the function of *Life Space*, which can be written as a formula; behavior (B) is a function of an individual's (P) interaction with environment (E) [$B = f(P, E)$] (Ash 1992; Marrow 1969, p. 38). This theory is now accepted as a basic premise in the field of Social Psychology. Lewin used an oval shape, called a *Jordan curve*, borrowed from geometric topology to demonstrate the positive and negative valences, or forces, between an individual and the outside environment, which results in behavior. For this reason Lewin called his approach *Topological Psychology* (Marrow 1969, p. 34–39).

Lewin was not only a theoretician but he also tested and applied his theories in many practical experiments involving seemingly disparate fields of psychology throughout his life including *Action Research*, child development, personality, group dynamics, and racism. The results of these experiments helped formulate certain principles of psychology including *levels of aspiration*, *approach-approach conflicts*, *approach-avoidance conflicts*, *avoidance-avoidance conflicts*, the *dedifferentiation hypothesis*, the benefit of conversation over rhetoric, the understanding of the dynamics of social interaction, and the *unfreeze-change-refreeze model* (Marrow 1969; Hothersall 1995). Lewin carried out these experiments with a number of his students in Germany, Iowa, and MIT. In both the University of Berlin and Iowa, Lewin was famous for forming groups of students who would meet regularly to hold free-flowing conversation style meetings from which a wide range of research ideas emerged. Lewin's democratic, accepting, and enthusiastic style drew many students to follow in his footsteps (Marrow 1969, p. 26–27). Included among the ranks of his students are some of the most famous social psychologists of the twentieth century (Hothersall 1995, p. 252).

In addition to his many papers on a variety of topics, Lewin also wrote two books describing his theories: *A Dynamic Theory of Personality* (1935) and *Principles of Topological Psychology* (1936). Compilations of his papers were also reprinted in *Resolving Social Conflicts and Field Theory in Social Science* (1997) and *The Complete Social Scientist: A Kurt Lewin Reader* (1999).

Lewin was instrumental in founding the Commission on Community Interrelations (CCI) as well as the Society for Psychological Study of Social Issues (SPSSI)

in which he served as the president of from 1942 to 1943 (Hothersall 1995, p. 249–251).

In 1945 Lewin founded the Research Center for Group Dynamics at MIT where he and his students studied a variety of issues important to social psychology including leadership. His leadership training research led to the formation of the National Training Laboratories and T-groups (Hothersall 1995, p. 249–251).

See Also

- ▶ Gestalt Psychology
- ▶ Koffka, Kurt
- ▶ Social Psychology

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Lipps, Theodor

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Basic Biographical Information

Born: July 28, 1851; Died: October 15, 1914.

Lipps was broadly trained for a philosophical career on which he embarked first at Bonn, then at Breslau, and finally after 1894 at Munich, where he succeeded Stumpf and remained for the rest of his life, and with which institution and environment he was most often identified.

Major Achievements/Contributions

Lipps was the most prominent of the “psychologistic” philosophers of his generation. He fell to the philosophical side of the divide between philosophy and psychology, but just barely: He styled himself a philosopher but saw philosophy as the study of inner experience, grounded mainly in psychology.

His influence on psychology proper came in three chronologically ordered stages. The first of these was effected by his monumental *Grundtatsachen des Seelenlebens* (Basic Facts of Mental Life) from 1883. This was a compendious collection of all the various ways that the conscious world could be experienced. Lipps’s primary focus was on feeling and the *Grundtatsachen* can be read as a catalog of possible feelings. Another important principle embodied in the *Grundtatsachen* as well as in Lipps’s later works is mirroring, which Lipps employed to understand the problem of other minds and activities and also adapted to understand the way in which internal communication was managed in the mind. This emphasis on mirroring has gotten new life over the past quarter century in theories of mirror neurons and their function in imitation and the understanding of others’ actions (Semin and Caccioppo 2009). Among the many psychologists who were influenced by the *Grundtatsachen* were James Sully and William James. James’s *Principles of Psychology* contains nearly as many references to Lipps as to Wundt, all from the *Grundtatsachen*. In order, in the *Principles*, James cites Lipps on the following: “unconscious” sensations, theory of ideas, time-perception, muscular feeling, distance, visual illusions, space-perception, reality, and effort. Lipps’s ideas play an important role for James in his discussion of the perception of reality, which includes the following direct quote: “Mein Jetzt und Hier,” as Prof. Lipps says, “ist der letzte Angelpunkt für all Wirklichkeit, also alle Erkenntnis.” (Lipps (1883) p. 400, in James (1890), p. 926). And later, James supports a phenomenology of will by again quoting Lipps: “Professor Lipps, in his admirably clear deterministic statement, so far from admitting that the feeling of effort testifies to an increment of force exerted, explains it as a sign that force is lost. We speak of effort, according to him, whenever a force expends itself (wholly or partly) in neutralizing another force, and so fails of its own possible outward effect.” (Lipps 1883, pp. 594–595, in James (1890), p. 1178.) Another stream of Lipps’s influence runs toward Freud (Sigmund Freud) (Devonis 2000; Kanzer 1981). Freud, much more biological at base, was moving away from a biological psychology and saw in Lipps, who was far more conceptual than the biological and mathematical psychologists who were his contemporaries, a kindred

spirit. Freud was impressed by the parallels between Lipps's version of the unconscious and his own developing ideas. Lipps's conception of the unconscious as a fundamental ground of experience accessible by consciousness was key to Freud's thinking that led to the conception of the "System Pcpt-Cs," which allowed for communication between the conscious and unconscious worlds. Freud also turned to Lipps's theories of the comic in the creation of *Jokes and Their Relation to the Unconscious*. The last of Lipps's large contributions to psychology is his recasting of the term "Einfühlung" from its origins in Lotze and in the philosophical aesthetics of Robert Vischer, itself an extension of ideas about ideality in art dating back through Herder. Lipps broadened and extended the term to incorporate all aspects of projective, imitative, and analogical understanding of art by reference to conscious emotional life. The term was rendered into English by Edward B. Titchener as "empathy" in 1910 and it had continuing influence as a point of reference in psychological aesthetics from Herbert S. Langfeld through Rudolf Arnheim and Daniel Berlyne. Modern variants of empathy are found in clinical and counseling psychology as well as other areas including social psychology and the comparative psychology of the emotions (Gladstein 1984; Preston and DeWaal 2002). Beyond his influence on psychology, Lipps had substantial effects on philosophy. The genesis of Husserlian phenomenology involves reactions against Lipps's positions and Edith Stein's dissertation on empathy was originally conceived as a critique of Lipps (Farber 1967). Lipps also impacted the development of modernist art theories, influencing some of the main figures of art theory and criticism in the era of Jugendstil and Secession including Wilhelm Worringer, August Endell, Wassily Kandinsky, and Paul Klee (Poli 1997).

See Also

► [Langfeld, Herbert Sidney](#)

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Localization of Function, Outline of

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Background

This chapter will be an outline of the last 200 years of history of localization of psychological functions. Two hundred years allows a nice overview of modern history. It allows continuity with a more philosophical, even religious, approach to science than is currently popular. To understand modern localization attempts, one must understand that these antecedents are, to some extent, still with us. This period also allows comments about attempts to move away from these early roots to a more scientific approach. It allows comments about the development of laboratory methods that support such inquiries. It allows a snapshot of our modern view. Basically, this chapter is a story about growth: a growth of sophistication of questions, answers, and methods in the quest to understand brain related sources of intelligence.

Clearly, this is a complicated story that would best be covered in a monograph. This chapter, as its title acknowledges, is an "outline" of these developments. Detailed information on various topics can be found in Finger (2011), Harrington (1989), Jacyna (2000),

Lazar (2009b), Tizard (1959), Tyler and Malessa (2000), Walker (1957), and Young (1970).

First, as an orientation, the history of localization of psychological functions in the brain fits nicely in the history of science because it illustrates how scientific ideas develop. Science is a human endeavor thus influenced by religious and political motives as well as scientific ones. Think of James' "great blooming, buzzing confusion" (James 1890). There is a lot of information to be sifted through and interpreted. How is this done? In science, perhaps in all enquiries, straightforward observables, such as, objects or simple actions are recorded first. Many things are observable: the movement of the sun, specific animals, gross body parts or even activities, such as, seeing or problem solving. These observables eventually get systematized by various schemes whether natural (e.g., types of animals) or speculative (e.g., powers or faculties of mind that account for them). In the former case, observables are *organized* according to various categories that are common or found useful. In the latter case, the observables may be *integrated* into folklore or speculative schemes that relate to why such ideas occur. This was particularly evident in earlier explorations of localization of psychological functions in the brain, but may be seen even now.

There is a long history to localization of cognition. Psychology and philosophy tell us that cognition has to do with the process of knowing, which includes awareness, perception, reasoning, judgment, volition, and memory. These several cognitive functions carry philosophical implications that determine how they are related to brain anatomy and physiology.

Cognitive functions have their origin in human activities and in concepts like soul and mind. They have an incredibly long history, measured in millennia. Their meanings have changed over time to reflect cultural values. Plato, for example, understands the meaning of soul or psyche in terms of moral qualities of man and his activities, like thinking and reasoning – observable activities not mental activities. Not until the time of the Roman Empire and the developing Christian influence does the meaning of soul begin to accrue transcendental properties.

- ▶ Generally speaking, soul in this period was regarded as a spaceless and timeless substance with which the

creator endowed human organisms. Soul was the source of knowledge and feeling, as well as the enduring entity which underwent the punitive and purifying sufferings in the afterlife. Another, special trait of the soul was the link it provided with the creator. By sharing this spiritistic essence with God man gained in dignity and provided himself an avenue of escape into a secure eternal life. (Kantor 1963, p. 225)

It is this meaning of soul that Descartes considered when he contemplated its indivisibility and the "soul–flesh" or "mind–body" relationship. This meaning of soul is the source of the modern meanings of "mind," "consciousness," and "mental processes." The importance of this for our consideration is that during the nineteenth century, anti-localization arguments were based, either explicitly or implicitly, on Descartes analyses rather than on naturalistic or experimental based arguments.

Over the years, the nervous system has taken on the role of soul. This may sound astounding, but from at least the time of Homer, that is, possibly about 900 BC, there has been debate about whether the brain or the heart was the seat of what has been variously called emotions, intellect, soul, mental processes, and cognition (Rose 2009). For example, was the seat in the blood, the chest, or was it in the head, the meninges, or ventricles? Notice the cerebral cortex was not among these candidates in early times. In fact, the ventricles, not brain parenchyma, stand out as the most popular area for localization throughout the medieval era by both European and Islamic scholars (Green 2003). There were many "ventricular theories," during this era and they differed from time to time and place to place. They surfaced regularly over the two millennia ending as late as 1800. Generally, the "inner" or "internal" senses (As opposed to the "outer" or "external" senses, namely, touch, taste, smell, hearing, and sight.) of perception, imagination, estimation (meaning something like innate knowledge), cognition, memory, and volition were located in the various known ventricles, more or less those from front to back and top to bottom of the brain in the order listed. As the older soul doctrines were naturalized, the rational powers and functions of the soul, such as allowing cognitive abilities, were attributed to the bodily functions (Kantor 1969). As these bodily places were shuffled among body

parts, the solid parts of the brain or nervous system became the prime locations and this accounts for the exalted position the nervous system has in the explanation of complex behavior and cognition in particular. To put it generally, instead of having the nervous system participating in a cognitive activity, it takes on the role of originating it and a place where it occurs.

The Organology of Gall

With this background, we step into the stream of history at the time of Gall because the theory that the cerebral cortex can be divided into functional parts is largely a nineteenth century development. The work of Franz Joseph Gall (1758–1828) appeared just after about a half century of anti-localization sentiment in the eighteenth century (Karenberg 2009). He is best known for the localization system known as phrenology. Unfortunately for his legacy, phrenology is the name applied to a popularized version of his ideas more appropriately attributed to Johann Spurzheim (1776–1832) and George Combe (1788–1858). Gall preferred “Organology” and did not use the term phrenology in his writings. Spurzheim began working with Gall in 1804. Their collaboration ended 9 years later over disagreements about Gall’s system. Once on his own, Spurzheim increased the number of faculties, reclassified the faculties, and popularized the theory showing, for example, how useful it could be for choosing a mate, educating children, and selecting leaders, (Finger 2009; Spurzheim 1825, 1832). Gall could not be induced to write a popular version of his theory although his work was motivated by explaining the behavior and morals of people. In 1816, Combe (1788–1858), a Scotsman, was impressed with phrenology after hearing Spurzheim lecture. He became a leading spokesman for phrenology after Spurzheim’s death (Combe 1835). Spurzheim and Combe lectured extensively in Europe, Britain, and USA.

Gall’s organology taught that the cerebrum is composed of different functional regions each associated with different moral and intellectual faculties. These faculties are innate and their exercise or manifestation depends on their organization (Gall 1835b). Organology also taught that the size of a region directly reflects its influence on a person’s personality. The size of a region also directly affects the topography of the skull. Extreme personality characteristics based on

exceptional mental faculties were related, at least to Gall’s satisfaction, to bumps and depressions on the individual’s skull. He was struck by relationships between facial characteristics and mental characteristics even as early as among his boyhood friends. Later, Gall documented these relationships by observing individuals with outstanding talents in literature, science, politics, crime, etc. He interviewed a myriad of individuals and observed the contours of their heads. He collected and analyzed well over 600 skulls of eminent men. Surprisingly, for an accomplished anatomist, he did not systematically study their brains.

Gall was a respected anatomist, for example, he discovered the decussation of fibers at the pyramids. What is not as well known about him is that he can be described as a physiologically oriented philosopher, and this is where his organology comes from. He developed organology to predict personality characteristics based on the localization of mental faculties. Fundamentally, his theory was a grand scheme to find the laws of organization of the nervous system in general and of the brain in particular. His theory was paramount; the bumpy road to personality seemed to follow.

- ▶ The moral and intellectual dispositions are innate; their manifestation depends on organization; the brain is exclusively the organ of the mind; the brain is composed of as many particular and independent organs, as there are fundamental powers of the mind; – these four incontestable principles form the basis of the whole physiology of the brain. [Once he established these principle he went on to] . . . inquire, how far the inspection of the form of the head, or cranium, presents a means of ascertaining the existence or absence, and the degree of development, of certain cerebral parts. (Gall 1835a, p. 308)

Each cerebral part, that is, each cerebral organ, was related to a mental trait. How did he come by these traits? Gall got them from the “language of common society” not from philosophers (Gall 1835b, p. 84) because he believes that philosophical faculties of the soul were too abstract to work with. He was well versed in philosophy, for example, he was aware that Francis Bacon distinguishes the rational soul and the sensitive soul. That Descartes recognizes four principal faculties, namely, will, understanding, imagination, and sensibility. That Condillac admits six faculties of understanding.

Kant's system has primitive faculties or functions, pure conceptions, and a priori ideas amounting to 25 elements. Gall wrote,

- ▶ Whether we admit, one, two, three, four, five, six, or seven faculties of the soul, we shall see, in the sequel, that the error is always essentially the same, since all these faculties are mere abstractions. None of the faculties mentioned, describes either an instinct, a propensity, a talent, nor any other determinate faculty, moral or intellectual. How are we to explain, by sensation in general, by attention, by comparison, by reasoning, by desire, by preference, and by freedom, the origin and exercise of the principle of propagation; that of the love of offspring, of the instinct of attachment? How explain, by all these generalities, the talents for music, for mechanics, for a sense of the relations of space, for painting, poetry, &c.? (Gall 1835b, p. 84)

His theory is a practical theory; one related to functioning people in everyday life. His faculties of common society came from interviews of common people about themselves and their children, for example, they are ashamed and they despise. They came from descriptions by biographers of remarkable men, for example, courageous warrior, cruel, and talent for language. They also came from characteristics of animals. Gall believes that humans share many characteristics with animals, for example, gentle, affectionate, and docile. Gall felt it necessary to compare man with animals in order to acquire a complete understanding of man's nature, moral, and intellect. His final list of faculties of the mind totals 27, 19 of which are shared with animals.

Gall's work drew considerable attention among researchers and laymen. The positive attention peaked decades earlier among researchers than it did for laymen. His ideas also caused quite a stir among those in charge of public morals. In Vienna in 1805, after his lectures were becoming more and more popular, he was directed by the conservative Hapsburg rulers of Austria and the Catholic clergy to have his lectures approved before continuing, not because he correlated cranial bumps with personality, but because they felt his ideas were atheistic and materialistic. His thinking was dangerously materialistic and soulless (Finger 2009). The city fathers were against his philosophical system not his practical application (Hollander 1901). Instead of having his lectures censored, he with

Spurzheim left Vienna in 1805 and traveled and lectured in northern Europe where his lectures were well received. The lectures included numerous anatomical and physiological facts and they were accompanied by dissections and the exhibition of skulls, heads, and casts. He eventually settled in Paris at the end of 1807 and lived there until the end of his life in 1828. As soon as 1808, Gall began writing his four volume *Magnum Opus, Anatomie et Physiologie du Système Nerveux en Général et du Cerveau en Particulier*. The first two volumes, coauthored with Spurzheim, were published in 1810 along with an Atlas. The second two volumes appeared in 1819. The second edition, a six volume work, called *Sur le Fonctions du Cerveau* was published from 1822 to 1826 solely under Gall's authorship. These volumes were translated into English in 1835 and entitled *On the Origin of the Moral Qualities and Intellectual Faculties of Man*.

Apropos of the notoriety of Gall, controversy followed him to Paris. He was refused membership in Académie des Sciences in 1808 even though his entrance application included a straight anatomical paper that did not mention his controversial theory. How could this happen to an eminent anatomist? Unfortunately, his theory was discussed during the review process and his application was rejected (Finger 2000). Later, like the city fathers of Vienna, Napoleon and the scientific elite considered Gall a threat to French culture and science. This gave impetus to the experimental research of Gall's most powerful scientific adversary (Finger 2000; Olmsted 1953). The French Academy in 1822 commissioned Jean Pierre Flourens (1794–1867) to investigate Gall's localization claims.

Flourens and the Indivisibility of the Soul

Flourens was a protégé of Georges Cuvier and he was beginning to make a reputation in 1822 when he began the experimental brain research directed to evaluate the claims of Gall. In 1824, Flourens read his results to the Academy and published them in a book called *Recherches Expérimentales sur les Propriétés et les Fonctions du Système Nerveux dans les Animalux Vertébrés*. The second edition of this book, *Examen de la Phrénologie*, first published in 1842 was translated into English in 1846 and called *Phrenology Examined*. He dedicated these books to Descartes. This work and

his subsequent research attracted considerable attention. He went on to professorships and at Cuvier's dying request became the perpetual secretary of the Academy of Sciences in 1833. Flourens clearly epitomized the French academician. He came to be known as the founder of experimental brain research.

Flourens concluded that Gall was wrong. Flourens' analysis went to the heart of Gall's system. Gall has a physiology, an anatomy, and a psychology. His physiology is that the brain is the organ of the mind. Of this Flourens found nothing new and nothing disagreeable. His anatomy is about the localization of organs. Gall used the expression "individual intelligences" where each individual intelligence has its own proper organ. Flourens wrote, "Of all Gall's writings, his anatomy is that which has been most talked of, and yet it is the part least known" (Flourens 1846, p. 69). Flourens observed that Gall's lectures on anatomy in 1808 were of ordinary anatomy, that is, not giving special insight into locations of faculties. His psychology is about multiple faculties. Of this, Flourens felt, there is, "perhaps," nothing true. Flourens wrote that Gall's faculties are merely words created to explain behavior. "Gall's philosophy consists wholly in the substitution of *multiplicity* for *unity*. In place of one general and single brain [cerebral hemispheres], he substitutes a number of small brains: instead of one general sole understanding, he substitutes several individual understandings. These pretended *individual understandings* are *the faculties*" (Flourens 1846).

For Flourens, criticism of Gall's theory was based on more than anatomy and experimental observations. After all, he dedicated his book to Descartes. He was fundamentally against multiple organs of intelligence. He believed in the unity of the intellect because introspection informed him of it. "The unity of the *me* ['moi,' better translated here as 'self'], is a fact of the conscious sense, and the conscious sense is more powerful than all the philosophies together" (Flourens 1846, p. 40). The seat for this unity of intelligence resides in the cerebral hemispheres. When the hemispheres were damaged, intelligence dwindled as a unity might. The reduction in intelligence was proportional to the amount of brain tissue removed. Intelligence "grows gradually less; and certain limits being passed, is wholly extinguished" (Flourens 1846, p. 34). He attributed this to a mass effect and called it

"equipotentiality." "When one faculty disappears, all the faculties disappear" (Flourens 1846, p. 35). Unlike Gall then, according to Flourens, the cerebral hemispheres cannot be partitioned into separate mental functions. It must be said that Flourens was aware that other gross parts of the brain were associated with different functions. Beside the cerebral hemispheres subserving intelligence, the cerebellum controls motor functions, the quadrigemina are associated with sight, and part of the medulla oblongata is associated with respiration.

It is now understood that Flourens' failure to find any differences following ablations of different parts of the cerebral cortex was due to his choice of experimental animals (e.g., ducks, hens, pigeon, and frogs), his crude assessment techniques, and his interpretations. He primarily experimented with birds and amphibians without appreciating the relatively little cortical control over subcortical structures in these groups. His assessment technique, standard for the time, was simply to observe the animal and record possible ablation effects. There is nothing subtle about this and much was missed. Flourens' role within the French academic community and his Cartesian bias must have been overwhelming. For him, Gall's theories would not only undermine the unity of the soul, but it would undermine free will, human immortality, and the very existence of God (Harrington 1989). The aphorism that you look for what you know and you find what you look for certainly weighed heavily in his conclusions.

But what of Flourens' own conclusion of equipotentiality in cerebral hemispheres. It made perfect sense according to contemporary philosophical beliefs, namely, the mind acted through the brain, but the mind and the brain were independent. An altered brain would alter the actions of the mind, but only "diminish the brightness and clearness of conceptions generally" (Attributed to Johannes Muller, 1838; Tizard 1959). Where Descartes emphasized the indivisibility of intelligence and will and the unity of the mind, Flourens emphasized the indivisibility of intelligence. Where Descartes chose the pineal, Flourens chose the entire mass of the cerebral hemispheres. Thus, Flourens doctrines came into sharp contrast with the more materialistically colored ideas of the phrenologists.

Flourens' conclusions were initially convincing because they were a reasonable reflection of his

experimental results, yet it was not realized at the time that the same “psychological difficulties attach to them as to the phrenological theory of organs” (Wundt 1904). Intelligence and will are complex processes just as Gall’s faculties are. That Flourens’ intelligence and will should have their seat in any or even a small fragment of the cerebral lobes is just as difficult to comprehend as is a special organ for Gall’s “love of one’s offspring.” The field was left placated, but unsettled.

Clinical Pathology and Language Localization

Jean-Baptiste Bouillaud (1796–1881) was a central figure in the Parisian academic society and he was an admirer of Gall’s localization thesis. He had been a founding member of the Société Phrénologique. Bouillaud was a physician in Paris, which at that time was the center for clinical teaching and pathological anatomy in Europe (La Berge and Hannaway 1998). Instead of depending on Gall’s technique of craniotomy to localize brain functions, Bouillaud used the “clinical method” of correlating clinical signs and symptoms to autopsy data. By 1825, he implicated the anterior lobes – either lobe – with the “legislative organ of speech” and felt that he confirmed the opinion of Gall that language was located in the frontal lobes. Even though he accumulated hundreds of clinical cases over subsequent decades to support his contention, his claims were strongly disputed by other pathologists and attracted more criticism than support. By the 1840s Bouillaud’s opinion in these matters, as was Gall’s, held little sway (Jacyna 2000).

Paul Broca (1824–1880) formally entered the language localization debate in 1861. At that point he was a respected, liberal minded scientist with interests in physical anthropology and neuroanatomy. He had founded the Société d’Anthropologie 2 years before and was disposed to Bouillaud’s localization ideas. The society was known for its members’ dislike of metaphysical intrusions on science. Localization theory was compatible with this idea because localization would serve to give brain science a firm material base by partitioning the soul (partitioning would contradict the soul’s traditional unity; it would diminish its exalted position and be a step toward its naturalization) and distributing it in different parts of the cortex.

A pro-localization vs. anti-localization debate occurred over several days at the Society in 1861. On the surface, the debate was about the localization of speech, but underlying this was an implicit emphasis on a naturalistic approach to brain functions. Neither side won the debate, but it was a milestone. It was part of the reduction of language that occurred at that time from a vehicle for reasoning and thinking to a bodily function. Language had been identified with thought itself, a quasi-divine attribute. Although a higher, complex function to be sure, language became more like any other form of muscular movement. More generally, metaphysics had lost ground. “Metaphysics might have its place; but it had no use in understanding man conceived as a distinct, observable and measureable object” (Jacyna 2000, p. 77).

It was soon afterward and in this milieu that Broca delivered his landmark paper that was later published as *Remarques sur le siege del la faculté articulé; suivies d’une observation d’aphémie* (Remarks on the seat of the faculty of articulated language, following an observation of aphemia) (Broca 1960). He defined aphemia, later called aphasia, as loss of speech without loss of intellect and illustrated it with the case study of his now famous patient, “Tan” (“Tan” was the name eventually given to his patient, named Loborgne, because he often uttered a word that sounded like “tan” when asked a question). His observations confirmed Bouillaud’s claim that the center of articulated language, that is, speech, was located in the anterior lobe and, he added, “probably” in the third frontal convolution. The much maligned Bouillaud called Broca’s adoption of his views “the Conversion of St. Paul” (Sanders 1866, p. 816). Broca was not definite about the left hemisphere until about 4 years later (Finger 2011). His location of articulated language disconfirmed Gall’s suggestion that it was located not far from the eyebrow above the orbital arch. Broca’s proposal did not suffer the same fate as Bouillaud’s (Sondhaus and Finger 1988). It was accepted. Broca distanced himself from Gall and his proposal came at a time and place when language was more easily accepted as a bodily function and when metaphysical and religious ideas had less control over ideas in medical science. Remember, in contrast, that at the beginning of the century Gall had been run out of Vienna and ostracized by the Parisian academic community for similar ideas.

Was articulated language, motor language, really located at that spot? Carl Wernicke (1848–1904) thought not. Wernicke made a variety of contributions to clinical medicine including a three volume *Lehrbuch der Gehirnerkrankheiten (Textbook on Diseases of the Brain)* published in 1881–1883, which Kurt Goldstein wrote was “an astounding accomplishment for so young a man” (Goldstein 1953). Yet, the ideas for which he was most remembered came out, even earlier in 1874, in his monograph, *Der Aphasische Symptomencomplex (The symptom complex of aphasia)* (Wernicke 1874). This monograph did more than introduce receptive aphasia or sensory aphasia and link it to the posterior section of the superior temporal gyrus, a region now called Wernicke’s area. It argued that aphasia, like other mental functions, is a symptom complex composed of primitive “memories” of past sensory and motor experiences, which are associated and combined according to an associationist–connectionist brain model (Harrington 1989). Wernicke did not organize the brain according to psychological functions as did Gall. Wernicke rejected the notion of faculties of the mind as advocated by Gall and to a certain extent by Broca. He reversed the emphasis. Sensorimotor functions (that is, brain functions) were associated and became the basis of psychological functions. From this followed the classical disorders of aphasia, agnosia, and apraxia. These form the bases of the modern symptom complex for neuropsychology. The connectionist model was revived recently by Norman Geschwin (1926–1984) (Geschwin 1965a, b).

Laboratory Studies and Motor Localization

Before 1870, the focus of attention was on whether or not the hemispheres were the seat of a unified intelligence, a single function. This issue continued, but in the period 1870–1873 another concern surfaced, namely, whether or not the cerebral cortices of the hemispheres could be artificially stimulated (Lazar 2009b). This specific concern was prompted by the work of two young Prussian physicians, Gustav Fritsch (1838–1927) and Eduard Hitzig (1838–1907). They demonstrated that weak electric current applied to certain parts of the cerebral cortical surface consistently elicited specific movements in dogs. If these movements were, in fact, elicited by stimulating the

cerebral cortex then motor functions would be located there and the unity of function of the hemispheres would fall.

Flourens had assumed without fear of serious contradiction that the cerebral cortex was not artificially excitable. That is, it did not respond to electrical, mechanical, chemical, or thermal stimulation. It is excitable only by the will. Stimulate the cortex by whatever method and nothing happens; there is not even evidence of pain. Yet, both Fritsch and Hitzig were convinced of a connection between the cerebral hemispheres and motor movements before their famous experiment. Fritsch, when a physician during the Prusso–Danish War, noticed twitches of the opposite side of the body when cleansing and dressing an exposed brain of a soldier. Hitzig became interested when he found that electrical stimulation of the back of the head or the ears caused eye movements in humans. He subsequently undertook experiments with rabbits that were also suggestive. Neither Fritsch nor Hitzig were associated with a laboratory at the time of their experiments. In the spring of 1870, they started their famous studies on a dressing room table in Hitzig’s house in Berlin.

Fritsch and Hitzig recognized they were contradicting traditional doctrine (Fritsch and Hitzig 1963). Their 1870 article reviewed anti-localization history. They were respectful and not condescending toward earlier experimenters like Flourens. They were careful not to exaggerate their findings. They were cautious and admitted they were only certain that their experiments showed that structures in the central nervous system responded to electrical stimulation with visible responses and that a considerable part of the hemispheres was in direct connection with specific muscular movements while the other part was not. They were also careful to acknowledge the limitation of their study. For example, they admitted uncertainty and lack of proof to whether their stimulation was on gray substance or white substance and that there was more ambiguity as to whether nerve cells or nerve fibers were stimulated (The neuron was not formally identified until 1891 by Waldeyer. At this point in history, nerve cells or ganglia (gray matter) were separate, but interacting, nervous elements with nerve fibers (white matter)). They even suggested why earlier researchers had not found what they had. Their answer was “the

method creates the results” (Fritsch and Hitzig 1963, p. 913). Others did not search the entire convexity or they would have found it too. After a search over a limited area and “based upon the still widespread assumption that all the psychic functions were omnipresent in all the parts of the cerebral cortex” (p. 913), they probably stopped searching and did not trephine the entire region.

These reservations did not deter them from concluding that motor functions were localized in the cerebral cortex and, thus, the cerebral hemispheres did not represent a functional unity. Despite this tradition breaking conclusion, they were not young iconoclasts out to “right” all traditional ideas. They were firmly within the dualistic mind–body tradition of interactionism when suggesting they found an experimental approach to the mind. They were very much interested in knowing if they were stimulating the cortical place where volition originated, but even if it were admitted that they were stimulating the gray substance, they would be uncertain as to where in the chain from sense impression to intentional response they were impinging. This approach and goal contrasts with Ferrier’s position, which will be discussed below in relation to John Hughlings Jackson.

During the 1860s coincident in time, but not space, John Hughlings Jackson (1835–1911) in London was accumulating clinical cases and thinking about neurology. Although a clinician, it will be seen that his conclusions affected laboratory studies. He was assistant physician to the National Hospital for the Paralyzed and Epileptic in 1862, and in 1863 he became assistant physician to the London Hospital. During this period, he learned about the recent work of French physiologists from Charles Édouard Brown-Séquard (1817–1894) and he learned neuroanatomy from Jacob Augustus Lockhart Clarke (1817–1880). In clinical lectures between 1864 and 1868 Jackson informed that according to his clinical findings loss of speech is associated with right sided paralysis. This corroborated Broca’s findings that are essentially based on anatomical observations. In 1866, Jackson demonstrated cases of apraxia. In 1868, he recognized that aphasic patients, which in agreement with Broca he thought had left sided lesions, performed reasonable well on perceptual tasks. He, therefore, reasoned that spatial impairments are more likely associated with right hemisphere

damage than anywhere else. Jackson’s clinical work with epileptic seizures – mainly those starting unilaterally called focal motor seizures – began in 1862. He reasoned that there is a focal irritation in a voluntary system of the cerebral cortex that initiated the seizures. He also recognized that a somatotopic organization of the cortex of the hemispheres is the only way to account for the progression of seizures (Finger 2009). Jackson was able to watch epilepsy up close. His wife, from 1865 to 1876 when she died, had a seizure disorder. Unfortunately, at that time the French school of physiology led by Flourens dominated and Jackson’s idea that convulsions arise from some change in the cerebrum and usually from a focus within the territory of the Sylvian artery was passed over in contemptuous silence. But after Fritsch and Hitzig showed that stimulation of the cortex could produce movements, “Jackson’s views came to the front, and local convulsions are now called by his name” (H.H. 1911, p. 524).

The story of Jackson’s vindication involves a young colleague named David Ferrier (1843–1928) even more than Fritsch and Hitzig. Ferrier was a Scottish physician of great intellectual promise. He graduated from the University of Aberdeen in 1863 with the highest honors and won a scholarship in classics and philosophy. He studied psychology, anatomy, physiology, and chemistry at the University of Heidelberg. He studied medicine at the University of Edinburgh from 1865 to 1868, where he graduated after winning several medals. Ferrier was aware of the research of Fritsch and Hitzig soon after its publication (Brunton and Ferrier 1871). Jackson and Ferrier were encouraged that the Prussians’ approach might validate Jackson’s theories. In 1873, Ferrier had an opportunity to find out. He obtained monies for research and laboratory space at the West Riding Lunatic Asylum. Ferrier confirmed Fritsch and Hitzig’s results and demonstrated localized motor responses in a variety of animals. His research identified the motor region as a strip along the Rolandic fissure and suggested medical implications of it. Ferrier’s initial work was surprisingly important in spreading the word about localization of motor functions across Britain, USA, and even France (Lazar 2009a). He became the foremost advocate for localization of function during the last quarter of the nineteenth century (Ferrier 1876, 1886).

Ferrier's stimulating current was faradic (alternating) rather than galvanic (direct) like the current of Fritsch and Hitzig. His current was also somewhat stronger, which resulted in elicitation of more complex movements than Fritsch and Hitzig's flexions and extensions (Ferrier elicited behaviors that might be called "molar" or psychological today, whereas Fritsch and Hitzig elicited behaviors that might be called "molecular" or physiological). He interpreted them as purposive because he, like his contemporaries, interpreted hemispheric functions in terms of consciousness and higher functions, like intelligence and purpose. He, like Fritsch and Hitzig, was keenly aware of the main issue to be proved.

- ▶ Though it is by means of the cerebrum that we feel and think and will, the question is whether, by physiological or pathological investigation, we can throw any light on psychological manifestations; whether the cerebrum, as a whole and in each and every part, contains within itself, in some mysterious manner inexplicable by experimental research, the possibilities of every variety of mental activity, or whether certain parts of the brain have determinate functions. (Ferrier 1876, p. 124)

Unlike Fritsch and Hitzig, Ferrier's answer is in sensorimotor terms. For example, with respect to aphasia, "it is the cohesion between sound and articulation which is broken . . ." (Ferrier 1876, p. 276)

After initial criticisms, cerebral stimulation was generally accepted. Students of Flourens, like Brown-Séquard and Vulpian and their students, particularly Eugene Dupuy, did not accept Fritsch and Hitzig's results. They were persistent and clear in their criticism. Although movements consistently followed stimulation, it was their view that it was not the cortex that was stimulated. Dupuy proposed that electrical current diffused through the brain to subcortical structures, which incited the movement (Lazar 2009b). Eventually, this criticism was not accepted as crucial. By the end of the decade, or certainly by the end of the next, cerebral cortical localization of motor functions and to some extent sensory functions were generally accepted. The study of the brain and its functions had become an experimental science. The mind was no longer associated with the soul and studied only by metaphysicians. It too, was an object of scientific study both by neurophysiologists and by psychologists (Young 1970).

But, many questions were left unanswered. The case for cerebral localization of function was made and accepted before the how, what, and where of localization were understood (Phillips et al. 1984; Lazar 2009b). The hard questions were not answered. "What exactly was localized in these regions?" "How was each function actually accomplished?" "What about complex mental functions; were they localizable like sensory and motor functions?" Answers to these questions were not known and basically inconceivable. Arguably, research had gone as far as it could with these and other questions within the confines of contemporary knowledge. The fact is nineteenth century physiologists were naïve about neuroanatomy, about surgical techniques, and about assessment of behavior. With their level of expertise, they could be expected to find only the grossest of effects, particularly when lesions were involved. For example, Broca emphasized centers in convolutions themselves. Ferrier did his initial studies without antiseptics. Lesion effects were assessed by recording common laboratory behaviors, such as, whether or not the animal ate, whether or not the animal was friendly, and whether the animal flinched when a pistol was shot-off next to it. Bianchi reported data about a baboon that did not salute anymore after a frontal lesion. Theirs was a boot strapping process. Lesion first; ask questions later. Fortunately, this resulted in sort of a positive feedback loop. The answer to each question resulted in other questions. Each question required a more subtle lesion, which required a more subtle technique, which forced a more subtle understanding of the nervous system (Franz 1902).

The Twentieth Century and Complex Systems

By about the beginning of the twentieth century, the reality of the neuron had been established; the reflex was extended as a hierarchically based, explanatory concept; experimental methods of psychology were established; new experimental techniques for assessing behavior of animals were invented; and more demanding experimental designs were developed. Unexplained old findings and new findings caused a reinterpretation of classical localization ideas. For example, recoveries of the functions lost after lesions were difficult to explain and fostered new ideas. Recovery made no sense if, in fact, the center for that function had been

destroyed. Initially, the only conclusion was that the destroyed area was not the center and another place in the nervous system must play that role. Research on this subject was plentiful over the years, but no definitive answer was reached. Questions were raised, for example, “Can a mechanical system operating according to the laws of reflex and association even accomplish such a feat?” There was little agreement that it could or even that it was necessary since most still had thought the mind accomplished these functions. Nevertheless, mechanical explanations were invented, like von Monakow’s “diaschisis,” which emphasized complex interactions with systems far from the lesion site (Finger et al. 2004). Other research findings also pointed to a more complicated and more dynamic nervous system (Harrington 1987; Finger et al. 2004).

Shepherd Ivory Franz (1874–1933) took the lead in the early twentieth century among psychologists dealing with the physiological basis of learning and meaning of localization of function. Franz’ research on the role of the frontal lobes in learning and retention is the first application of Thorndike’s puzzle box to brain localization research (Franz 1902). (Franz received his Ph.D. from Columbia University in 1899 at the time when Edward Lee Thorndike (1874–1949) (Columbia Ph.D., 1898) was there developing his puzzle box technique.) Franz’ best known article about localization called “New Phrenology” was published in 1912 (Franz 1912). In it he tried to make sense out of research on brain physiology and the meaning of what is localized when brain localization of function is discussed. He felt that the conception of brain centers for particular mental acts grew out of simplistic theories of the nineteenth century. The brain does have diverse functions, but specific parts of the brain do not have *specific full-fledged functions*. Various parts of the brain do not act independently; they act together to accomplish complex mental processes.

- ▶ The physical and chemical activities of the cells can not be believed to be equivalents of the mental processes which may be concomitant with or the result of these activities. Since for practical purposes we may need some general principle of localization, we may say that mental processes are not due to the independent activities of individual parts of the brain, but to the activities of the brain as a whole. (Franz 1912, p. 327)

These theories of the nineteenth century and activities of the brain as a whole were put to the test by the research and theories of Karl Spencer Lashley (1890–1958). Lashley’s work, not Franz’ challenged American physiological psychologists for most of the first half of the twentieth century.

It should not surprise that Lashley was a young protégé of Franz. In fact, Lashley started his research career into brain mechanisms of learning because of his association with Franz (Bruce 1986). In 1916, they collaborated on a project exploring frontal lobe involvement in maze learning. At their earliest collaboration, Franz did the surgery and Lashley ran the animals. Lashley was well prepared for what Franz had to offer. He came to Franz after completing his Ph.D. at Johns Hopkins in 1914 with Herbert Spencer Jennings (1868–1947). From Jennings, Lashley learned an aversion to vitalism and an interest in “internal, sensorimotor, physiological explanations of behavior” (Bruce 1991). Also while at Hopkins, as graduate student and later as a post doctoral student, Lashley collaborated with John Broadus Watson (1878–1958) when Watson was approaching the peak of his fame. His work with Watson converted him to psychology (Lashley was a zoology major at the University of West Virginia. His Master’s degree from the University of Pittsburg was in bacteriology. His Ph.D. at Johns Hopkins was in zoology.) and “laid the foundation for many of his later scientific interests in development, primatology, sensory capacities of animals, comparative psychology, and psychology of learning” (Bruce 1991, p. 310). It gave him a strong respect for materialistic monism and an objective explanation of behavior.

Lashley came to psychology from zoology so he had interests that did not fully match any of the prominent schools of psychology active at that time. His hunt for the physiological basis of brain mechanisms was unusual. Read how he introduced one of his first papers, which was influenced by Franz and published in 1917. The “psychology” he refers to is probably Titchener’s structuralism.

- ▶ For psychology the problem of motor activity has been largely one of the perception of movement. Discussion has centered about the questions of the receptors which are excited differentially by changes in extent

and force of movement, about the psycho-physics of the constant error, the influence of the emotions upon the perception of movement, the relation of the “will impulse” to the perception of movement; with the result that the equally important questions of the nervous mechanism of initiation, continuation and cessation of adaptive movements have been dealt with only incidentally as throwing light upon this perception. (Lashley 1960b)

Through his research, Lashley explored basic assumptions of physiological and psychological theories. Localization of function was one of them. For example, he found that frontal lobes are necessary for intelligent behavior, but only in a limited way. No particular part of them is necessary for learning. Retention of new learning is lost after a frontal lesion, but the lesioned animal is capable of new learning and that new learning is retained unless the animal suffers another frontal lesion. Furthermore, retention is affected by the complexity of the task learned and by the extent of the lesion. He concluded that the seat of learning is not in the frontal lobes although they are relevant to it. Another research probe attempted to trace connections of reflexes through the cortex, but his findings would not fit such a scheme (Pavlov and Watson wanted to explain links between perceptions and motor responses with anatomical connections between sensory and motor centers in the brain. A behavioral link between perception A and action B implied activation of axonal connections from A to B. Lashley failed to find such connections). Disruptive lesions could be anywhere in the frontal lobes. They did not seem to be interrupting specific stimulus–response connections. His findings emphasized “the unitary character of every habit, the impossibility of stating any learning as a concatenation of reflexes, and the participation of large masses of nervous tissue in the functions rather than the development of restricted conduction-paths” (Lashley 1963).

Lashley was aware that “functional differentiation of various parts” of the cerebral cortex was well established (Lashley 1931), but he believed that the classical concept of cerebral localization was of limited value because it was of static character. It failed to suggest how the specialized parts of the cortex interacted. In 1941, Lashley observed that the relation

of mind and body still underlay all neurological and psychological investigations, but he saw movement from the old conceptualization of the nervous system to a new one. The old one, for him, was about an integration of reflexes with nervous impulses transmitted over limited paths in one direction only from sense organ to muscle (Lashley 1941). He would substitute a gestalt inspired “diffuse spread of excitation through nervous tissue, almost as through a continuous network,” but with a “recurrent or reverberatory circuit” (Lashley 1941, p. 463). The latter he credited to Lorente de Nó as early as 1934.

His interpretation was a gestalt-like field approach with such concepts as “equipotentiality” and “mass action.” Equipotentiality is his term to account for any part of a functional area being able to preserve “with or without reduction in efficiency” the function of the whole. Mass action is his term for the finding that within a functional area the more tissue lost the greater the reduction in efficiency of function. Equipotentiality is a function of mass action.

Lashley’s approach is reminiscent of Flourens’, but there were significant differences. Lashley was careful to admit the limitations of these “laws.” They applied to association regions of the brain not to the entire cerebrum. They applied to complex functions like learning and memory, but not to mental functions in general. Lashley published these and other findings in tens of papers over 5 decades until his death in 1958. The best anthology of his writings is in *The Neuropsychology of Lashley* published as a memorial by several of his students (Beach et al. 1960).

Lashley had no way of knowing how complicated vision was. When he studied the role of vision in learning, the striate cortex was that part of the occipital lobe known as the seat of vision. Rats with lesions of the striate retained preoperative discriminations and were able to learn new ones. Blindness due to enucleation did not affect retention of a maze habit. Surprisingly, lesions of the striate area affect retention in blinded animals (Lashley 1960a). The role of the striate in vision was obviously more complex than commonly understood. For Lashley, these results confirmed a previous conclusion that the striate had some important function in maze learning beyond reception and integration of visual impulses. What accounted for these results, Lashley had no way of knowing. He had

no way of knowing that later research would show that the striate was only one part of the visual system. It had connections with subcortical structures (the pulvinar of the thalami and the superior coliculi), adjacent cortical structures, and other hemispheric areas in the inferior temporal lobes. When all of the connections were interrupted, there was a severe impairment of visual learning (Mishkin 1966).

The neurophysiology of vision was a primary area of study during the last half of the twentieth century. Two researchers, David H. Hubel and Torsten Wiesel, led in this endeavor. Their research led to an unprecedented depth of understanding of any neurophysiological or neuropsychological system thus far. Vision is a system scattered over the breadth of the occipital lobe and parts of the temporal and parietal lobes. The classic theory of localization of brain functions was eliminated in favor of a complex interactive system approach.

A complex interactive system approach dominates current neurophysiology and neuropsychology. Damasio and Damasio (1997) discussed the importance of dissociating lesions from the quest for “brain centers [and faculties] capable of performing complex psychological functions with relative independence” (Damasio and Damasio 1997). Instead, the lesioned region had to be “conceptualized as part of a large-scale network of cortical and subcortical sites that operate in concert, by virtue of their interlocking connectivity to produce a particular function” (p. 69). The work of Sherrington (1906), perhaps, is the culmination of the old way while Adrian, McCulloch, and de N6 as cited by Lashley (1941) led in the new direction (Sherrington 1906; Abraham 2003; Finger 2000; Abraham 2003). Mesulam (2000), Damasio and Damasio (1997), and McIntosh (2004) discuss new experimental, anatomical, and physiological techniques as well as the broad interactive view (Mesulam 2000; McIntosh 2004). Network analysis promises the ability to explore connections among complex networks including connections among neurons (Butts 2009).

Concluding Overview

Over the last 200 years, the main question has remained the same, namely, how is a person or animal capable of intelligent behavior? At various times, the answer laid with the soul, the mind, and the brain. Over this time,

there has been movement in conceptual understanding and much progress in research techniques, but no clear answer. Tables 1 and 2 offer thumbnail summaries of these changes. Conceptual changes include changes in the capacities of the body (during the following discussion the terms body, person, brain, and cerebral hemispheres will be used interchangeably; “body” is used because of its historical meaning in this context even though the discussion is about the cerebral hemispheres or, sometimes, the brain in general), changes in the origin of mind, and, in consequence, changes in how the mind and body relate to one another. These are summarized in Table 1.

At the beginning of the 1800s it was conceived that a person or animal required a soul to be intelligent, that is, the person acts purposefully or intentionally only because of the action of the soul. The body by itself would be an automaton, a zombie. The cerebral hemispheres played a crucial role in intelligent behavior because somewhere and somehow within them the soul imparted the capacity for this behavior. The loss of spontaneity when animals are decorticated is interpreted as dramatic evidence of this. A decorticated frog sits without moving unless prodded. Once moving it continues to move until it meets an obstacle. The soul and the mind were inextricably mixed, but eventually the mind replaced the soul as the scientific source of intelligence. Arguably, the mind functioned as the soul without religious implications. Only comparatively, recently, was it conceived that the nervous system was complex enough to allow intelligent behavior without external help. It could, in effect, create a mind of its own. The four middle columns of Table 1 show these trends.

The important points of this period are (1) the mind lost its association with the soul; (2) the mind was conceived as an epiphenomenon of the brain; (3) discoveries about the complexity and computational nature of the brain made conceivable that the brain could take on the functions of the mind; and (4) although the mind lost its soul, it was still associated with consciousness and cognition. Consciousness and intelligent (purposive and intentional) behavior are still recognized as the *sine qua non* of humans and “higher” animals.

The mind–body relationship necessarily changed to reflect the conceptual changes in the body and the

Localization of Function, Outline of. Table 1 Shows prominent men discussed in the entry along with several of their attitudes about how the soul and the mind relate to intelligence, how the soul and the mind relate to one another, and how the mind and the brain relate to one another

Major researchers	Does a person require a soul to be intelligent?	Does a person require a mind to be intelligent?	Are the mind and the soul the same?	Is the mind a product of the brain?	Mind – brain relationship in philosophical terms
Gall	Yes	Yes	Yes	No	Dualistic interactionism
Flourens	Yes	Yes	Yes	No	Dualistic interactionism
Bouillaud	Yes	Yes	Yes	No	Dualistic interactionism
Broca	No	Yes	No	No	Dualistic parallelism ^a
Wernicke	No	Yes	No	No	Dualistic parallelism
Jackson	No	Yes	No	No	Dualistic parallelism ^b
Hitzig	No	Yes	No	No	Dualistic interactionism ^c
Ferrier	No	Yes	No	No	Dualistic parallelism ^d
Franz	No	Yes	No	Yes	Monistic materialism
Lashley	No	Yes	No	Yes	Monistic materialism

^aOn the strength of Broca's founding of the *Société de Anthropologie*, which had strong anti-metaphysical leanings and yet Broca's insistence that articulated language was a faculty of language, i.e., more than just a motor function, I put Broca in the dualist and parallelist camps

^bAccording to Young (1970), Jackson followed Bain and Spencer. "I do not concern myself with mental states at all, except indirectly in seeking their anatomical substrata. I do not trouble myself about the mode of connection between mind and matter. It is enough to assume a parallelism" (Jackson, 1931 from Young 1970, p. 208)

^cFritsch and Hitzig are ontological dualist and interactionists (Young 1970). They and the Germans in general were not in the Bain–Spencer tradition

^dYoung (1970) says that Ferrier is in the line from Bain, Spencer, and Jackson, accepting psycho-physical parallelism. "No purely physiological investigation can explain the phenomena of consciousness" (Ferrier 1876, p. 255)

mind. In broad terms, the change went through three stages: (1) a dualistic interactionism where an immaterial and transcendental mind interacted with a corporal body; (2) a dualistic parallelism where activities of the immaterial mind and the corporal body were correlated in time, but ran parallel to one another; and (3) a *monistic materialism* where the mind (or its surrogates, consciousness, and cognitive processes) were somehow associated with bodily functions. See the last column of Table 1.

Philosophers continue to interpret the mind–body relationship. Currently, the general philosophical question seems to be, "Can neurosciences reveal the physical basis of awareness or consciousness?" Are these

capacities of the human mind the capacities of the human brain? Current philosophers look at this question from a variety of perspectives even though none apparently take the classical dualistic approach (Churchland 1995). McGinn even argues that the question is beyond the capacity of the human intellect to answer (McGinn 1999). McGinn's, monograph-long, argument is sophisticated and astute and based, at least in part, on failures for multiple millennia to explain consciousness. The position of Daniel Dennett is based on human linguistic abilities and states that neuroscience has nothing to say about the mind (Dennett 1991). For him, consciousness is a virtual program running on the brain, much like "Flight Simulator" is

Localization of Function, Outline of. Table 2 Shows prominent men discussed in the entry along with several of their orientations to data including the general type of behavior observed, the setting in which the behavior occurred, and the way their observations were reported

Major researchers	Type of observed behavior	Setting of observations	Data presentation
Gall	Unsystematic	Naturalistic	Prose
Flourens	Unsystematic	Laboratory	Prose
Bouillaud	Clinical signs and symptoms	Clinical	Prose with case studies
Broca	Clinical signs and symptoms	Clinical	Prose with case studies
Wernicke	Clinical signs and symptoms	Clinical	Prose with case studies
Jackson	Clinical signs and symptoms	Clinical	Prose with case studies
Hitzig	Molecular ^a movements	Laboratory	Prose with illustrations
Ferrier	Molar ^b movements	Laboratory	Prose with illustrations
Franz	Test measures	Laboratory	Prose with graphs
Lashley	Test measures	Laboratory	Prose with graphs and statistical tests

^aHitzig used a relatively weak galvanic current which tended to elicit fine movements like the extension of the fingers and the rotation of the wrist

^bFerrier used a relatively strong faradic current which tended to elicit grosser movements that he perceived as functional and purposive, like the foot drawn to the midline of the body as when the animal grasps something or scratches its chest

a virtual program running on a computer. John Searle, according to Churchland, argues that the brain causes conscious states and that neuroscience can reveal quite a lot about consciousness, but he does not accept the identification of brain states with conscious states (Searle 1992). Patricia Churchland writes that consciousness, in fact, can be reduced to brain states (Churchland 1995).

Progressive changes can be seen in Table 2. The Table shows for each of the prominent researchers the type of data collected, the place where observations were made, and the way they reported their findings. Progress is reflected in the type of observed behavior. See the second column of Table 2. Generally, it changed from the unsystematic, anecdotal observations of Gall through carefully defined clinical signs and symptoms of clinicians Bouillaud, Broca, Wernicke, and Jackson, to the relatively fine observations of discrete movements of Hitzig and Ferrier, to the test measures and, thus, rigidly defined behaviors of Franz and Lashley. The third column of Table 2 implies the absence of clinical data since about the time of Hitzig and Ferrier. Although clinical subject may be used as subjects, data are typically derived experimentally not from

case studies. The way observations were reported progressed as well. See the last column of Table 2. There were descriptions of results by Gall and Flourens; systematic presentations of case studies by the clinicians; systematic presentations of observations accompanied by brain cartoons by Hitzig and Ferrier; and finally data presentations using graphs by Franz and using graphs and statistical tests by Lashley.

Test measures not only allow more systematic and more precise observations, but various devices were invented that extend and supplement human sensory capacity much like infrared or gamma ray detectors have increased our knowledge of stellar objects. For example, over the last 50 years there have been remarkable technical innovations based on computer, computational, and biophysical advances. These devices allow non-invasive, real time measures in vivo of shifts of hydrogen atoms allowing a view of anatomical structure (MRI, magnetic resonance imaging); blood dynamics, thus the functional connectivity rather than anatomical structure (fMRI, functional magnetic resonance imaging); gamma rays associated with a biologically active molecule like glucose, again allowing functional connectivity (PET, positron

emission tomography); and water diffusion, which allows a view of white matter activation during psychological tasks (DTI, diffusion tensor imaging). These promote an interactive view because they show associated activity in multiple brain areas as psychological tasks are accomplished.

Technical advances in miniaturization allow tens of electrodes to be implanted and recorded from at one time. Transcranial magnetic stimulation (TMS), which takes advantage of rapidly changing magnetic fields, allows temporary focal lesions. Lesion studies with animals advanced through both technical and theoretical stages. The subtlety of the lesioning technique advanced from arbitrary partitioning of the brain to lesions of circumscribed areas. It improved with antiseptics and ability to locate brain areas from scalp locations (Finger 1994). It also improved in parallel with advances in anatomical and histological techniques.

Understanding the complexities of functional areas grew at a remarkable rate during the twentieth century when compared to its growth during previous centuries. In the nineteenth century, psychologists were far more sophisticated than neurophysiologists. They informed the fledgling neurophysiologists how to interpret research data. By the late twentieth century, neurophysiology was able to inform psychologists. This new reciprocity promises to advance the next stage of research in localization of psychological function in the brain.

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Basic Biographical Information

Dr. Elizabeth F. Loftus was born on October 16, 1944, in Bel Air, California, to Sidney and Rebecca Fishman. She attended UCLA for her undergraduate studies and majored in Mathematics and Psychology. In 1966, Loftus was admitted to Stanford's Ph.D. program in Psychology. She was the only woman in her class. She received her Master's degree in 1967 and her Ph.D. in 1970.

Loftus took her first job in 1970 at the New School University in New York City as an Assistant Professor of Psychology, Graduate Faculty. She then served as an Assistant, Associate, and Full Professor of Psychology and an Adjunct Professor of Law at the University of Washington for 29 years, where she remains an Affiliate Professor. Currently, Loftus is a Distinguished Professor at the University of California, Irvine, holding

appointments in the Departments of Psychology and Social Behavior, Criminology, Law and Society, Cognitive Sciences, and the Center for the Neurobiology of Learning and Memory.

Major Accomplishments/Contributions

For much of her career, Loftus has focused on the malleability of human memory and the implications of memory vulnerability on eyewitness testimony. She began studying eyewitness memory at a time when other researchers were still concerned with the recall of discrete bits of information such as letters, numbers, and nonsense syllables. In the 1970s she began to explore the idea that postevent information could interfere with memory of an event. Loftus and colleagues were among the first to demonstrate that the nature of the questions asked about an event often led to changes in research participants' accounts of the event. This "misinformation effect" paved the way for a wealth of memory research related to the constructive nature of memory and to research on the development of false memories.

Loftus' research on human memory has strongly influenced numerous researchers and lines of research. As a result of her pioneering work much research has been conducted on the misinformation effect, the suggestibility of memory, false memories, source monitoring errors, imagination inflation, and more. Perhaps one of her largest contributions, and also the most controversial, is the idea that memories for traumatic events in childhood are not necessarily "repressed" until adulthood, but are often false memories for events that never occurred. Loftus's productivity during her career is extraordinary with 19 books and approximately 200 articles published.

Because of the implications of Loftus's work on eyewitness testimony, she has spent much of her career in the courtroom providing testimony on the malleability of memory. She has been called as an expert witness in hundreds of trials including those of accused child killer George Franklin, mass murderer Ted Bundy, and the Hillside Strangler, as well as litigation involving Michael Jackson, Scooter Libby, the Duke University lacrosse players, and the Oklahoma bombing case.

Loftus has won countless prestigious awards including the Grawemeyer Award in 2005, the APA Award for Distinguished Scientific Applications of

Psychology in 2003, the Inaugural Henry and Byrna David Lectureship from the National Academy of Sciences in 2002, and the Distinguished Contribution Award from the American Academy of Forensic Psychology in 1995. A study by Haggbloom and Monte (2002), published in the *Review of General Psychology*, named Loftus one of the top 100 most distinguished psychologists of the twentieth century. At number 58, she was the top-ranked female on the list appearing alongside fellow psychologists such as Skinner, Freud, and Piaget.

See Also

► [Bartlett, F. C.](#)

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Luria, A. R.

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Basic Biographical Information

Alexandr Romanovich Luria (1902–1977) is a Jewish-Russian psychologist and neuropsychologist. He was born in Kazan, Russia but spent most of his career in Moscow. Early in his career, Luria was exploring diverse approaches to the studies of mental life and corresponded with Sigmund Freud, but was concerned with the dearth of rigorous methods available to psychology at the time and set out to develop such methods (Luria 1932, 1961). A. R. Luria's close collaboration with his mentor and friend L. S. Vygotsky

culminated in a range of important contributions to cultural-historical, developmental and cross-cultural psychology. A psychologist by training, later in life Luria also earned a medical degree while already a professor of psychology.

Major Accomplishments/Contributions

Luria's most fundamental work is in the field of neuropsychology, of which he is considered a founding father and one of the most influential framers in the twentieth century. Luria's contributions cover virtually every aspect of neuropsychology, particularly language and aphasias, memory and amnesias, as well as the functions of the frontal lobes and their disturbances (Luria 1966, 1970, 1976). Most of this work was conducted at the Lomonosov Moscow State University, where Luria had a chair in neuropsychology, and at the Burdenko Institute of Neurosurgery where he founded and directed a neuropsychology laboratory. Luria's work is characterized by a unique blend of theoretical insight and experimental ingenuity, and his endeavor to formulate a comprehensive theory of neural basis of higher-order cognition was pioneering, and arguably one of a kind, for its time; it remains influential to this day. Some of the theoretical constructs and research directions introduced by Luria foreshadowed certain central themes of contemporary cognitive neuroscience. These include his concept of the "functional system," the role of the frontal lobes in metacognition, and the dynamic, developmental approach to functional cortical organization.

In addition to his fundamental contributions to neuropsychology, Luria is known for the development of ingenious procedures for the diagnosis and rehabilitation of various types of brain damage. No neuroimaging technologies existed in Luria's time, and neuropsychology was the main tool of neuroanatomical lesion diagnosis. In that capacity, Luria's laboratory provided important diagnostic input into neurosurgical decisions at the Burdenko Institute, which was the foremost neurosurgical center in the then Soviet Union

and remains so in Russia. His approaches to neuropsychological diagnosis were very different from those practiced at the time in North America, and they foreshadowed the more recent interest in a "process approach." Luria's interest in cognitive neurorehabilitation was prompted by the needs of World War II with its numerous wounded soldiers, and it evolved into an important aspect of his subsequent work at the Burdenko Institute of Neurosurgery.

In addition to his scientific and clinical work, Luria was the originator of what he called "romantic science," whereby he rendered topics of central scientific importance through poignant individual case studies. While ancillary to his more formal research and clinical work, Luria's "romantic science" inspired the emergence of a whole genre in later years, most prominently represented in the writings of Oliver Sacks.

Luria was a prolific and generous teacher and the founder of an influential school of neuropsychology at Moscow State University. He also directly trained, or indirectly helped shape the careers of, a number of neuropsychologists, cognitive neuroscientists, developmental and cross-cultural psychologists, many of whom have become prominent scientists in their own right and who conduct research and clinical work in Russia, North America, several European countries, Israel, and elsewhere around the world (Christensen et al. 2009, Goldberg 1990, 2009).

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M

Mach, Ernst

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Basic Biographical Information

Born: February 18, 1838; Died: February 19, 1916.

Mach was born in Moravia, educated at the University of Vienna, and became one of the most eminent physicists of his era. His sheer brilliance, which led him to his many discoveries in acoustics, supersonic phenomena, and aerodynamics, coupled with the effects of his philosophical approach to physics through perception and sensation, which had portentous results when adopted by Albert Einstein early in the process of creation of the relativistic worldview, led to Mach becoming a central figure in the intellectual milieu of the late nineteenth century (Blakemore et al. 2001). Indeed, Lord Haldane included him alongside Mozart, Beethoven, and Freud as exemplars of the contributions of Vienna to the world (Szasz 1960). Alongside these, his specific connections to psychology are considerable.

Major Accomplishments/ Contributions

Though Mach's status in science feeds the mythology of a psychology modeled mainly on physics, psychologists should remember that Mach was equally at home in mathematics, physiology, medicine, and the root of scientific psychology, Fechnerian psychophysics, with which he had early direct acquaintance and which was the basis of his earliest writing. His main contribution to psychology was the same as his essential contribution to physical science generally: making dynamic phenomena elegantly visible. Within 10 years of his doctorate, Mach had devised an apparatus to demonstrate the phenomena now eponymously termed

“Mach Bands” and had constructed a theory to account for their appearance based on statistical averaging of responses, a theory that led to the modern theory of lateral inhibition, an essential tenet of perceptual science. He also devised an apparatus to study the Doppler effect and the effects of rotation on perception of orientation and space, which culminated in a theory of the operation of the semicircular canals (shared eventually with the independent work of Breuer, one of Freud's great teachers). And he advanced theories of form perception that eventually were elaborated into the essential theoretical basis of Gestalt theory (Mulligan and Smith 1988). He generalized his perceptual work into a theory of knowledge based on sensory data, elegantly expressed in his *Analysis of Sensations* in 1886, which had many ramifications in science and philosophy beyond its fundamental basis in sensory perception, to the extent that Mach is said to have founded the modern philosophy of science.

In physics, Mach's sensationalism led to a confrontation with Max Planck over atomic theory, in which Mach maintained skepticism with integrity and asserted the right to value psychological data over abstract physical law. Besides this assertion of the primacy of psychology in scientific thinking, Mach's analytic and statistical approaches led to the development of later positivisms with a strong probabilistic component such as those of Reichenbach and Neurath, which impacted the development of probabilistic thinking in psychology generally. Mach saw science as evolutionary at base and truth as provisional, arrived at by approximation and experiment and subject to revision. This point of view was congenial to many psychologists who counted Mach as an influence, chief among whom were William James, for whom Mach's skepticism and iconoclasm meshed with James's distaste for idealism and formalism, and B. F. Skinner, who came as close as anyone in psychology to a completely selectionist and antitheoretical account of the development of the

forms of human behavior. In perception, besides his contributions to the theory of lateral inhibition and to Gestalt theory already noted, there are profound similarities between Mach's conception of perception as the analysis of sensations received at a particular viewpoint and J. J. Gibson's (► [Gibson, James J.](#)) expansion of this idea into the theory of information pickup in a teeming world of sensory possibilities (Walker-Andrews 1992). Overall, Mach's psychology anticipates the view of an organism moving through an environment subject to selection pressures and dependent on rapid sensory analysis to survive. On this view, it is not hard to conclude that Mach may have provided for psychology the sort of basic theory that modern psychology imbibed, to echo what Einstein said about Mach's effect on generations of physical scientists, with their mother's milk.

There are, beyond these towering achievements, some other contributions of Mach that though they are not as often remarked are important to the enrichment of modern scientific psychology. Psychology as science rises and falls with the popular idea of science and Mach was a tireless promoter of science both in textbooks and in popular articles which reached wide audiences. His writing style was universally admired and his *Analysis of Sensations*, especially, was widely read in translation. Mach also had an activist side and potentiated the development of a modern socially responsible psychology with a progressive focus (Winston 2001). Lastly, Mach was an important influence on culture generally and in the arts in particular (Weibel 2005). One persisting presence of Mach is in the ironies and indeterminacies of *The Man Without Qualities*, Robert Musil's unfinished masterwork, which can be read not only as a catalog of experimental psychological ideas of the time, but also as an artistic realization of a Machian worldview (Sebastian 2005).

See Also

- [Gibson, James J.](#)
- [Skinner, B. F.](#)

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Malthus, T. R.

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Basic Biographical Information

Thomas Robert Malthus played an important role in the Enlightenment-era debate between the dangers of “passions” and the virtues of “reason.” Malthus was born February 13, 1766, at his family's country home near Wotton, Surrey, England – just south of London. He was the second son and sixth of seven children born to Daniel and Henrietta Malthus. Malthus's father was a landowner and an Enlightenment enthusiast, who was personally acquainted with the likes of David Hume and Jean-Jacques Rousseau. From 1776 to 1782, young Robert – often known as “Bob,” and never as “Thomas” – was schooled at the small family mansion dubbed “The Rookery,” and then at Claverton Rectory, near Bath. In 1788 he earned an undergraduate degree from Jesus College, Cambridge, with awards earned in Latin and English – this despite a serious speech defect due to a cleft palate and harelip.

In 1789 Malthus was ordained by the Church of England and was appointed as curate at Okewood Chapel, a country parish resting in a quaint valley a short distance up a country lane from the village of Ockley, in Surrey. In 1793 Malthus was made a nonresident fellow of Jesus College, Cambridge, a position he would relinquish 11 years later to marry Harriet Eckersall, his first cousin once removed, with

whom he had three children. From 1805 to the end of his life, Malthus was Professor of History and Political Economy at the East India Company College in Hertfordshire, an appointment that made him England's first academic economist. In his later years, Malthus's students – civil servants of the East India Company – took to calling him “Pop,” short for “Population Malthus.” Malthus took ill on Christmas and died on December 29, 1834 at Bath. He is buried at Bath Abbey. He has no living descendants (James 1979).

Major Accomplishments/Contributions

Malthus's chief claim to fame is his authorship of *An Essay on the Principle of Population* (Malthus 1798). One story goes that while in parochial duties at Okewood, Malthus noticed a phenomenon about which he would soon write, that “It cannot fail to be remarked by those who live much in the country, that the sons of laborers are very apt to be stunted in their growth, and are a long time arriving at maturity. Boys that you would guess to be fourteen or fifteen are, upon enquiry, frequently found to be eighteen or nineteen” (1798, Ch. V).

Indeed, in Malthus's day the English poor, especially in rural areas, were numerous and generally in bad shape. During the 1790s, Malthus amply discussed the condition of the poor as a key point in some spirited debate with his father over the Enlightenment notion of the “perfectibility of society.” Malthus came to a decision to write his famous book, which in 1798 he published anonymously. In *Principle of Population*, Malthus responded to recent utopian idealism with a bit of harsh realism, including his well-known calculation: that whereas human populations increase geometrically (1, 2, 4, 8, 16, 32, 64, 128, etc.), food supply and means of subsistence increase arithmetically (1, 2, 3, 4, 5, 6, 7, 8, etc.). An unchecked population will, all else equal, quickly expand far beyond a society's ability to organize and distribute resources, resulting in much poverty, suffering, and starvation. It was this “Malthusian analysis” that prompted Thomas Carlyle, in 1849, to dub economics “the dismal science.”

Malthus's real argument was not the famous calculation designed to compare geometrical and arithmetical growth, but was his search for what humankind might do to avoid the problem. In the first edition of *Principle of Population*, Malthus began a lifetime of

analyzing what he believed is within human nature. He introduced two major categories of “checks,” which were “preventive” ones and “positive” ones. Five years later, in an expanded and revised edition of the book, Malthus added “moral restraint” as a third fundamental category of population checks. Preventive checks work by lowering the birth rate, and include delayed marriage, sexual intercourse not for procreation, contraception, and abortion. Positive checks raise the death rate, and include “crime, disease, war, and vice,” along with famine and infanticide. Moral checks include postponement of marriage, practice of celibacy, inculcation of “prudential motives,” and a general “sense of duty.”

Malthus built his system of social analysis upon a psychological scheme based on principal drives, called “hungers.” Two preeminent hungers that God instilled in humankind are hungers for food and for sex. Neither of these hungers can be completely controlled or quelled; in humans, as in other animals, “passions” and “appetites” can tend to be stronger than “reason.” In connection with his analysis of population growth coming to exceed the limits of the means of subsistence, Malthus reached something of a psychological conclusion: “The race of plants and the race of animals shrink under this great restrictive law; and man cannot by any efforts of reason escape it.” Among humankind will arise much misery and vice, and in the end “the voice of reason will be unheard; the passions only will bear sway” (Malthus 1798, Ch. I).

Malthus's system of analysis resulted in some policy implication, including advocacy for abolition of Poor Laws and implementation of Corn Laws. The former were national assistance programs for the needy, which had been in existence since the 1600s, and which Malthus believed encouraged idleness and provided “a check to productive industry.” Malthus suggested of the poor, “that they are themselves the cause of their own poverty; that the means of redress are in their own hands, and in the hands of no other persons whatsoever; that the society in which they live, and the government which presides over it, are totally without power in this respect” (Malthus 1798, Ch. 3). Hence Malthus opposed the Poor Laws. His goal in supporting the Corn Laws (which placed taxes on imported wheat) was to promote domestic grain production and long-term economic progress. Malthus also advocated policies to favor universal suffrage, education for the

poor, and establishment of unfettered labor markets. He believed that carefully enacted policies could play into the moral powers of a socialized mind, such as when the mind of a poor person gains a taste for luxury and proceeds to seek a higher standard of living – which, Malthus reasoned, can in turn be a sufficient incentive to reduce fertility.

Psychological foundations and policy implications are closely interconnected in Malthus's thought. Because he believed human nature is not easily changed, he wondered about the heritability of intellect in humans as well as in other animals. He wrote in 1798: "It does not . . . by any means seem impossible that by an attention to breed, a certain degree of improvement, similar to that among animals, might take place among men. Whether intellect could be communicated may be a matter of doubt; but size, strength, beauty, complexion, and perhaps longevity are in a degree transmissible. . . . As the human race however could not be improved in this way without condemning all the bad specimens to celibacy, it is not probable, that an attention to breed should ever become general" (Malthus 1798, Ch. IX).

Following publication of the first edition of *Population*, Malthus spent time in Germany, Russia and Scandinavia, and recorded a travel diary (published in 1966). He used his new discoveries to rebuild a better and vastly expanded version on his argument, which he published as a second edition of *Principles of Population*, in 1803. A frequent interpretation is that Malthus's new ideas and findings enabled him to transform a 1798 product that (in phrasing from Lionel Robbins) was "a brilliant a priori polemic" into an 1803 edition that became "a weighty empirical treatise."

Malthus's other major book came in 1820 (Malthus 1820). This work, *Principles of Political Economy Considered with a View to Their Practical Application*, dealt with various economic problems, including – if only briefly – the notion of psychic measurement of economic value. Malthus began by introducing some of the established theories of economic value, particularly those in which value comes from accumulating more gold and silver through commercial trade (known as "Mercantilist Theories of Value") and those in which value comes from the accumulated labor input into the making of a product (known as "Labor Theories of Value"). Malthus responded that he

generally favored the labor approach but believed another factor that could help account for value might be a psychological "will to purchase," meaning that the greater a person's will to obtain the item, "the greater or more intense may be said to be the demand for it." Malthus added that, "as long as the means and competition of sellers continue to bring the quantity wanted to market at a low price, the whole intensity of the demand will not show itself" (Malthus 1820). Malthus receives some credit from historians for being an early expositor of a principle that just hints at being a behavioral principle of marginal utility. Closely related to the idea of intensity of demand, Malthus introduced, at least verbally, the idea of a demand schedule, which has since come to be defined as the conceptual relationship between prices of goods and the quantity desired by buyers (Hollander 1997).

Between the years of his two major books, Malthus also receives credit for a few other important ideas. In 1815 he published a pamphlet containing the first analysis of a "differential theory" of rent. In other writings he developed an idea that economic crises are characterized by insufficient consumption which renders a general excess of supply; this is known as Malthus's theory of a "general glut" of goods, and it is a theory that foreshadowed ideas of J.M. Keynes during the 1930s (Dupaquier 2001).

Today's overall assessment of Malthus's system of analysis, particularly in its 1803 version, concludes that the system stands as the first careful study of the condition and welfare of lower classes.

See Also

- ▶ Keynes, John Maynard
- ▶ Smith, Adam

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Maslow, A. H.

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Basic Biography

Abraham H. Maslow was born on April 1, 1908, in Brooklyn, New York, the eldest of seven children. His parents were Russian Jewish immigrants who valued education. Abraham Maslow began his undergraduate studies at the City College of New York (CCNY), transferred to Cornell University, and returned to CCNY.

He married his childhood sweetheart, Bertha Goodman, on December 31, 1928 and moved, with his new wife, to Wisconsin to study psychology with Harry Harlow at the University of Wisconsin.

Dr. Maslow earned three degrees in Psychology from the University of Wisconsin at Madison: His BA in 1930, his MA in 1930, and his Ph.D. in 1934, while teaching and pursuing his research.

Shortly after earning his doctorate, he secured a postdoctoral position at Columbia University where, with the support of E. L. Thorndike, he was able to pursue his own research agenda. In this position and his next, as a member of the faculty at Brooklyn College from 1937 through 1951, Dr. Maslow met and learned from and with many prominent people from psychology and allied fields, including Max Wertheimer, Erich Fromm, Karen Horney, Alfred Adler, Kurt Goldstein, Margaret Mead, and Ruth Benedict. Mead and Benedict encouraged Abraham Maslow to consider the influence of culture and society on human experience. He later adapted the concept of self-actualization from Goldstein.

In 1951, Abraham Maslow accepted an invitation to become Professor of Psychology and the Inaugural Chair of the Psychology Department at the newly opened Brandeis University, a position he held through 1969. He subsequently accepted a fellowship at the Saga Institute in Menlo Park, California.

Having suffered from poor health for many years, Abraham H. Maslow died on June 8, 1970, at 62 years of age, in Menlo Park, California. His archives are maintained at the University of Akron's Archives of the History of American Psychology (AHAP).

Accomplishments

In many ways, Abraham Maslow's contributions to psychology defy categorization. He was one of the first to systematically study the fullness of normal and optimal human functioning and he did so from an interdisciplinary perspective. While exploring the highest ideals of psychological wellness, Dr. Maslow began to explore *peak experiences*, those mystical or transcendent experiences that touch on awe, mystery, and human possibility. He was a trailblazer in humanistic psychology, the human potential movement, existential, and transpersonal psychology. His work continues to influence psychology and allied fields, including education and business management.

Abraham H. Maslow is best known for his *Theory of Motivation*, originally published in 1943 when he was 35. This theory includes Maslow's *hierarchy of human needs*, in which basic physiological needs form the necessary foundation for people to meet their psychological needs that, in turn, are prerequisites for *self-actualization*, originally conceptualized as the pinnacle of the hierarchy. Throughout his career, Maslow continued to refine this theory, particularly self-actualization, ultimately arguing that *self-transcendence* is a more evolved state of being than simply meeting one's own goals (Koltko-Rivera 2006).

In his quest to understand optimal functioning by studying self-actualizing people, Maslow began to further explore *peak experiences*. His writing at that time, particularly *Religions, Values, and Peak-Experiences*, published in 1964, shows that his thinking about human potential, values, spirituality, and religion had evolved.

Abraham H. Maslow was a prolific author. Many of his books and articles are regularly re-printed and remain easily accessible. *Toward a Psychology of Being* (1968) and *The Further Reaches of Human Nature* (1971) are among his most famous books. Other contributions include the publication of *Motivation and Personality* in 1954, one of the first books to emphasize normal and optimal human development; the inclusion of a full chapter on Maslow's theories in Betty Friedan's *The Feminine Mystique*, a catalyst for the second wave feminist movement, and *Theory Z*, the application of Maslow's hierarchy of needs to business management and consultation.

Notwithstanding his interdisciplinary approach, Abraham H. Maslow was among the founders of

humanistic psychology, establishing many of the principles that guide humanistic psychology and counseling today. He is also recognized as a co-founder of the *Journal of Humanistic Psychology*.

Abraham H. Maslow served as President of the American Psychological Association (APA) in 1968, building on his service as President of APA's Division of Personality and Social Psychology, and of the Massachusetts Psychological Association.

Among his many awards and honors, some of which were received posthumously, Abraham H. Maslow was honored by APA for his creativity and named 1967 Humanist of the Year by the American Humanist Society.

See Also

► [Rogers, Carl R.](#)

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McClelland, David C.

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Basic Biography

David C. McClelland was an American psychologist, with a background in psychoanalysis. His first university degree was in foreign languages: he wrote a play in Latin and translated Emily Dickinson poems into German. The first wife, Mary Sharpless (1918–1980), set up a painting studio in the basement and became art

teacher. Together they attested multilingual expertise in science, culture, and the arts, that is, they were intellectuals, a rather endangered species in the university milieu throughout the twentieth century and almost eccentrics after twenty-first century standards, genuine academic monolingualism. Their huge Victorian house emerged as a meeting point of highly educated university graduates in Cambridge. They used to travel together to foreign countries every year, and they took a world tour in every sabbatical leave. In 1941, he obtained the Ph.D. degree in Experimental Psychology from Yale University. In 1946, he was chairman of the department of Psychology at Wesleyan University; in 1950, staff consultant for the Social Science Research Council; in 1952, Deputy Director of the Behavioral Science division of the Ford Foundation, member of the Fullbright Award Committee in 1953; and in 1956, Professor of Psychology in the Department of Social Relations at Harvard University, and Chairman in 1962. In 1963, he founded McBer Consulting Co with Henry Murray (1893–1988) and several doctoral students such as David Berlew, Lyle Spencer, and Richard E. Boyatzis. The focus was on psychological assessment and training programs to increase satisfaction and performance among employees. In 2011, it is a part of the Hay Group, a global management consulting firm operating in 49 countries.

Major Contributions

In 1968, McClelland started to act as consultant to the Peace Corps Volunteers and, in 1972, to the United States Information Agency, that is, proactive involvement in international educational and cultural exchanges, broadcasting, and information exchanges congruent with foreign policy and national interests abroad. Widower, he married to Marian Adams in 1981. In 1986, he retired as emeritus professor of Harvard University and became distinguished research professor of Psychology at Boston University. In 1987, he obtained the award for Distinguished Scientific Contribution from the APA and, postmortem, the Henry A. Murray Award from Division 8 of APA. A little bit surrealistic. Murray had been the key figure to understand research and development projects led by McClelland and all his associates in what are known in the twenty-first century as the competency-based models of management effectiveness. A good example

is the Bologna Declaration on the European Space for Higher Education: competence is mentioned only once in the policy making text but evolved as the magic formula to generate comparable and compatible academic degrees and quality assurance standards across universities and countries in the European Union. In 1973, McClelland published a seminal article in *American Psychologist* stating that IQ and personality tests were poor indicators of a person's competence. This is a typical example of how a psychological finding generated changes in the world of business and consultancy the next decade and in the university milieu three decades afterward.

The initial phase was experimental research on motivation by identifying core psychological needs such as Achievement, Affiliation, and Power, and by developing a valid and reliable method for scoring responses to the Thematic Apperception Test to measure the strength of the motive. The subject is not neutral taking into consideration that the initial sample was students at Harvard University, the aim advancing what kind of psychological variables were involved in success, benefits, and progress in organizational settings. Many of the doctoral students he supervised became intellectual leaders of the next cohort of Industrial and Organizational Psychologists. His book on the *Achievement Motive* in 1953 and that on *The Achieving Society* in 1961 provided the theoretical and methodological foundation.

During his term in office as head of the Department of Social Relation (1962–1967), a silenced case or a well-known scandal did occur. Officially, he was in sabbatical leave in India and Tunisia supervising research groups on entrepreneurial motivation. In the laboratory, his avant-garde researchers came to be troublemakers. Timothy F. Leary (1920–1996) accepted in 1959 a permanent position of Lecturer in Clinical Psychology at Harvard University under McClelland's surveillance and was fired in 1963 by Nathan M. Pusey (1907–2001), then President of Harvard University. Leary had been singled out a few weeks before as "the most dangerous man in America" by Richard Nixon (1913–1994), then past Vice-president of the USA and loser in his confrontation with John F. Kennedy (1917–1963) in the 1960 Presidential election. Another professor of Clinical Psychology was also fired in 1963, Richard Alpert (later known as Ram Dass), that was

employed in 1958 under the auspices of McClelland, director of the doctoral program in clinical psychology in Harvard since 1956. All three were good friends, and once jobless, the McClelland's house came to be a landing place for students returning from India and fond of spiritual journeys. There were spare bedrooms available. Leary and Alpert were doing experimental research in the laboratory of Psychology, and the enigma was the nexus between human brain and consciousness, normal and abnormal states of consciousness with or without meditation, psychological and spiritual well-being in the context of Health Psychology. What was the independent variable? Psychedelic substances to find out the proper dosage under controlled conditions; the design also included several scales of the California Personality Inventory and one of the MMPI. The dependent variable was recidivism rate among alcoholic patients and reforming criminals. They combined psychotherapy and drugs as well as observed changes in behavioral ratings. The turmoil came because about 300 university professors, students, writers, and philosophers did participate as volunteers. They tested the psychological effects of LSD, psilocybin, Mexican mushrooms, and so on. Further details may be found under wordings, such as "the Concord Prison Experiment," "Psychedelic experiments and experiences." Initially, it was only under the umbrella of McClelland's department, but it evolved as an open field study in the campus of Harvard and surroundings. Research participants reported profound mystical experiences. Lemle (2001) has produced a documentary film based on recordings of that time, and Epstein (2002) in his autobiography summarizes accounts at the Harvard Medical School. Doblin (1998) reviewed data and highlighted statistical errors in findings published.

In the background, there was a political confrontation always in Harvard University between behaviorism and psychoanalysis, behavior therapy versus psychotherapy, Burrhus F. Skinner (1904–1990) in the department of Education (devoted then to devising teaching machines for IBM and programmed instruction in the campus) and McClelland's associates. Another confrontation was between Skinner and Noam Chomsky on the subject of verbal behavior (1957–1959). Chomsky emphasized the role of language competence, and McClelland reworked the term competence as a key

concept in his reaction to the controversy raised by another professor of Psychology at Harvard University, Richard J. Herrnstein (1930–1994), and his 1973's book on the nexus between IQ and meritocracy. McClelland insisted in the already mentioned paper of 1973, the key is how to measure competence and not intelligence, the key is achievement as an attitude toward success and not meritocracy, the key is intrinsic motivation and not extrinsic motivation as highlighted by another psychologist, Frederick Herzberg (1923–2000), who, in *Harvard Business Review* and in 1968, pointed out that his two-factors theory of job satisfaction had been replicated in 16 studies in a wide variety of occupational settings across countries, including Communist countries. McClelland trips during his sabbatical leaves may be framed in this kind of cross-cultural research in companies. The outcome was consultancy, recognition, and leadership in Applied Psychology. The origin of Positive Psychology may be traced back to this group of scholars in the domain of Industrial and Organizational Psychology. The background was the Psychology of Ego and Self-awareness, as well as development.

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McCormick, Earnest

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Basic Biographical Information

Dr. McCormick was born on August 22, 1911 in Indianapolis, Indiana, USA. He died on February 9, 1990. After obtaining a bachelor's degree from Ohio Wesleyan University in 1933, he secured a position at the Cotton Garment Code Authority in New York City. After 2 years, he took the position as Chief of the

Planning Unit in the Job Analysis and Information Section of the U.S. Employment Service (1935–1939). During his tenure there, he coordinated an ongoing nationwide job analysis program and developed a system for coding and classifying jobs. That coding system became the basis for the first edition of the *Dictionary of Occupational Titles*. It was during his time with the Employment Service that his lifelong interest in job analysis was established.

His employment history in the area of job analysis included jobs at the Population Division of the Bureau of the Census (1939–1941), the Occupational Statistics Section of the Selective Service System (1941–1943), and, having been Commissioned in the U.S. Navy in 1943, he took the position as Chief of the Classification Analysis Unit in the Enlisted Classification Section of the Bureau of Naval Personnel (1943–1945).

After being stricken with polio in 1945, he decided to pursue graduate work in industrial psychology at Purdue University, Lafayette, Indiana, USA in 1946. He quickly earned a Master's (1947) and Ph.D. (1948) degrees. In recognition of his work history and academic performance, Purdue University offered Dr. McCormick a position as Assistant Professor. He quickly moved through the ranks to Associate and then Full Professor. He remained at Purdue for 29 years, teaching, being a mentor to students, and publishing in the areas of job analysis, industrial psychology, and human factors. He retired in 1977 as Professor Emeritus.

Major Accomplishments/Contributions

Dr. McCormick authored/coauthored numerous articles, book chapters, and technical reports dealing with the theory and methods of job and task analysis. He authored/coauthored textbooks on job analysis, industrial and organizational psychology, and human factors.

His most significant contribution to the field was the co-development, validation, and co-publication of the *Position Analysis Questionnaire (PAQ)* in 1969. The PAQ approaches job analysis from a behavioral perspective where job elements are rated in terms of psychological and contextual factors. It is a widely used instrument still in use today. He cofounded and

served as President of PAQ Services Inc, Bellingham, WA. The PAQ has been applied to a wide range of jobs and has been used as a basis for salary scales and selection, placement and training programs among other important applications.

Dr. McCormick has received numerous awards, including Distinguished Scientific Contribution Award (1986) and the James McKeen Cattell Award (1964), both from the Society of Industrial and Organizational Psychologist (Division 14, American Psychological Association); the Paul M. Fitts Award (1972) from, and Fellow status in, the Human Factors and Ergonomics Society; and the Franklin V. Taylor Award (1966) from the Society of Engineering Psychologists (Division 21, American Psychological Association). Dr. McCormick served on many national panels, including the Army Scientific Panel, the Naval Advisory Board for Human Resources, and the National Academy of Sciences Committee on Occupational Classification and Analysis. He was a Fulbright Lecturer at Catholic University in Milan, Italy (1964–1965) and a Ford Foundation consultant in New Delhi, India (1969–1970). In recognition of his contributions to the field, the Society of Industrial and Organizational Psychology established the annual Ernest J. McCormick Award for Distinguished Early Career Contributions.

In addition to all of the above accomplishments and recognitions, probably his most lasting contributions are the more than 100 graduate students he advised and to which he served as a mentor over the years.

See Also

- ▶ [Human Factors Psychology](#)
- ▶ [Industrial-Organizational Psychology](#)

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McCosh, James

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Basic Biographical Information

Born: April 1, 1811, Died: November 16, 1894

James McCosh was born April 1, 1811, in Carskeoch, a farmhouse in the Scottish lowlands. The only surviving son of a well respected and pious covenanting farmer, McCosh was encouraged in his early interest in the ministry, and departed for Glasgow University at age 13, under the supervision of an older cousin. At Glasgow, where the aftereffects of the Scottish Enlightenment were still strong, McCosh found that he was interested in philosophy and began reading the Scottish Realists. After graduating from Glasgow in 1829, McCosh began his studies at Edinburgh University, where philosophical greats such as William Hamilton resided (Sloane 1896).

McCosh wrote his thesis on Stoicism under Hamilton, but in 1834, he set his interest in mental philosophy aside to become a Presbyterian minister. After spending some time as an inerrant preacher, he was appointed to the village of Arbroath and then Brechin, where he sided with the Free Church during the Disruption of 1843. In 1850, McCosh published a book, *The Method of Divine Government, Physical and Moral*, which resulted in his appointment to the chair of logic and metaphysics at the newly established Queen's College in Belfast. There he published several philosophical works, such as *Typical Forms and Special Ends in Creation*, in 1855 and *The Intuitions of the Mind Inductively Investigated*, in 1860 (McCosh 1860). The former laid out McCosh's theistic interpretation of evolutionary science and the latter represented his first contribution to mental philosophy in which he attempted to categorize the intuitive principles of the mind.

McCosh's books were also published in America, so when he visited the states in 1866, he found himself a popular and sought-after speaker there. This trip brought McCosh to the attention of the trustees of the College of New Jersey (later Princeton University)

who were looking for a theologically orthodox yet pro-science president who could integrate traditional Presbyterian doctrine with new scientific findings. Previously disappointed in his loss of the University of Aberdeen chair of logic to Alexander Bain, McCosh was favorable to their invitation and arrived at Princeton in 1868. McCosh quickly set about reforming the school, inaugurating an elective program of studies, launching an energetic building campaign, and strengthening the faculty. These reforms were well received, and McCosh remained a popular figure throughout his presidency (Hoeveler 1981).

Major Contributions

As was common at that time, as president McCosh taught mental and moral philosophy classes at Princeton and published mental philosophy textbooks based on these classes. McCosh's preferred method for discovery of mental phenomena was inductive introspection, the discovery of mental laws through the careful observation of mental actions by the conscious self. McCosh was optimistic about the accuracy of introspection because of one of the central tenets of Scottish Realism: direct perception of reality. This core belief, which was in opposition to both Kantian idealism and Humean skepticism, meant that observation of the mind was just as possible and reliable as observation of matter (Maier 2006). In McCosh's view, the new physiological psychology was useful but best used to supplement and enhance the insights of mental philosophy, not do away with it, since a purely physiological perspective was in danger of being reductionistic and materialistic (McCosh 1871). This more traditional perspective meant that McCosh's books tended to center on philosophical categorizations of mental functions consistent with Scottish Realism rather than original theorizing. However, McCosh's 1880 book *The Emotions* covered new ground – it included material which anticipated the James–Lange theory (McCosh 1880).

Although McCosh's Scottish Realist approach to psychology at times put him at odds with New Psychology's aims, he intentionally fostered an environment at Princeton where the new discipline would flourish. McCosh instituted a number of psychology electives, including a physiological psychology class that he team taught with two Princeton graduates

who had been trained in science in Europe. According to James Mark Baldwin, who was mentored by McCosh, the course included physiological demonstrations by the young professors and reading Wilhelm Wundt. McCosh also created the Mental Science Fellowship, a \$600 award which allowed students to pursue graduate studies abroad to receive the latest the new psychology had to offer. Baldwin used the award to visit Wundt and study under Friedrich Paulsen in Germany.

McCosh supported the Wundt Club, a weekly gathering started in 1881 by several young Princeton professors intended to help them keep up with the latest psychological advances. McCosh was quite proud of the Wundt Club, asking, during Baldwin's time abroad, that Baldwin mention the club to Wundt. McCosh also became involved with Henry Fairfield Osborn's research on memory imagery, which is generally regarded as the first psychological questionnaire research in North America. Although Osborn carried out the actual research, the results were published jointly by McCosh and Osborn in 1884 as *A Study of the Mind's Chambers of Imagery* (McCosh and Osborne 1884), and McCosh promoted it in his 1886 textbook *Psychology: The Cognitive Powers* (McCosh 1886).

Even though McCosh had hired Baldwin to help him integrate the latest in physiological research into *The Cognitive Powers*, it received a scathing critique from G. Stanley Hall in the first issue of *The American Journal of Psychology*. Hall saw it as scientifically sloppy and philosophically outdated – Scottish Realism was strongly associated with the old school of psychology from which the New Psychologists were eager to distance themselves. As a result of this New Psychology attitude, McCosh is missing from many histories of psychology, or else, along with other early American mental philosophers, stereotyped as antiscience and dogmatic (Rodkey 2011).

However, McCosh is an important transitional figure in psychology, a staunch Scottish Realist who wrestled with the challenges of evolutionary science and physiological psychology. He was extraordinarily open to both, embracing and promoting theistic evolution at a time when most Protestants were wary of Darwinism and providing a hospitable environment for the New Psychology at Princeton despite the challenges it represented to his views.

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Mead, G. H.

VINCENT W. HEVERN

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Basic Biographical Information

George Herbert Mead was born on February 27, 1863, in South Hadley, Massachusetts, to a Congregationalist minister, Hiran, and his wife Elizabeth. The family moved to Oberlin, Ohio, in 1870 when his father began to teach homiletics at the Oberlin Theological Seminary. In 1879, Mead entered Oberlin College and graduated with a B.A. in 1883. After a series of jobs, Mead began graduate studies in philosophy at Harvard University in 1887 and earned an M.A. degree. He studied at Harvard under **Josiah Royce** and served as tutor to **William James'** children. Mead pursued but did not complete a doctoral degree in Germany between 1888 and 1891. He studied philosophy and physiological psychology at the University of Leipzig and then physiological psychology and economic theory at the University of Berlin. In Germany, he attended lectures courses by **Wundt**, **Ebbinghaus**, and Dilthey. After marrying Helen Castle in Berlin in 1891, he

returned immediately to teach philosophy at the University of Michigan. There he became a close friend of **John Dewey**. In 1892, he followed Dewey to the University of Chicago where Mead taught philosophy and engaged in a range of progressive educational and social initiatives along with Dewey and Jane Addams. Though Dewey moved to Columbia University in 1904, Mead remained in Chicago where he taught social psychology for more than 30 years. Mead's wife died on December 25, 1929. That same year Robert Maynard Hutchins arrived at Chicago as president and, with Mortimer J. Adler, reorganized the curriculum of the university along more traditional lines. These changes led to conflict with Mead who resigned in 1931 to accept a post at Columbia University. However, after four months of illness, Mead died in Chicago on April 26, 1931 before he could assume his new position (Cook 1993).

Contributions

Mead never published a book in his lifetime. Yet, as one of the most important figures among the American Pragmatists and arguably the seminal theorist for the school of Symbolic Interactionism in the social sciences, Mead's journal articles, mentorship of graduate students, and class lectures were enormously influential. Following his death, his students gathered notes transcribed during those lectures. These posthumously published texts (Mead 1934, 1936, 1938) made Mead's general ideas available to a wider audience than that found within the precincts of the University of Chicago itself. His ideas continue to echo among cultural, social, and personality psychologists to this day (Joas 1985).

At the core of his thinking, Mead believed that the human person is the product of social processes. Rejecting Cartesian Dualism and the individualism of psychological behaviorists, he elaborated a theory of the social genesis of human mind and individuality. Mead argued that all living organisms engage in two forms of "conversation." The first of these conversational modes consists of behavioral gestures. A second organism is affected by the gesture of a first organism which, in turn, responds with a gesture to that of the second organism and so on. These organisms converse by means of gestures. Over the course of human evolution, the form of this conversation changed with the

emergence of language, i.e., conversation that uses “significant symbols.” Humans interact by the exchange of meaningful vocal and nonvocal gestures. Communicative meaning arises out of the interaction of the two (or more) participants and is not independent of the social processes between them.

For Mead, the social world is primary and the basic matrix from which each human person develops – first as a body and, subsequently, as a mind. How does the mind develop? Mead answers: in the process of social experience and activity. This process involves symbolic exchange in three forms: language, play, and games. The most pervasive and earliest activity involves language. Individuals are immersed in the linguistic world of others from the moment of their birth and eventually come to understand the other, particularly the other’s mind in *its* social world, through the use of vocal symbols, i.e., language. This ability to engage in a form of social “role taking” – comprehending what the other is thinking – is elaborated by play when children (and adults) use the dress, mannerisms, bodily movements, and emotions of the character’s role they occupy (police officer, teacher, parent, etc.). Finally, individuals enter into a third and more complex form of symbolic communication by means of games. These involve an understanding of and acquiescence to a broad set of roles, rules, and symbolic relations among all the game’s participants.

Mead is perhaps most famous for his proposal that the self must be viewed as a kind of polar entity comprised of the “Me” and the “I.” The “Me” consists of the judgments, comments, and conduct directed toward a particular individual by the many social partners who populate that individual’s world or what Mead calls “the generalized Other.” In this fashion, the “Me” is constituted by the world of others who create situations toward which the individual must offer a response. The “Me” represents a kind of socially constructed identity. However, the other pole of the self is the “I” and involves the active appraisal and response to the “Me” by the individual. In the act of responding to others, persons can assume novel or different stances than that represented by the “Me” and, in so doing, alter the processes of social interchange. The response of the “I” is adaptive and allows individuals to affect their own environment while still being affected by it in return.

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Meehl, Paul E.

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Basic Biography

Paul E. Meehl was born on January 3, 1920, in Minneapolis, Minnesota, to Otto and Blanche Swedal. He lost both of his parents during his childhood; his father an intelligent man who valued education, committed suicide in 1931; his mother remarried (Meehl used his stepfather’s name) in 1934 and died soon afterward in 1936 from ether pneumonia following surgery for a brain tumor (Meehl 1989).

Meehl was married to Alyce Roworth Meehl who died in 1972, and was later married to Dr. Leslie Jane Yonce for nearly 30 years. Dr. Yonce was very involved, helping Meehl in his research and writing (Yonce 2006), and she continues to maintain his Web site which houses Meehl’s complete bibliography and links to many of his papers.

Dr. Meehl earned his B.A. (psychology major with a minor in Biometry) from the University of Minnesota in 1941, and in 1945 he was awarded his doctorate in clinical psychology from the same institution, he was hired as a faculty member and remained at the University of Minnesota throughout his entire professional career (Meehl 2008).

As a graduate student, Meehl had such teachers and mentors as B. F. Skinner and Donald Paterson. He also was an assistant to Starke Hathaway, when Hathaway was refining the assessment instrument that

became the Minnesota Multiphasic Personality Inventory (MMPI). Meehl developed the K scale, a measure of subtle defensiveness, for the MMPI. While on the faculty, he held concurrent appointments in psychology, psychiatry, philosophy, and law. He was trained as a psychoanalyst and kept a couch with a chair at its head in his office, where he practiced traditional Freudian psychoanalysis, alongside Albert Ellis's rational-emotive therapy. He retired in 1990 but continued to teach at the University until 2002 (Peterson 2005b).

Paul E. Meehl died on Friday February 14, 2003, at his home in Minneapolis. He was 83. The cause was chronic myelomonocytic leukemia (Goode 2003).

Accomplishments

Paul E. Meehl is renowned for his insistence on precise thinking and scientific tough-mindedness (Goode 2003). He has made a number of important contributions to diverse domains of psychology, including the clinical judgment versus actuarial prediction debate; theory of diagnosis; the cognitive activity of the clinician; objective personality assessment and trait theory; behavior genetics; the etiology of schizophrenia, psychoanalysis, and psychotherapy; the shortcomings of statistical significance testing; and the use of metascientific methods to evaluate competing models of human nature. Meehl played a pivotal role in forcing clinical psychologists to think more clearly and incisively about their subject matter (Lilienfeld and Waller 2005).

In the early 1960s, Dr. Meehl argued that counter to popular belief, schizophrenia was not caused by bad parenting, but rather that it had a strong genetic component. He discussed the subject in his 1962 presidential address to the American Psychological Association (APA 2011). Now, some 50 years later, the genetic basis of schizophrenia is widely accepted (Goode 2003). In his 1990 paper, *Toward an Integrated Theory of Schizotaxia, Schizotypy, and Schizophrenia*, (Meehl 1990) developed an extended analysis of the relation between genes, brain function, and psychopathology (Thompson 2005).

Dr. Meehl in his 1954 book, *Clinical Versus Statistical Prediction: A Theoretical Analysis and Review of the Evidence*, infuriated many colleagues by meticulously pointing out the limitations of clinical judgment. He

argued that clinicians were not very good at predicting people's behavior and proposed that a far more reliable method was to analyze the information gained from personality tests, psychiatric interviews, and other sources using mathematical formulas.

Meehl's effectiveness as a critic of slipshod thinking in psychology was aptly characterized by his conversational writing style and ability for coining phrases. In his classic paper, "Why I Do Not Attend Case Conferences," Dr. Meehl listed the logical sins routinely committed by psychologists when they gathered to discuss patients. Which ranged from the "Me too" fallacy where psychologists, upon hearing of a patient's odd behavior, insist that it is normal because "anyone would do that" to the "Uncle George's pancakes fallacy" exemplified by the clinician who, told that a patient stored leftover pancakes in the attic, declares, "Why, there is nothing so terrible about that – I remember good old Uncle George from my childhood, he used to store pancakes in the attic" (Peterson 2005a).

In the latter part of his career, Meehl played a central role in developing taxometrics, a field concerned with using mathematical formulas to determine the natural groupings of biological or psychological variables (Peterson 2005a).

Paul Meehl served as president of the APA in 1962, the second youngest person to ever serve. He was active in several key APA governance groups, including the Committee on Test Standards and the APA Task Force on Statistical Inference.

Meehl received many awards for his contributions. He received a number of APA awards: the Distinguished Scientific Contributor Award (1958), the Award for Distinguished Professional Contributions to Knowledge (1993), and the Award for Outstanding Lifetime Contribution to Psychology (1996). Paul was also honored by the American Psychological Society (now Association for Psychological Science), for his contributions, they made him both a James McKeen Cattell Fellow and a William James Fellow. He was also a member of the National Academy of Sciences (American Psychological Association 2011).

Meehl's papers are cataloged on his Web site, "Paul E. Meehl, 1920–2003," available from <http://www.tc.umn.edu/~pemeehl/> Regularly updated by his wife, Leslie J. Yonce.

See Also

► [Skinner, B. F.](#)

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Mesmer, Franz Anton

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Basic Biographical Information

Mesmer (1734–1815) was born in Iznang on the German shore of Lake Constance. Mesmer's secondary education was in Jesuit schools, and his post-secondary education continued at the Jesuit universities in Dilligen and Ingolstadt. Pursuing a theological degree, Mesmer was exposed to rationalism which led him to question Catholicism and away from theology. The years 1755–1759 are unaccounted for in Mesmer's life, and some sources report that he earned a doctorate in philosophy

in 1759. That claim was included in the title page of his medical dissertation (see facsimile in Pattie 2004, p. 14). However, Pattie, a reliable Mesmerian scholar, concluded that it was likely “self-conferred” (p. 15).

In 1759, Mesmer began studying law in Vienna, but he soon abandoned law to study medicine. He earned a medical doctorate in Vienna in 1766, and his medical dissertation was *Dissertatio physico-medica de planetarum influx*. The dissertation presented a theoretical argument that gravitation could influence the body and that gravitational tides in the body could be manipulated to treat disease. Pattie argued convincingly that Mesmer plagiarized Richard Mead's *On the Influence of the Sun and Moon upon Human Bodies and the Diseases Arising Therefrom* (Pattie's translation from Latin) although others have said that Mesmer was merely guilty of following the poor rules of citation that prevailed at that time.

Little did it matter whether Mesmer plagiarized Mead, because Mesmer soon shifted his emphasis to animal magnetism. Poor magnetic conditions in the body were believed to be the sole cause of disease, and for many patients such conditions could be manipulated to the patient's benefit. Initially Mesmer used strong magnets to treat his clients, but he soon realized that the magnets were unnecessary and that he, especially, and any suitably trained physician could manipulate a patient's animal magnetism. Mesmer believed that he could charge substances, including water, with magnetism and that he could treat several patients concurrently by having them hold metal rods placed in containers of magnetized water; his famous *baquet* was a variation on this kind of group therapy device.

It is unclear what Mesmer thought the material basis for animal magnetism might be, but he sincerely believed that it had one. While Mesmer's notion of animal magnetism seems farfetched today, it must be recalled that this was an era when legitimate scientists believed electricity to be a “subtle fluid,” neural conduction was attributed to the flow of “animal spirits” (there was experimentation to determine whether animal spirits were gaseous or liquid), and that life resulted from a supernatural “vital spirit.”

Mesmer had some early successes and failures, and he soon learned to sort his patients into those who might benefit from his treatment and those who might not, and he referred the latter to other

physicians. He enjoyed several years of success in Paris, until King Louis XVI appointed a commission to test the validity of animal magnetism. A distinguished committee headed by Benjamin Franklin, the American statesman and member of the Royal Academy of Sciences for his expertise in electricity, conducted several sophisticated control tests. They concluded that animal magnetism did not exist and that any so-called beneficial effects were due to the patient's "imagination." The 1784 report has only recently been translated from French to English (Franklin et al. 1996 [1784]).

Depending upon whom you read, Mesmer was either a charlatan (e.g., Zilboorg 1941) or a genius ahead of his time (e.g., Alexander and Selesnick 1966). Confirming the former is that Mesmer could be petty, greedy, vindictive, secretive, and, for example, he refused to submit his ideas about animal magnetism to control tests. Supporting the latter was that he was a conscientious scientist in his beliefs and a sincere and compassionate medical man who treated the poor for free.

Eventually, much medical, psychiatric, and psychological good would come from "mesmerism," a name suggested by Karl Wolfhart who was a friend and the editor for Mesmer's final published work. Later, to improve the legitimacy of "mesmerism" for medical use (anesthesia), James Braid gave it a new name (neurypnology) that soon evolved to "hypnosis" and he gave it a physiological explanation. However, Pattie (2004) whose concluding chapter is titled "Genius or Charlatan," gave Mesmer little or no credit for anticipating the psychological uses of hypnosis which is where mesmerism's ultimate redemption occurred.

Major Accomplishments/Contributions

Many of Mesmer's medical and scientific writings are available in English translation (Bloch 1980). As indicated above, it is difficult to know how much to attribute to Mesmer for mesmerism's (hypnosis) ultimate contributions. After Mesmer's disgrace at the hands of the Royal Commission's report in 1784, serious consideration of mesmerism by the medical establishment was dismissed. Despite strong resistance by his medical colleagues at University College, London, John Elliotson carried the banner for mesmerism as surgical anesthesia and to treat mental illness, and James Esdaile, a Scottish surgeon in India, had great success

using mesmerism as anesthesia including a drastic reduction in mortality rates for some medical conditions. Braid's contribution mentioned above was invaluable. The successful use of ether for surgical anesthesia in 1842 by Crawford W. Long of Georgia opened the way for chemical anesthetics to replace mesmerism as anesthesia, but mesmerism continued to be advanced in the treatment of the mentally ill. Psychiatrists such as Hippolyte-Marie Bernheim and Jean-Martin Charcot in France led the way. Today, there are numerous organizations and medical and psychological practitioners devoted to the advancement of medical and psychological hypnosis.

See Also

- ▶ [Catholics in Psychology](#)
- ▶ [Hypnosis](#)

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Meyer, Max F.

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Basic Biographical Information

Born: June 15, 1873; Died: March 14, 1967.

Max Meyer was one of the most distinctive voices in psychology throughout his long career. He was born in Danzig and was motivated toward psychology by reading the work of Lazarus Geiger on thought as inner speech (Wozniak 1993). He began formal psychological studies at Berlin where, after an unsuccessful time with

Ebbinghaus which did not leave a permanent mark, as he later translated and edited Ebbinghaus's *Psychology: An Elementary Text-book*, he was introduced to the study of auditory perception, his lifelong work, by Carl Stumpf. His dissertation subject in 1896, sponsored by Stumpf, was combination tones. A further sponsor was Max Planck, which presaged Meyer's development as the major exponent of a thoroughgoing physical reductionist psychology. In 1898, he had a public and acrimonious falling-out with Stumpf (not a hard thing to do, as E.G. Boring (1929) noted in "The Psychology of Controversy") over the interpretation of musical consonance and dissonance, and was compelled to search widely for a new academic position. He had to go as far as Columbia, Missouri, to the University of Missouri, where from 1901 until 1930 he directed the psychology department from his office in the Jesse Hall cupola.

Major Achievements/Contributions

During the first decade of the 1900s, he focused on hearing and completed two versions of his theory of hearing, which was, as Boring classified it in his 1942 *Sensation and Perception in the History of Experimental Psychology* (where he also termed Meyer's theory the best-publicized theory after Helmholtz's) as a frequency-non-resonance theory in which the basilar membrane is considered inelastic. Sound is represented by a frequency pattern assembled from the interleaving of punctate depressions and elevations of the basilar membrane corresponding to vibrations transmitted by the media of the middle ear. Though Meyer's theory became obsolete in light of advancing physiological knowledge, he continued to advocate for his view for the next 60 years. Meyer generalized his mechanistic approach to audition into a comprehensive psychological system in which all "mental" activity would be translated and discussed in terms of neural function, as much as that was possible at the time. This theory, presented in his major book *The Fundamental Laws of Human Behavior* (Meyer 1911), was one of several versions of behaviorism that precipitated from the functionalisms of the era. While most contemporary histories of psychology did not accord Meyer priority as the originator of American behaviorism (W. B. Pillsbury was an exception), more recent accounts have recognized how many aspects of later

behaviorism were represented in Meyer's work. Meyer, avidly self-promoting, wrote two successor texts, *Psychology of the Other-One* (1921) and *Abnormal Psychology: When the Other One Astonishes Us* (1927), both of which were based on the idea that behavior is observable in others rather than in the self and which were based on his neural learning theory. Meyer anticipated, among other things, adaptation-level theory, but the prescient parts of his work were lost as it was translated into the strident denials of internal processes and introspection of his more popularly accessible acolyte, his only Ph.D. student, Albert P. Weiss. Personally, Meyer could be caustic and he did not shrink from negative evaluations: Reviews he wrote during the 1920s allow no mistake to be made about his preference for objective versus subjective terminology and conceptions in psychological science and was peremptorily direct in consigning most contemporary textbooks and most practicing psychologists to a lesser status than science. He frequently referred to William James's work as "literary" and he saw much current psychology instruction as instruction in "English." On the other hand, his writing was crisp and sharp and he had a fine sense of the comic: His essay "That Whale Among The Fishes – The Theory of Emotions" (Meyer 1933) is still a provocative challenge to psychologists to provide a definition that clearly demarcates what is, and what is not, an emotion. Though difficult and at times prickly, he attracted several eminent colleagues and students. With R. M. Ogden, he translated *The Problem of Form in Painting and Sculpture* by Adolf von Hildebrand in 1907, and among his students were, as mentioned, Weiss, as well as Paul Farnsworth and O. H. Mowrer. Meyer is often remembered for an academic political dustup between several intransigents – Meyer and the University of Missouri's president and Curators – which centered around a survey of student sexual mores conducted by Mowrer in 1929. This resulted in the firing of the president, Mowrer's removal to Johns Hopkins where he was mentored by Knight Dunlap, and Meyer's dismissal from his position in 1930, an action deplored by his colleagues nationwide. In exile in Florida, Meyer continued to write on audition and also on historical issues for 30 more years. His mathematical observations on Tartini tones and other difference tone phenomena are still cited in discussions of the subject.

See Also

► [Ogden, R. M.](#)

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Microgenetic Theory: Brain and Mind in Time

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The term “microgenesis” refers to the process by which a mental state unfolds through qualitatively different stages to form the present moment. The temporal extent of this unfolding extends from the onset or genesis of the mental state in phylogenetically older structures, through more recent systems in the evolution of the brain, to the final representation of the content in consciousness or behavior (Brown 2002).

The Antecedents of Microgenetic Theory

Würzburg Studies

The work of the Würzburg group (see also Kragh and Smith 1970; Hanlon 1990) toward the end of the nineteenth and beginning of the twentieth century provided an early conceptual framework for microgenetic theory. The experiments designed by this group typically

involved introspection, that is, the examiner observed his own mental operations at the onset of the response to a particular verbal task. Thus, task performance was less important to the investigators than the initial state and the immediately ensuing phases preceding the overt response. These experiments (see Humphrey 1963) led to the postulation of a non-sensory (or “imageless”) stage that arises in consciousness immediately following the presentation of a stimulus, corresponding to the “birth” of a thought in consciousness. This stage was presumed to give rise to a second stage of imageless knowing, in which the relatively amorphous developing thought takes on a particular shape, due to the operation of will and direction, that is, intentionality. The importance of the Würzburg school lies not so much in its contribution to a then-raging debate over imageless thought, which has long since tailed off (cf. arguments over the propositional basis of mental imagery), as in their attempt to describe the microstructure of the cognitive process. The relation between this approach and the theories of the pioneer English neurologist, J. Hughlings Jackson (Taylor 1958), as well as its conceptual links to the theory of Gestalt formation (even though many details of the transformational process still remained to be explained and elaborated) provided a foundation for the notion that a microtemporal transition underlies cognition, and provided a basis for continuing research in normal and brain-damaged individuals.

The Term “Microgenesis”

What is microgenesis? According to Hanlon (1990, p. 17), the term itself has a tangled history. Sander (1930, cited by Catán), a Leipzig psychologist, used the German term *Aktualgenese* in the context of his studies on the temporal evolution of percepts. He presumed that the realization of a percept developed according to a logical process that perhaps could be demonstrated experimentally by exposing a subject to suboptimal stimuli, for example, by showing a picture tachistoscopically or in dim light. Heinz Werner, in connection with his interest in the comparative psychology of mental development (Werner 1948), sought to derive laws that would be applicable to the unfolding of psychological experience, which occurs not only in a matter of seconds, but also over prolonged periods of time (see Catán 1986, p. 254). Improvising on methods

used by Sander and others of the Leipzig school, he devised for experimental purposes a “micromusical scale” as one of several means to “actualize . . . the development of internal representations and the mechanism whereby they were constructed” (see Catán 1986, p. 256).

It was Werner, then, who first used the word microgenesis in English as an approximate translation of the German *Aktualgenese*, referring to the process by which a mental state is formed in the present moment (Werner 1956, 1957; Werner and Kaplan 1956, 1963). In Catán’s view, he failed to explain why the prefix *Aktual* – in German should be rendered *micro* – in English, proceeding as though both terms “were familiar items of [the reader’s] conceptual equipment” (see Catán 1986, p. 253). Indeed, Suzanne Langer, an American philosopher, in translating Sander’s 1930 paper into English, had interpreted the rarely used German word *Aktual* to mean *realize* (see Catán 1986, p. 254), with the whole term *Aktualgenese* rendered as “the origin of realization.” This is a reasonable enough inference from the point of view of a native speaker of English, given the meaning of “actual” in English, but the German adjective *aktual* has a different meaning, more like “current” or “present,” so that *Aktualgenese* in German means rather literally “the origin of the present moment.” There being no English word that would both correspond precisely to the meaning of *aktual* in German, and would be philologically suitable as a prefix to “–genesis,” Werner’s “microgenesis” is perhaps the best available candidate, though it leaves some readers confused, and others dissatisfied. The confusion over the formation of the word “microgenesis” itself (English “micro-” vs. German “actual-,” along with the problematic relation between “genesis” and “genetics”) has undoubtedly been a factor in making microgenetic theory less accessible to both psychologists and philosophers of mind, who may be unaware that “microgenesis” could have anything at all to do with the problems in which they are interested. This is regrettable, but it is hard to know how it could be avoided.

The term *microgenesis*, then, has come to mean “the microtemporal unfolding of object representation, conceived as a more or less instantaneous recapitulation in cognition of patterns laid down in phylogeny and ontogeny” (Brown 1988, p. 3). In Werner’s formulation, phylo-ontogeny was thought “to leave a track

that was retraced each moment in the process of object formation.” As opposed to this regressive view, current theory sees microgenesis as a unidirectional forward flow from “archaic” to “recent” structures in a matter of milliseconds. Microgenesis is evolution taking place in an instant (Brown 1988, p. 6), rather than the eons of phylogeny or the years of ontogeny. In the work of the third author of the present study, microgenetic theory began to be important as a useful approach for clarifying the development of different kinds of aphasia, while at the same time suggesting very necessary changes in older interpretations of brain and language (Brown 1988). This has developed over the years from a strictly clinical problem to a multifaceted effort to make sense of the mental state itself, a subject of interest far beyond the confines of the neurology clinics where the initial work was done.

Early Studies in Brain Pathology

Following Herbert Spencer and Hughlings Jackson, and Freud’s early work (topographic theory), Arnold Pick (1913) studied the hierarchic aspects of language organization in relation to the symptoms of brain damage. Pick (1931/1973) described the different forms of language breakdown (aphasia) from the standpoint of a microtemporal sequence, which was thought to lead from the initial formulation of a thought as a loose, structural assembly, through a stage of prediction and word choice, and finally to articulation (Brown 2002). Pick retained the Jacksonian idea of an inhibition or restraint of lower centers by higher ones, but was vague on the neurological correlates of the system (see introduction in Brown 1972). This approach was continued in neurology by Henry Head (1920, 1963), Klaus Conrad (1947), Kurt Goldstein (1948, 1995), and Alexander R. Luria (1966), but still without a concerted effort to correlate the psychological structure inferred from the aphasia with brain organization.

An exceptional contribution, however, and one of the most important contributions to this topic in neurology, was a paper by Paul Yakovlev (1948), in which the different forms of motility and action space were mapped to patterns of structuration in the evolution of the forebrain. Arguably, the most creative studies from a microgenetic standpoint, however, were those of Paul Schilder (1951), whose work covers an extraordinary

range, from social theory and psychopathology to brain damage and child development. Schilder viewed thought disorders as “abortive formations produced in the course of the differentiation-process of thought.” In his view, the content passes to consciousness and reality orientation through a stage of dreamwork mechanisms, in which similarity and contiguity played a role. Symbolic images were not transitional structures, but aids in the comprehension of meaning. A similar formulation was employed for the disorders of language and perception (agnosia). The symptoms of aphasia and agnosia, the various impairment of language and object recognition, were thought to reflect an uncovering of earlier stages in their microgeny. This idea was picked up and developed further in the third author’s book, *Aphasia, Apraxia and Agnosia* (Brown 1972).

Whereas the microgenetic theory of aphasia and related disorders developed by Pick (1913), Schilder (1951), and others has not been refuted, it has not achieved a wide acceptance among specialists in this field, who, mirroring trends in behavioral neurophysiology and experimental cognition, have shown greater interest in localization and modularity than process models (Brown 2002, p. 3). It is only the incipient collapse of the modular paradigm (cognitivism) that has opened the field for a different approach. The studies discussed above, from many different perspectives, have provided documentation for the insights of the Würzburger school and others as to the existence of a microtemporal process underlying object and thought development. Some of the major conclusions of this research are as follows:

- The demonstration that the symptoms of brain damage and psychopathology refer to “buried” normal stages that are exposed prematurely. These normal stages can be tapped, or accessed, by certain experimental methods.
- The finding that symbolic operations, imagery, and other aspects of subconscious cognition are entrained at preliminary stages in the object development.
- The finding that meaning is extracted prior to conscious awareness of the stimulus.
- The demonstration that affective states occur in association with preliminary cognition. These

studies did not succeed in clarifying the brain mechanisms or processes involved in cognitive microgenesis, nor in specifying the stages, or sequence of stages, both neural and psychological, in the progression to a final content.

Developmental Psychology

Werner (1948, 1956) (see also Flavell et al. 1997; Catán 1986) argued that “functions underlying abnormal behavior are in their essence not different from those underlying normal behavior . . . and human activity such as perceiving, thinking, acting, etc., is an unfolding process, and this unfolding of microgenesis, whether it takes seconds or hours or days, occurs in developmental sequence.”

An important element in Werner’s thinking, and indeed the entire microgenetic approach, is that the unfolding of cognition retraces levels or stages in evolution and ontogeny. Werner compared patterns of thought formation and behavior over the evolutionary series to maturational patterns in children and in cases of delayed or aberrant development. The pattern of thought and percept development in phylo-ontogeny was assumed to be related to that of cognitive processing in ongoing behavior. The conflation of phylo-ontogeny with the microtemporal unfolding of thoughts led to a rather dubious parallel being drawn between the cognition of young children and that of “savages,” the brain-damaged, and cases of psychiatric decompensation. Another unfortunate effect was the so-called regression hypothesis (This hypothesis, usually associated with Hughlings Jackson in neurology and Roman Jakobson in linguistics, was the focus of a critical discussion in a collection edited by Caramazza and Zurif 1978.), which held that brain pathology unpeels cognition in the reverse order in which skills or capacities are acquired. These byproducts of microgenetic theory became targets for criticism, and the concept was largely abandoned.

Although critical in some respects of the Würzburg school and too broadly biosocial in its formulation, the work of Lev Vygotski (1934–1962) also had a microgenetic dimension, especially in studies of the development of inner speech. Vygotsky argued that the role of language was mediation, through the internalization of egocentric speech as verbal thought (Brown 2002, p. 3). The laws of thinking, of concept

formation, and the transformation of word meanings were studied over the course of development and during the performance of a specific task.

The implications of these studies for microgenetic theory and their exploration in adult aphasia were described by Alexander Luria (e.g., 1962–1966). Luria tended to think of inner speech as subvocal speech, the “preverbitum,” almost speech, or speech that was just not verbalized. This differed from Vygotsky, who felt that the linguistic structure of inner speech was different from that of ordinary speech (Brown 2009).

Much of Luria’s work was published in English; much of it is repetitive and has been largely forgotten in the West – except for his idea of “functional system,” which he said he borrowed from Anokhin, and which has not been interpreted as he would have liked. In the usual interpretation, a functional system is a circuit board or network of components. For Luria, there was a dynamic element, while pathology in the system led to a qualitative reorganization.

Luria also had a hierarchical theory, which he took from Vygotsky. In his view, the right hemisphere was concerned with space in and around the body, the left with action and speech in a space “out there” in the world; thus, the right hemisphere had a cognition that was older or earlier than that of the left. His view of action was of a system of oscillatory levels, an idea which he got from Bernshtein. This idea has been further developed in microgenetic theory (Brown 2005). From Pavlov, Luria took the idea of primary and secondary analyzers, which figured more in his work on aphasia. From Vygotsky’s work on egocentric speech in children, he took the idea of verbal regulation of motor activity. According to this view, egocentric speech in children internalizes as inner speech in adults. Luria felt that motor aphasia was a defect of inner speech (and regulation of action by speech, which produces apraxia), but more recent microgenetic work sees inner speech as a preverbal phase (Brown 2009).

To some extent, Luria also had a microgenetic idea, in that there was an unfolding from older to newer systems, and that cognition was hierarchically organized. The problem with his writing is that he had so many different – and largely borrowed – theories that it is difficult to know what his interpretation of any one condition actually was. For example, in the frontal (dynamic) aphasias, did Luria see the problem in

hierarchy? in regulation? in rhythmic motor function? as a node in a distributed network? in primary/secondary analyzers? All of these and more can be found in different works in different places, with no effort to reconcile them into a single theory (see also: Pachalska 2002, 2007).

Luria’s testing was bedside rather than standardized, so a problem, for example, in repeating a series of sounds, *ba, pa, ba*, could be due to comprehension, production, serial ordering, memory, perseveration, etc., so it was only in the context of a total examination that one could interpret an isolated symptom. In this respect, his approach was consistent with microgenetic theory, but in the West, his approach has been translated into yet another quantitative battery, known as “Luria-Nebraska,” which he would never have approved.

Studies in Genetic Psychology

Genetic psychology, properly understood, is the study of micro- or macro-trends in the development of the mind, not the tracing of behavior to genes. This approach provides a background for microgenetic theory. Piaget (e.g., 1969) described the growth of knowledge in a transition of developmental stages, each an obligatory transit in the growth of mind. For example, around the age of 7–11, there is a shift from the egocentric to the concrete-operational view of the relation of self to world. The child is able to incorporate the perspective of the other into his own point of view. There is also a shift from a syncretic and intuitive phase to one of deduction and reasoning. Judgments of value have more influence on the earlier egocentric phase than on the later one of communicable thought (Piaget 1955). Such stages in the growth of mind or intelligence form the bases for the investigation of the maturation of specific functional domains, such as perception, language, logic, etc. When a novel response appears, its underlying operations are studied. When the response diminishes in importance with age, antagonistic factors are assumed to have intervened. A response that is invariant across age is said to reflect innate factors, though the sequence of stages must itself be governed by innate forces, even if there is considerable variation according to learning and experience.

Piaget conceived intelligence as a continuation of perception, or obeying the same laws as perception.

While he accepted the genetic notion of a progression from whole to part and the priority of process over substance, he did not resolve the problem of reconciling process theory with substantive modes of thought. Nor was there a coherent account of objects and relations. He wrote, “elements are not given from the beginning because they do not exist independently of the relations which unite them. . . (the relational method is a) striving towards the construction or composition of a whole, not starting with elements but with the relations between them, which is not the same thing” (Piaget 1972). Nor did problems of internal and external relations, or wholes and parts, achieve an adequate analysis. Piaget distinguished causal explanation in physiological science from psychological explanation, which deals with “systems of significations” or of significant actions that are inter-related by “implications” in the broad sense of the term.

There have been attempts to relate Piagetian stages to the pattern of myelinogenesis (e.g., Lecours 1975), but the correlations are imprecise. The brain matures as a whole, and specific functions cannot be related to the development of anatomical systems with great accuracy. The relation to pathological breakdown (e.g., Ajuriaguerra et al. 1963) supposes that functional stages are stacked in the acquisitional sequence and unpeel in the reverse order in pathology. In cases with posterior brain damage, an attempt was made many years ago without success to demonstrate a deconstruction according to the Piagetian stage theory. Such an effect, were it to be confirmed, as postulated by Heinz Werner, Hughlings Jackson, Roman Jakobson, and many others, is referred to as the regression hypothesis. This concept was for many years a mainstay in the study of development, but it has been called into question (Caramazza and Zurif 1978), at least in its simple form (Brown 1996).

In contrast to Piagetian accounts, which deal with the whole child and its relation to the world, perceptgenetic research (e.g., Smith 2001) has focused on the fine microtemporal processing of a perceptual object. Smith and his colleagues have employed a host of innovative methods, many involving rapid tachistoscopic exposure, to explore otherwise concealed stages in the perceptual process. These techniques are thought to expose early stages of affect and meaning that are ordinarily buried in the final object. The implication is

that phases of meaning, emotion, and memory are conjoined early in object formation, with the final object being the outcome of a rapid traversal over layers in cognition, which, in some way, correspond with the maturational history of the individual. The percept genetic approach has close affinities with microgenesis, in which the symptoms of focal brain lesion are used to reconstruct the neural and psychological process of percept formation.

A third approach to genetic psychology places emphasis on the relation of developmental stages in maturation and perceptgenesis to its attenuation in mental retardation, in pathology, and in primitive thought. Heinz Werner (e.g., 1945, 1957) is most closely associated with this school. As with other genetic thinkers, Werner asserted the primacy of process over substance. He argued that development proceeds in an orderly manner from a state of globality and lack of specification to one of increasing differentiation, articulation, and hierarchical integration or “genetic” stratification. Werner disclaimed an association with evolutionary psychology, for the latter deals with the history of mankind and what is early and late in the historical scale, while developmental psychology deals with the pattern from low to high mentality. He listed several features characteristic of developmental psychology, specifically, the progression from the syncretic to the discrete, the diffuse to the articulated, the indefinite to the definite, the rigid to the flexible, and the labile to the stable. Werner’s importance has receded with the cognitive shift in psychology, but there has also been a caricature of his thesis, which comes of taking too literally the comparison across different populations. The savage, the child, the psychotic, and the brain-damaged are not equivalent in terms of thought content. A child with an imaginary playmate, the native with his crocodile gods, or the schizophrenic with his visions cannot be compared to performance errors in persons who have incurred brain damage. The similarity is not in preliminary contents as end points, or those that surface, or remain submerged or transformed in normative cognition, nor do such phenomena reappear in pathological breakdown. What these diverse populations do have in common, in some if not all respects, is a pattern or mode of thought, one that is pre-rational, paralogical, or syncretic. The prominence of metaphor and symbol, and magical or

animistic thinking, points to a phase traversed in every rational thought. The commonalities in patterns of mental process are guides to regularities in the process of self-realization. They help us to understand the fundamental “laws” of thought, irrespective of the particular contents, which the process deposits at any given moment in any given case.

In sum, these varied approaches – over different time scales – share the concept of an action or perception as a derivation over levels or stages in cognition. The derivation is the intra-psychic phase of object formation, the object being the end point of a formative (micro- or macro-developmental) process. The progression is unidirectional, like growth, and obligatory. It leads from antecedent phases in conceptual, affective, and memorial experience to the presentational immediacy of acts and objects in the world. It goes from the wholeness and largely undifferentiated potential that originate the process to the multiplicity of world objects and conscious images in which it eventuates, that is, from self to world, and from ego- to object-centeredness. The momentary “growth” of a perception from an intra- to extra-psychic locus is a microcosm of the maturation of the mind, in that it resembles process across other domains of cognition. The microgenetic contribution to genetic psychology is a more precise formulation of the phase-transitions underlying this process, and their correlates in evolutionary brain structure. Microgenesis distills the different time scales into repeatable epochs in the relation of patterns of forebrain evolution to patterns in object-generation.

Microgenetic theory has demonstrated that too great a focus on the content of a performance is detrimental to the understanding of the process through which the content is deposited. The content of an action, an utterance, or a perception is “thing-like” and of a different order than the process through which it develops. Genetic psychology gives a description of cognitive development over the long- or short-term-based on epochs that recur, but it only provides a limited explanation of the contents that develop out of this process. This is its strength and its weakness. For example, such a psychology can account for the process of form or meaning development in a perceptual or linguistic object, or the relation to stages in memory, but not the content of what is actually said or remembered.

Psychoanalysis has in common with microgenetic theory the fact that it takes the actual (or latent) content of an act of cognition and attempts to explain its origins in unconscious process. However, the theory is not fully process-based, since explanation is in terms of the interaction or conflict of logical or mental solids, with the dynamic of feeling (cathexis) injected as the glue of the varied elements. Psychoanalysis is also problematic in that its constructs have not been successfully related to those of other fields of psychology, much less process thought. Some writers have tried to extract from psychoanalysis a theory of perception or memory (e.g., Schilder 1950; Rapaport, cited by Gill 1967), but these innovations have succumbed to orthodox interpretations.

A psychology that begins with mental content takes for its starting point an object that has completed its development. The object is assumed to be the product of parts/functions inferred from the putative structure of the object itself. Additional elements, that is, rules, operations, mechanisms, strategies, buffers, representations, and so on, are postulated to explain the content. These are eventually reduced to the atomic elements from which the part-functions, and from them the final contents are assembled. The entire process is content-like, with process inserted to string the contents together like beads on a chain. The linguistic and analytic schools of philosophy have generated, in cognitive psychology, a veritable industry to support this paradigm. In contrast, process philosophy has not sought connections to genetic or process approaches in psychology, veering toward theology and metaphysics instead of empirical science. The conceptual overlap of process philosophy and genetic psychology is such that a dialogue between the fields should be mutually enriching. Genetic psychology provides a direction and brake on philosophical speculation, which in turn provides novel or renewed insights for psychological study.

Perceptgenesis

Perceptgenesis, influenced by gestalt theory, concerns the microtemporal process underlying the development of percepts. This approach was initiated inter alia by Sander in 1928, who, as previously noted, referred to the process of object formation as *Aktualgenese*, or “moment genesis.” Sander developed techniques for studying the process of perceptgenesis,

including the use of poor illumination, peripheral location, obscuration, and brief (tachistoscopic) exposure. Sander maintained that a perceived object developed from an initial stage of a diffuse percept through progressive differentiation and discrimination to a distinct configuration. The early diffuse pre-object first achieves coarse figure: ground properties, then passes to a labile pre-gestalt, and then is derived to a veridical object. There is a corresponding microgeny to affect, such that a stage of anxiety is associated with the pre-gestalt, giving way to relaxation when the figure is resolved.

In cases of perceptual disorder (agnosia) with brain damage, Pötzl (1917, 1960) (see Brown 1988b for a translation of several of Pötzl's papers) noted the recurrence (intrusion) of unreported elements in subsequent object descriptions. For example, a green asparagus stalk that was not reported on one task recurred a few moments later in the description of a person as having a (nonexistent) green tie. Pötzl confirmed this effect in normal subjects with tachistoscopic methods. He presented scenes to subjects, and later found that unreported fragments were integrated into dreams that could be recovered in morning reports. For example, a waking subject shown very quickly a house with a picket fence, and able to describe only the house, might report in the morning a dream about a cage. This was an experimental confirmation of Freud's observation that dreams often concerned the least noticed fragments of daytime perception. Fisher (1960) subsequently confirmed and extended these findings. The work stirred interest in the advertising potential of these (subliminal) effects. The implication of these findings, that subconscious residues are linked to early stages in object perception and that the symptoms of object breakdown can be reproduced through experiments in percept formation, were a major theme in the work of Pötzl (1917, 1960), and had a great influence on later studies in perceptgenesis.

Such work has used modifications of these same experimental methods to study personality structure and development. For example, Froehlich (1984) has utilized procedures that elicit imaginal activity, guessing, and hypothesis formation in relation to progressive changes in the energy level (luminosity, clarity, etc.) of an intact stimulus presentation. Kragh and Smith (1970) have described changes in the thematic content of percepts from a psychodynamic standpoint.

These authors noted a progression in the resolution of the stimulus from ambiguity to stabilization and reality orientation. Various psychiatric populations have been shown to be distinguishable by this method. Smith and Danielsson (1982) used a Meta-Contrast technique, in which incongruent or threatening subliminal stimuli are presented with a tachistoscope to evoke anxiety. They described the series of transitions in the manifestation of anxiety and in defensive strategies from early childhood to adolescence. Smith and Carlson (1990) have used tachistoscopic methods to study creativity, in relation to personality development, the subjective pre-stages of a perceptual act, and the progression of these stages to the final correct meaning. These studies confirm the verbal reconstruction of a perceptual process, with increasing stability and automation of the process in the course of maturation.

Perceptgenetic studies assume that increments in the microdevelopment of a behavior in maturation predict or determine the response to the experimental probe. Such an interpretation conflates, however, several different levels of analysis:

- The longitudinal series in the acquisition of a behavior;
- The probe sequence at successive series in the acquisitional points;
- The on-line entrainment in the generation of a behavior once it is acquired.

These issues need to be resolved in order to distinguish whether or not the behavior that is being explained is the set of capacities needed for its description, or the operation enlisted for its elaboration.

The perceptgenetic data do not map to brain anatomy and neurological disorder (Brown 2002, p. 5). As mentioned earlier, pathology is not "ontogeny in reverse." Furthermore, the correlation of brain maturation with patterns of language or cognitive development is fraught with difficulties. Gradation in developmental sequence (e.g., myelination patterns) can provide insight regarding structural organization, but they do not correlate in a clear-cut manner with patterns of acquisition.

Time, Change, and Stability

Microgenetic theory developed as a clinical model, but gradually became a theory of time and process.

The central argument is that the subjective present, about which past and future seem to orbit, originates in the arising of a mind-independent passage from before to after. The past is less tangible, less real than the present, but it is more durable, absorbing the present as it fades into memory so that the future can become actual. Experience seems to go from the present of existence to revival in personal or collective memory, but this is the reverse of the passage of nature, which goes from earlier to later or, in subjective life, from the past to the future. Put differently, psychology assumes a direction going from present to past in the shift from perception to memory, while nature moves in the opposite direction, from past to future. A theory of mind consistent with the process of nature would have the future becoming the present out of the past, rather than having the past deposited by the present.

Temporal order in perception and memory has been conceived as realized within a given mind/brain state, or over a succession of states. Serial order might then involve a concatenation of states with a blurring of the boundaries between them. However, succession alone cannot map directly to passage, that is, perceived succession in the world does not give the succession in the mind, since objects and entities perish on actualization. The perception of temporal order requires that past and no-longer existent objects recur in memory. However, to attribute serial recall to short-term, working, or episodic memory merely restates the problem without explaining it. A succession of perceptual states may be necessary for serial order, but this is not a solution to the consciousness of succession.

Succession is as essential to change as to stability. Object stability occurs when replacements are similar, change when recurrences are novel. Serial order is required both to see a tree and hear a sonata. For epochal theory, events arise within nontemporal spatial wholes, with the simultaneity within a state replaced by its successor. The perception develops out of memory through the effects of sensory constraints on an infrastructure of memory. The state lapses to its precursors in the incomplete revival (decay) of perception in a series of replacements. The transition from simultaneity to succession within a state and the layering of the state in the graded revival of past states, that is, the orderly regress from a prior object to a present image, transposed to a temporal series within the

virtual present, is the basis of serial order in memory and perception.

Conscious and Unconscious

Change in the motion from one event to another in the observer's world reflects the temporal order of events as they actualize in the mind. From the lag in perceiving an object or from the image that results from binocular disparity, we know, *inter alia*, that perception is not *on-line* with physical nature. What we really perceive is a mental image that models a physical event, not the physical event itself, which is inferred from the image. Object and space are the outcome of the sculpting and externalization of phases underlying image formation. The transition from the intra-psychic and unconscious to the conscious and external in the formation of objects is so obvious and so often stated that it can be taken as the starting point for speculation. Let us begin with the transition in the mental state from depth to surface or onset to termination in relation to time and change.

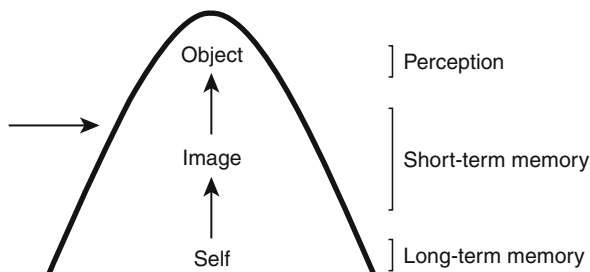
Many thinkers since von Hartmann (1868/1931) and Freud have posited a transition from timelessness to temporal order. Since timelessness is nonexistence, and the unconscious does not have the instantaneity of a durationless slice, it is preferable to speak of simultaneity, which has extension or thickness. If unconscious process in a conscious person is conceived as a subliminal transition, that is, if the *psychic* unconscious is beneath or outside consciousness though essential to it, and if the unconscious exists when the mental state actualizes, what would be the form of an unconscious transition that actualized without becoming conscious? On the microgenetic account, consciousness is always preceded by, and enfolds, an unconscious transition, so that an attenuated mental state could exist without reaching the stage of consciousness. For most psychologists, it is the other way around, that is, experience first passes through consciousness in order to be revived in the unconscious. A memory is the record of a perception, as the imagery of a dream is a memory (true or distorted) of prior conscious experience. On this view (which is not uncommon among those hostile to psychoanalytic excess, in which content in the *un-conscious* is dependent on, is a copy of and secondary to consciousness, without which, *qua* unconscious, it would not exist), the unconscious is

merely a physiological storehouse of past conscious experience.

For microgenetic theory, unconscious memory underlies *and is antecedent to* conscious experience (see Fig. 1). Consciousness is an end point of unconscious process – actually, a relation of early to late phases in this process (Brown 1988a; Pachalska et al. 2010). An image develops out of memory to externalize as an object, while a perception sinks or decays beneath consciousness. Microgenetic theory holds that the perceptual rim is uncovered to reveal underlying memory or dream, as preterminal phases re-actualize to varying degrees of completeness and in conformity with immediate experience. In brief, *instead of perception laying down memory, memory lays down perception*. Further, it is essential to avoid a preoccupation with the *contents* of the unconscious – memories, images, dreams – for it is the *process* of unconscious mentation, not the content into which the process deposits, that is common to organisms lacking human consciousness. Content varies, process is uniform.

The Perception of Change

The shift from cause to effect has usually been postulated as simultaneous, though for some it is successive.



Microgenetic Theory: Brain and Mind in Time. Fig. 1 The transition, or process of becoming, from core (self) to perception (world) frames a mind/brain state.

Consciousness is the relation of early to late or depth to surface in this process. Visual and verbal imagery, including conceptual or intentional feeling, arise at intermediate phases, so long as an external world is realized. The *arrow* represents sensation acting on the phase of imagery to externalize and adapt the state to the physical world. The phase-transition is nontemporal until it terminates. The mind/brain state and immediate present develop in a fraction of a second, replaced by overlapping states

Causal sequence in the world is perceived as a transition of a continuous event or event series. If the process account of this shift is correct, that is, as the appearance of a transition from one conscious end point to another, with change occurring in the derivation of the end point in an epoch of consciousness, the causal shift would be simultaneous if occurring within an epoch and successive if occurring across epochs.

Not just the simultaneity of the unconscious can be posited, but that of the mind/brain state as a whole, which is simultaneous over the epoch of its existence. Entities have a temporal extensibility over which they become what they are. In mind, late phases are not the outputs of early ones which, having been traversed, disappear, but rather early phases are embedded in late ones and all phases actualize together on completion of the final phase. There are conditions in which the core might be the end point of the state, say when processes mediating subsequent phases are inactive or destroyed, as perhaps in coma or dreamless sleep. There are cases in which an intermediate phase actualizes briefly as a pathological symptom, but a phase *in transition* does not exist in isolation. A phase is not a temporal object. An object is the minimal cycle of phases that constitutes one epoch. Thus, a hypothetical atom is not a collection of slices in the orbit of an electron or the sum of its positions at every slice, but is one complete revolution. Existence is all or nothing, and the existence of the all is simultaneous when an entity becomes the being that it is.

If serial order in consciousness is coupled to the phase-transition leading to consciousness, as deduced from the state on completion, with memories of recent events revived in the order of their occurrence – the transition activating earlier, then later phases in memory up to the final perception – the sequence of activation could provide the basis for *a line in time* from the immediate past to the present end point. When we listen to speech or music, the words and tones continue to resonate for some period of time as each new sound is perceived. This is explained by the strength (degree) of revival – usually cast as decay – of preceding states in novel ones. The earlier events are incompletely revived in relation to their pastness or, perhaps, the feeling of the relative pastness owes to the degree of revival. A transition leading through memory to perception that is apprehended as a *horizontal* sequence from

past to present would explain sequencing in action, music, language, in the world, and in the mind (see Fig. 2). Since the duration laid down by the phase-transition enfolds the memorial remnants of prior states that provide the posterior boundary of the now, both perceived and remembered event-series fall within the present duration. In that, this account explains order in both memory and perception, it has a parsimony not found in rival theories.

As mentioned, the mental state lays down serial order, yet has a spatial character, actualizing as an epochal whole. The simultaneity or spatial totality of the present epoch distributes into the order it realizes. Regardless of whether temporal order in a mental state develops from the totality of an epoch or an iteration of totalities, in the transition from initial simultaneity (core), through the before and after of the phase-transition, to the now that arises with a conscious end point, the state incorporates three modes of time discourse:

1. Simultaneity, which entails temporal thickness or extensibility.
2. Physical passage in the becoming of the mind/brain state, which gives mind but is itself mind-independent.
3. A subjective present (past, future) that gives being or existence to the transition.

The simultaneity (1) that is the spatial whole of the core, or the epoch it generates, leads to and embraces a transition over phase (2) that is the bridge to temporal order. This transition, and the duration of the present that is its outcome (3), corresponds to the two series of McTaggart (1927). Since the transition does not exist until it is complete, at which point the entire transition actualizes, every temporal moment or mind/brain state – whether a static picture or an event-sequence – occurs against a backdrop of simultaneity.

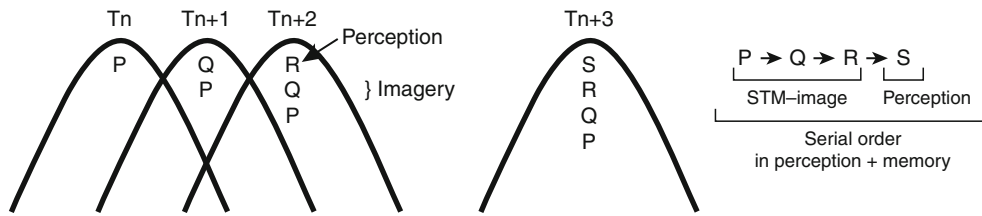
Ordering depends not on perceived succession but the implicit role of succession in the layering of memory and the *replacement* of one state by the next. But is it possible that serial order is just the perception of linkage made fluid by the rapidity of shifts? This assumes that a mental state, as an epochal whole, is simultaneous through its phases, with change in the causal shift from one epoch to the next, that is, in the linkage of states, not their replacement or overlap. We

are conscious of the final contents of a state, not the transition from state to state or depth to surface, nor are we aware of interstices in the linkage. Even if temporal order is not dissociable from oncoming and antecedent states, any account based on rapid succession must return to events *within* the state itself.

Consider the phase-transition *within* the state in relation to replacement *across* states. If order is laid down in the distribution of spatial objects, or if it is derived serially from the outpouring of the core, the array of objects in the world would be a static grouping with a leading edge of change, that is, micro-events fused to an event-sequence in the overlap. An object would then be an incipient event that becomes continuous when the next state appears. The perishing of the state would support the anticipation of the next and avoid reality appearing to the mind as a stroboscopic succession of pictures. If the clock duration of a mental state (say, 50–100 ms) is insufficient to generate serial order within the state, like the flash of a tachystoscope (stroboscope), it might permit a perception of forward momentum. Order and continuity would then depend on the overlap of recurrences.

Is conscious succession – the sequence of events in observation, or the motion of the world in perception – an illusion of causal transition? Is it like the *phi* phenomenon, in which illusory change results from the rapid replacement of static images? A series of causal pairs may explain fusion from one state to the next, but not memory of preceding pairs to give a continuous event or narrative. In a motion picture, the impression of continuity in the viewer's mind requires a frequency of around 40 ms per frame, which is close to the estimated duration of a mental state, thus the rate postulated for the replacement. This rate is likely governed by a pacemaker and is relatively constant, but there are individuals with brain damage in whom events appear to be speeded up or slowed down. The acceleration and deceleration of events in pathological cases, as in the speed of a film projector, might reflect the frequency of replacement.

The conclusion of this line of thought is that states are not concatenations of stochastic images, but rather superimpositions on the remnants of predecessors that are embedded as memorial residues (Fig. 2). The graded decay of memory is its graded revival in conformance with the occurrent state.



Microgenetic Theory: Brain and Mind in Time. Fig. 2 The perception (P) at T_n is replaced at T_{n+1} by another perception (Q), which may resemble or differ from that at T_n . Perceptual stability depends on resemblance; change depends on difference. Within the perception (arrow, R), the mind/brain state at T_{n+2} revives T_{n+1} almost completely, such that the image of P at T_{n+2} is prior to the object (Q), and so on. Over a brief succession of mental states, P, Q, and R represent images of past perceptions revived to a decreasing extent in the oncoming present, and graded according to this revival. An eidetic image is a near-complete revival. A memory image is a vague recurrence at some psychic distance from a present object. At T_{n+3} , the series of images, P, Q, and R, form an order antecedent to the perception (S). The perception and memory of serial order depend on the perception developing out of memory. Serial order occurs within the present, but depends on succession for the layering of prior experience

Perception and Memory

In order to understand temporal order in perception, it is essential to understand the relation of perception to memory. An incomplete perception has the character of a memory. The decay of perception to short-term memory, which is dogma in psychology, is ordinarily conceived as the transfer of perception to a store that retains many of the physical features of the original stimulus. One problem with this theory is that it posits a trace that is degraded rather than one that is incompletely revived. The persistence of a dead past is the heart of the problem under study. As soon as an object is past, it no longer exists except as an echo in memory. The concept of perception as externalized memory, or forgetting as incomplete revival, puts the relation of memory and perception in a different light. On this view, the transition is *from* long-term *to* short-term memory *to* perception. The trajectory is the opposite of that assumed in psychology. A perception grows out of phases in memory uncovered as incomplete recurrences within a momentary actuality.

The claim here is that serial order in memory underlies serial order in perception. The recall of the order of past events, the so-called episodic memory, develops in a setting (some would say out of a store) that is simultaneous until it partitions. Whether memories are conceived as associative chains, circuits, networks, or configural potentials, whether they are localized or distributed, until they are activated they are dormant possibilities, not actualities or existents.

An event in memory is a potential for activation. The search for the memory *store*, *trace*, or *engram*, has a long and disappointing history. This is because the accuracy of recall is determined by the extent to which the phase-sequence of the initial encounter is revived. In what other sense can we even write of the existence or temporal location of the memory of a long-forgotten face that is suddenly revived in a chance encounter? *In what sense is a memory in the brain waiting to be activated?* On the other hand, how does something come into existence from nonexistence?

A difference between episodic memory, in which an event is ordered in time, and semantic memory, which is for knowledge rather than events, that is, for thought or language rather than perceptual experience, is that episodes become parts of categories, shifting their allegiance from occurrence to family resemblance. An event absorbed in a category, say by repeated exposure, loses its exceptionality. The recurrence strips the event of episodic context for the relational system of thought. If we travel a certain route only once, we may remember it as an event in time. If we travel the same route every day, it becomes part of our knowledge, and is recalled as a specific occasion only if something unexpected happens. The unexpected creates novelty by decontextualizing an event from a family of like-occurrences.

The temporal locus of a memory can be accurate in immediate recall, as in hearing and recalling a telephone number, but even here it is imperfect, and it

becomes more fallible over time. In amnesia, with shrinkage of past (and present) duration, the inability to revive events, even implicitly, fails to articulate and expand past duration. Empty duration collapses on itself.

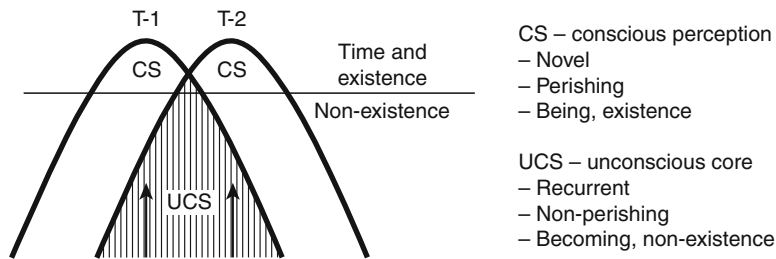
Do events in episodic memory have markers or relational indices of the perceptual history of their occurrence? To assign a temporal tag to events, or postulate a scanning device (Lashley 1951), offers a mechanism as much in need of explanation as what it purports to explain. In citing the Würzburg school, Lashley implied a hierarchic system of unconscious schemata or constructs out of which serial order develops. His example of the final word of a lengthy sentence disambiguating the meaning evoked the problem of languages such as German, in which a sentence may not be understood until the final verb. This suggests that an episodic sequence in memory, that is, the temporal order of past events in a mental state, or the basis on which we say A came before B, and B before C *in the past*, is the same problem as the temporal order – A, B, C – of ongoing experience (Fig. 2).

William James (1890) was the first to postulate overlap in the succession of mental states, which he termed pulses of cognitive consciousness. If the overlap is for early phases, later ones will perish before the tip of the oncoming state arrives (Fig. 3). More precisely, the

early unconscious phases associated with long-term memory, character, and the self are revived in the oncoming state before the present state concludes. Since the epoch does not exist until the transition is complete, phases trailing in the derivation would recur in the forward edge of the overlap, indeed, these phases would be continuously modified by ensuing states before they become actual. This is a solution to the nonexistence of the unconscious, for while unconscious phases never exist, they are constantly being replaced before existence is possible, while conscious phases exist but are continuously perishing. The paradox is that the nonexistent survives and is perpetually transformed, while existents are novelties that do not mutate, for they are replaced as they arise.

Emotion

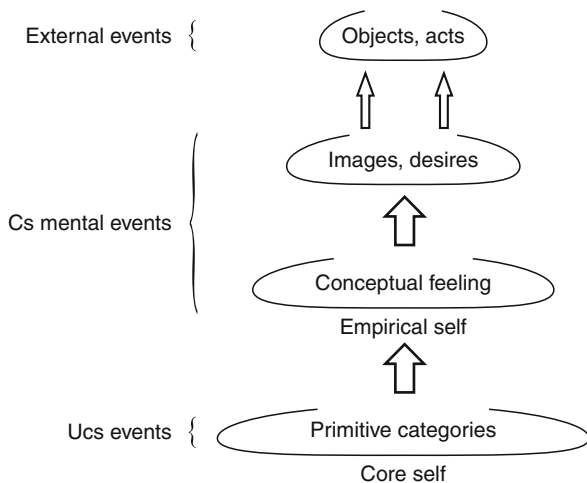
The problem of how emotion relates to thinking, the “heart” to the “head,” is a perennial one in psychology. Freud promoted the view that conflict arises within the psyche between that which one wants to do (drive, feeling) and that which one thinks or knows one should do (conscious thought, moral values). In many ways, one might even say, his “discovery” of the unconscious was an attempt to solve this old problem rather than to pose a new one. More recent psychological theories, by reducing the phenomenal field down to behavior or



Microgenetic Theory: Brain and Mind in Time. Fig. 3 Phases in short-term or working memory are generally revived in ensuing states in the order of their registration, that is, in relation to their resemblance to the oncoming state and, thus, their capacity for revival. Images closer to the current perception, that is, those in short-term memory that almost achieve re-perception, are most likely to be revived in the current state. The mind/brain state at T-1 is replaced by an overlapping state at T-2. The core of T-1 is overlapped at T-2 before T-1 terminates, that is, before the epoch exists. This explains the recurrence of early phases in T-1 associated with individuality, self, character, dispositions, long term, and experiential memory, and the “persistence” of core beliefs, values, and personality. Later phases perish on completion of the entire state to make way for novel perceptions. The reactivation of earlier phases by the overlapping state explains the sustained personhood behind succession. Early phases are ingredient across states, later ones are malleable to a greater extent as endogenous process is shaped by sensation

information processing have submerged or marginalized the problem of emotion, which is left to more psychotherapeutic theories and humanistic psychology. The latter, in turn, implicitly or explicitly view thinking as a barrier to (healthy) feeling, and we are back to where we started, with the valences reversed. Microgenetic theory – and this has been implicit in much of the foregoing discussion – places emotion almost literally in the center of the process by which drive articulates into objects and acts. The role of emotions is illustrated in Fig. 4.

First, there is pure subjectivity: a core self that wants to survive and strives to avoid pain and discomfort. Then, at the instinctual core, a core or unconscious (Ucs) self forms, and gradually there is opposition between the subject and the objectified portion of the subjective field, that is, a core subject at one pole, and at the other the object world, but the object world is not the world of outer events but the objectified segment of a subjective field. Then out of the Ucs core, a Cs self



Microgenetic Theory: Brain and Mind in Time. Fig. 4 The fine structure of the mental state. The core self is derived to the empirical self, which in turn leads to objects in the world. Corresponding with the object development there is a transition from drive through desire (emotion) to object value. The affect-charged category of the core self is the initial drive-representation. This is derived to conceptual feeling, then to object value. The transition from core to world is a continuum; the entire sequence constitutes a momentary mental state or an act of cognition

develops, with an articulation of inner and outer space. Inner space partitions to the Cs self and images. Outer space (i.e., the objectified part of the subject’s field) also undergoes partition to objects and their affective tone.

An emotion, from the microgenetic perspective, is an inner or subjective feeling, generated by the same process that deposits or actualizes an act or object, namely, the microtemporal process that leads from the archaic core of the mind/brain state to its outcome at the neocortical surface. The development of an object, action, or thought creates feeling within the developmental process. This process, along with the feeling that is its manifestation, constitutes the *becoming* of the object, while the final object, idea, or memory that “contains” the process leading to it is its *being*, that is, the epoch or category that enfolds the feeling. The process that generates a mental content, including perception, creates an internal feeling that with intense emotion can spill over to external physiology. The relation of feeling to the final object depends on the phase in the process that receives the major emphasis in the transition. The quality and the intensity of an emotion are determined by an emphasis at a given level and the context at a phase within the actualization process. According to the phase that is dominant for a given cognition, there is a different emotion and a different intensity. In general, enhancement at a deep or early phase gives strong emotions in relation to core needs, while enhancement at a terminal or surface phase gives emotions referred to the object, such as value or worth. At intermediate phases, one has emotions within the category of desire (want, wish, like, dislike, hope, fear, etc.). At an early phase, emotion discharges in the body. At an intermediate phase, the emotion, though internal, is directed to a pre-object or image. At a distal phase, the emotion is referred to *is ingredient* in the external object.

The Initial State

Drive arises through upper brainstem and diencephalon or hypothalamus to generate the initial manifestations of emotion. The foundational drive is for self-replication, that is, to sustain the life of the organism. The drive is organized about the bodily needs for the organism to “reproduce” itself. Hunger (thirst) is the feeling tone of drive, food (water) the object of the drive-category. The combination of drive as intense



feeling, hunger as drive expression, and food as the drive object constitutes the drive-representation. (Freud used this term for the activation of a trace to an idea by libidinal drive energy. Here, the drive and the category (feeling and pre-object) are a unitary entity.) Hunger, feeding, and satiation are felt within the body. The drive-representation is bound up with rhythms, with feeding cycles, nursing, orality, and the older axial motor system. Drive states have the characteristic of increasing pressure with arousal by gestalt-like patterns leading to consummation and satisfaction.

In the normal, waking human mind, the categorical primitives of drive may discharge in the body space or, more typically, are derived to successive phases (below). The drive-representation is ordinarily embedded as an initial phase in the mind/brain state, which goes on to the completion of the full microgenetic sequence leading to an object. The drive is at the core of every act of cognition, though the derivation to successive phases mitigates its impact except in extreme cases of need, for example, severe hunger or starvation.

Vectors of Action

Soon after birth, drive takes on a direction. With hunger, there is predation and food selection, which is the active or aggressive vector in the expression of the drive. The passive or defensive vector is in the avoidance of predators, that is, not being the food for other organisms. These two directions of behavior have been discussed extensively by other theorists, particularly Schneirla (1966), who claimed that approach and avoidance are the basic responses in all organisms. Even in paramecia, there is approach to a weak light and avoidance of a strong one. The concept was expanded by Denny-Brown (1967) in the interpretation of a range of motor and cognitive responses. For example, even the Parkinson's tremor was interpreted as a rhythmic alternation of positive/negative, or approach/avoidance behavior. This was also the basis of his description of pallidal and striatal syndromes, and was extended to psychological attitudes in the account of frontal and parietal lobes (and lesions) in relation to grasping (approach) and denial (withdrawal).

In this context the approach/avoidance dichotomy is thematic throughout the derivational structure of the emotions, and plays out in complex ways in the

pain/pleasure opposition in a variety of behaviors. With respect to the present theory, we argue that approach and avoidance or aggression and defense are less the manifestations of drive than vectors for drive implementation. On this view, hunger entails aggression in search of satisfaction and defense in the avoidance of other aggressors.

Sexual Drive

The next derivation of the instinctual drive-representation of hunger is to sexual drive. When this transition occurs is a topic of controversy. For the psychoanalysts, it is quite early. For others, it appears later. In any event, while the sexual drive appears at an early stage in cognition, it is not primary as Freud thought. Hunger sustains the individual, sexuality is for the species. First, the individual is replicated or recurs through the satisfaction of hunger; then the species is replicated or recurs through the satisfaction of the sexual drive. As with hunger, at the level of the drive, there is appetitive behavior that leads to arousal, capture, and satiation. The drive expression also involves the body axis, in rhythmic cycles of need, estrous, satisfaction and recurrence, and discharges in the axial motor system in the rhythmic movements of coitus.

The transition from hunger to sexuality is marked by the exploitation of attributes of the initial drive state, such as oral behavior and aggression to sexual activity. As with hunger, the approach/avoidance vectors determine the relation of capture, control, dominance, and acquisition to submission and dependency. Whereas hunger does not have a defined object – it is still at a pre-object phase – sexual drive narrows the drive-category to members of the other gender. For hunger, food is essential, while for sexuality, in humans, satisfaction can be postponed, diverted, or arrested. The implementation of the sexual drive is more optional than that of hunger, though there is a more limited range of satisfactions within the general category. This marks the delimitation of the force of hunger to the narrower scope of the sexual drive.

The phase of the drive-category is purposeful but non-intentional. There is no imaginary object, though the tracking of prey and mating appear to have some *proto-intentional* features. The inner feeling of a drive is that of an intense urge or pressure for discharge.

In human behavior, this urge or need is felt as a pressure for release, though it remains unconscious. In animals that are fully drive oriented, at late stages in mammalian evolution there appear the first marks of individuality or personality, expressed in shyness, aggression, tenderness, indifference, and other social behaviors. These marks of individuality signal the appearance, in the human mind/brain, of a core or unconscious self (see below).

The Transition to Desire

With learning and maturation, drive-categories and the core self become the repositories of the implicit or unconscious beliefs and values that make up individual character. These serve as dispositions or presuppositions that guide the core self as it partitions to the ensuing phase of the explicit or conscious self of desire. The transition from instinctual drive to conscious desire is from category to concept as objects resolve along with their affective tonalities. The pre-object categories of drive enfold the core self, entrained by implicit beliefs and values. The construct is organized within or about the axis of the body (with an orientation bias) to constitute a potential that underlies and gives rise to the multiplicity of part objects and refined feelings in desire.

As this subliminal construct is derived from the threshold of consciousness, it gives rise to the explicit self and conceptual feelings. As the core self develops, it comes to stand behind the drives, empowering them as Will while the conscious self that issues out of this background is the agent of desire. The Will is the forward surge that passes from need to want. Agency is the transition from the want of the conscious self to the valence of desire that is related to pain and pleasure, to like and dislike, to tastes and preferences.

The feeling of desire can weaken as it distributes over many objects or is indecisive for the one, and it strengthens as it concentrates in a single object or image. Desire is strongest for the image, which unlike the object that is settled in the world, can grow in thought. Desire is organized about, and may arise from, the conscious self, as drive does from the core. While drive has no inner space of pre-object growth, desire appears in the inner space of introspection and imagination. The intensity of desire increases with a reduction in its range of potential objects, as

a failure of one image to resolve with clarity creates uncertainty and an inability to go forward. We all see people who think too much on what is possible and are paralyzed in action, while others go directly into action with little reflection. These extremes find pleasure at a temperate zone where action is postponed and one object or goal is savored.

The core self of Will, drive, and need goes out to an object without deliberation, while the conscious self of desire can choose which object to pursue (avoid, etc.). Desire (fear, wish, etc.) is the bridge of the intentional from the conscious self to the object (act, image, thought, etc.). With desire, there is the choice and possibility of inaction. Desire mitigates the urge of drive in the delay before action, and the optional character of its objects, except for a state of passionate longing for one object as in love. Moreover, as drive is felt in the body, desire is felt in the mind. This degree of separation from bodily discharge is transitional to the ensuing phase (below) of the feeling of value out there in the world as the object detaches.

The tree-like structure of the emotions leads from the root and trunk of the core, to desire and its innumerable branching to the leaves of value that populate the world of perception. The shift from necessity to possibility and choice, then to externality and independence, is replicated at each moment as the mental state recurs. At one moment, the emphasis may be on the proximal segment of the transition, and need is foremost. At another moment, the distal segment is emphatic with attention and interest on objects in the world. Desire is the transitional segment that adapts the needs of the body to the exigencies of the world. The transition also carries a different feeling tone at each phase, from the drive-categories through the object concept to the object itself, as the process leads from generality through choice to definiteness.

The end point of the object development is, naturally, an object or action in the derivation of a concept to an adaptive resolution. As the object migrates outward, the antecedent drive-categories and conceptual feelings remain embedded in the external object as its identification, meaning, and value. The object is the surface appearance of a momentary epoch – the mind/brain state – that includes the precursor phases as part of its structure.

Self and Consciousness

As microgenetic theory has evolved and matured as a psychological theory, the point of emphasis has shifted from developmental and acquired pathologies to the nature of conscious experience and the self. In the heyday of behaviorism, the rejection of psychoanalysis turned the attention of academic psychology in a different direction, and such problems as “consciousness” or “self” were simply dropped. Cognitivism arose as a revolt against behaviorism but has implicitly followed the lead of its predecessor by, at least in its early stages, relegating consciousness, the unconscious, emotion, and the self to the margins of scientific discourse. It has become increasingly apparent, however, that a psychology that cannot account for awareness, consciousness, the feeling of being oneself or possessing an identity has failed to provide what one expects from psychological theory.

For the present purposes, *awareness* is defined as the *relation of a subject to external objects and bodily states*. A *subject* is the subjective whole of the organism, excluding its external portion. An *object* is the external portion of that whole, perceived as outside the organism, a perceived event. An *entity* is a physical event postulated to exist outside perception. The *external or objective world* is defined as a segment of the subjective that has objectified. In contrast, the *physical world* is the world of physical entities.

A subject is antecedent to the object. The *relation* is the unidirectional process of becoming through that subject and then object actualize. *Awareness* is the waking state of small children, not unknown to animals and the foundation of *consciousness*. One can have awareness without consciousness, since the former, from an evolutionary, maturational, and microgenetic standpoint is the earlier state. But one cannot have consciousness without an implicit state of awareness, since consciousness arises on this foundation.

Conscious perception differs from object-awareness. In the latter, the subject-as-a-whole is aware of external objects. In the former, a self is conscious of objects. The self is a segment in the stream of outgoing subjectivity, aware of its own priority and subjectivity. *Consciousness, then, consists in the relation of a self to inner and outer objects*. (The original meaning of consciousness was self-consciousness Ward 1933. Locke wrote, “consciousness is the perception of what passes in a man’s

own mind” [Essay II, I, 19].) The relation arises in the process through which images and objects objectify. The relation of the self to inner objects is introspection or reflection. The relation of the self to outer objects is exteroception or perception.

A perception by a subject differs from a perception by a self, even if the “same” object is perceived. Objects carve out the boundary of a subject. There are no inner objects, only different states of subjectivity, for example, anger, hunger, etc. The subject is what is left after its world is subtracted. In contrast, the self is buffered from the world by a subjective field. The self withdraws into this field in reflection, or remembrance. This field can be a private hell, or it can offer respite and sanctuary. Because the self is in relation to its own subjectivity, it does not have the immediacy of action that occurs in a subject. The self, along with images, thoughts, feelings, etc., is most emphatic when a delay in behavior dilates the automaticity of direct awareness; otherwise, all human behavior would be reflex.

An image or idea is a segment *en route* to a perception or an utterance. In a rapid traversal, action and perception dominate consciousness. If I am not thinking of anything in particular, I am still conscious of the world as the circumference of my point of view. When a thought or image comes into prominence as the dominant focus of attention, external space recedes to an ambient field that grounds the inner figural content. (Consistent with Cobb and Sherburne 1973, who wrote, “conscious attention shades off by degrees into unconscious inattention, the latter constituting by far the larger part of the experience of the dominant occasion . . . (and that) backgrounds that are vaguely discriminated consciously have as their backgrounds others that are completely unconscious but which are also capable of so developing as to become conscious.”)

We “think up” the world we perceive. This thought-up world is a model of an inferred physical world that impacts on the brain. The accuracy of our model of the world can be tested, but it is still a model. Walking, touching, chasing are kinds of tests. The model of reality depends on the type of organism and the adequacy of sensory data. The world may be thought-up, but without the constraints of sensation, thought alone cannot sustain the world. The rationality of thought depends on its proximity to the world, that is, to the accuracy of the model. The approximation to an

objective world determines the content of the state, for example, daydream, reverie, fantasy, hallucination, delusion, etc., phenomena that actualize at different points in the object formation. Without an objective world, thinking is dreaming; psychosis is an intermediate phase.

The Intuition of the Self

We all have a sense of our self as the center of gravity of character, along with a feeling of its continuity and repeatability over time. We do not feel that the existence of a self is problematic, or that it is an illusion or mix of momentary impressions. The self cannot be isolated on introspection, yet it grows and endures as a relatively stable entity over all the changing acts, thoughts, and desires of a life. While we have many modes of self-expression according to the occasion, each momentary self is felt to be a manifestation of the one genuine self. The inability to identify or define the self as it fluctuates with the situation does not persuade us of an absence or lack of personal identity. Experience is “taken in” and responded to by a self that stands behind as observer or agent. A feeling of identity, individuality, or personhood, binds successive states of consciousness together, or rather, the feeling of self-identity is the ground for the succession, providing unity to perceptions in the observer’s field. According to the modality, the self feels “situated” at the center of its experience, as in pain, or at the circumference, as in vision. The visual world is not a jumble of objects but a coherent picture. This is less so in dream, but then, the dream-self differs from that of wakefulness. The self is host and source of the varied thoughts and acts of a life, and except for illness, in which it is threatened with loss, has a development that is more or less continuous.

The self’s experiences are not felt as *impersonal* events that occur at the same time or in the same brain, in each waking moment and over intervals, such as sleep, intoxication, or altered states. Events in the mind and acts in the world, as well as external objects, are felt as *my events*, or as happening *in or to me*. Even events that are distinct from the self impact in a way that has consistency and organization. We recognize the randomness of events and, to an extent, their unpredictability, but at the same time we acknowledge a lawfulness and causal order, even if it is obscured by

contingency. We say that the self, through interpretation, gives meaning to randomness. However, meaning is not applied to events that impinge from outside; events arise through planes of meaning-laden images. All objects arise in this way, some felt as part of the observer, others as its possessions, still others as extrinsic. Thought is an activity that issues from the self, even as thought thinks up the thinker. The same process that lays down the core and empirical self continues into thought, act, and object, the latter being a part of the self that thinks them up.

Inner events and outer perceptions are generated with the self of that occasion. This does not mean that a perception of a green object evokes a green self, though severe pain is identified with a self in which pain is pervasive. In perceiving an object, the self, indeed the entire perception, is generated with the object. Some phenomena seem to be produced by a self that voluntarily summons them up, others confront the self or coalesce with it. A feared or loved object can be identified with a fearful or loving self. With intense feeling in pain, fear, panic, love, with a relaxation of boundaries, the self can become one with its perceptions. Feeling may so dominate a self that it is replaced by the object that seems to induce it. Severe pain fills the mind to the point that other objects are scarcely noticed. Intense fear or love focuses on the object or situation at the expense of other feelings, thoughts, or objects in the field. Feeling flows out of the self to concentrate in the object, replacing other lines of development. When feeling overwhelms the partition of the core to the empirical self, the mental state may recede to foundational drive-categories.

All acts and objects develop out of a self that is laid down prior to conscious action and perception. The priority is the antecedence of earlier to later in the mental state. Objects are necessary for the self to actualize; they depend on the self as their source. Equally, the self degrades when objects disappear. We assume, falsely, that the self, as observer, is an adjunct to an object, or that perception is an accessory to the self. This entails that the self and its objects are separate entities with discrete brain loci or networks. To study perception, language, or action without including the observer (or agent) leaves out the essential aspect, namely, the guiding or organizing substrate and origin.

For a self to attend to its derivations is quite natural and remote from attending to itself, which requires the agent to be the object of the same mental state. This turns the initial phase of the mental state into its terminus, or involves a regress from distal to proximal that occurs chiefly in meditative or mystical states, in which the self is more intuited than examined. The bundle of percepts accessible to Hume's intuition is a manifestation of the earliest phase in partition. The self that Hume could not describe is a category prior to the images that were accessible to his introspection. (An attempt to describe an imageless phase in thought was the program of the Würzburg school of psychology.) Moreover, such inner percepts or images are not random assortments; they assume a direction and coherence by virtue of the self that precedes them. Deeper than its implementations, the self fractionates to images that then pass (are transformed) to acts and objects.

The self feels it is an agent to objects that are its own ramifications, even an "owner" or possessor at the center of a personal universe. Some states of mind and body are felt to *belong* to a self that suffers or enjoys them. There is a powerful sense that all personal images, even occasions in the world, belong *ab origo* to the self, even if they are shared with others. The sense of ownership – my house, my car – expresses the value that flows distally into inanimate objects as an accrual through an economic vetting of what flows naturally into animate ones, such as in a person that is loved. To attempt to possess an object is to affirm its belongingness. The impression of a self as the owner of acts and images is reinforced in the variance of the world and mental contents in the face of the self's relative stability.

In a normal brain, all mental phenomena or bodily events are experienced as belonging to the self, a dependency seen in pathological disorders. In psychosis, thought-possession and delusion occur in an individual frightened by and subordinate to his own image-productions. Thoughts seem to come from outside, like alien intrusions, or they objectify, like objects, while objects become thought-like. The once-sharp transition from concept to object, or mind to world, is indistinct. The unity of self, image, and object is on display, in that change in one entails change in the other. Such disorders are not to be dismissed as meaningless perturbations. The inner relations of phases in

mental process are observed in the terror that is experienced when the illusory separation of mind and world is ruptured.

The sense of ownership is confirmed when the self feels detached from its own thoughts. The voices that speak to the schizophrenic, the thoughts that come to him from outside, the objects that take on psychic properties all reinforce the observation that inner and outer are outcomes of psychic process. In phantom limb, as in some forms of body agnosia, or stimulation of brain areas for movement and vocalization, bodily and psychic events may seem detached. Limb movement on excitation of motor cortex does not have volitional feeling. We have some idea of this experience from nocturnal jerks of the legs, when we are uncertain if movement is voluntary or spontaneous, that is, self generated or extrinsically induced. Such movements are like objects in relation to the self. The intermediate position of such phenomena – clearly endogenous but neither image nor object – accounts for their unreality, or the uncertainty of their psychic origin.

Dreams can be experienced in this way, as images inserted into the mind with the self a spectator. The passivity to dream and to certain forms of imagery results from the lack of self-image separation due to incomplete actualization and a loss of volitional feeling. The sense of agency is the link from self to image in visual and auditory imagery, as in the verbal imagery of inner speech. The loss of agency in dream or hallucination deprives the self of the feeling that it generates the image. The self is then assaulted or possessed by the image instead of producing it. The agency of inner speech or the *preverbitum* is transformed outward into a hallucinatory voice. A subtle interplay of such attitudes and feelings occurs in relation to image type and degree of objectification. In the controversial state of multiple personality, which is probably a factitious condition, personalities are neither distinct nor uncoupled from the core self.

There are two categories of the self, a deep core or unconscious self aligned with values, implicit beliefs and character, and a liminal, conscious, or empirical self that adapts to momentary needs and future expectations. One hears a person say, "I was not myself," by which is meant the "I" or ego of a given situation did not reflect the underlying beliefs and values of the "me" or the core. That many search for the genuine self or

sense of identity speaks to the intuition of an abiding core that underlies its varied manifestations. The distinction is embodied in the unconscious and timeless self of the “me,” and the conditional or temporal self of the “I,” one constant and authentic, another transient and adaptive; one that endures changing events, another, hostage to the passing scene. Yet, there is no accepted account of core and empirical self, how they develop, their relation to mind or brain, and the basis of identity.

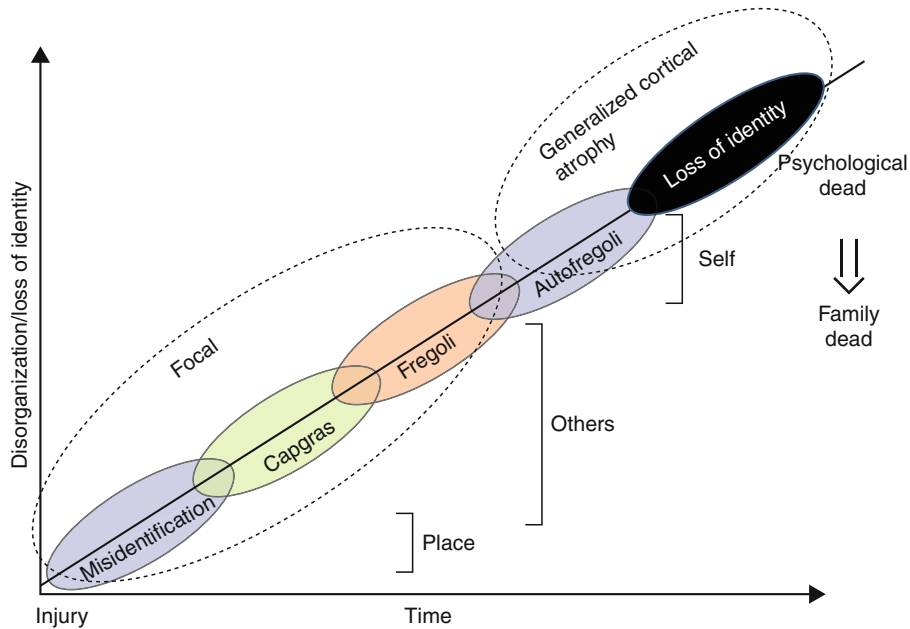
A significant link between the early neuropsychological studies inspired by microgenetic theory and the further development of the theory in psychology and the philosophy of the mind can be found in a recent paper written by the first and second authors of the present study (Pachalska and MacQueen 2002). Mainstream psychological theory, under the influence of cognitivism, tends to see language as primarily, or even exclusively, a system for processing information that is presumably created elsewhere, either within the organism (the “cognitive module,” or perhaps a group of modules responsible for mentation) or outside it, in the form of external stimuli. This approach relegates language to a distinctly ancillary role in relation to other mental processes and functions. In the microgenetic approach, however, language, cognition, and feeling are all closely intertwined in the upward-and-outward flow of thinking (MacQueen 2008).

The system of personal pronouns used in European (and many other) languages is the trace of a psychological process, whereby the child in the primordial symbiosis experiences world and self as an indivisible US, which later breaks down into the I-Thou dyad. It is at this point that consciousness can be said to emerge. When the child becomes aware that there are other centers of experience outside the I-Thou dyad, the third person emerges as a way of referring to that which is absent, and, later, to that which is present but not capable of entering into a dyad (N.B. the child typically personalizes and animates his toys at an early stage, and sees an object on which he has banged his head as having attacked him, i.e., he attributes agency to inanimate objects, thus making them “Thou’s.”). When the ability to manipulate grammatical persons breaks down in aphasia, then, what we are hearing is not merely or essentially the loss of a certain

morphological skill, but primarily the breakdown of a mental world broken down into discrete persons. Brain-damaged individuals frequently exhibit an inability to use grammatical persons correctly, which can be shown to reflect a loss of personal identity – that is, the first-person-singular pronoun is incorrectly used because the “I” no longer has a clear referent (Pachalska 2009). This symptom can easily be interpreted as an inability to re-actualize, at the moment of speaking, the development road from the symbiotic US, through the I-Thou dyad, to the fully developed world of three grammatical persons and two numbers. What surfaces, then, is the substrate, a dream-like/child-like state of consciousness in which the boundaries between inner and outer, self and other, animate and inanimate are blurred or nonexistent.

It follows from the foregoing that the problem of personality and the self-concept can be approached from the standpoint of pathology, in terms of patterns of transition from one symptom-complex to another in the same individual, and not as isolated defects. Disorders of the self cannot be localized to separate brain areas, but constitute a spectrum in the process through which personality is preserved and sustained. Clinical observation (Pachalska et al. 2010) has provided convincing evidence that the stability and identity of the self depends, not on the association of discrete components but on a recurrent process that maintains the self-concept over time, in aging, through sleep, and in the course of changing life events (see also Pachalska et al. 2010). This is illustrated by Fig. 5.

A brain-damaged patient may initially be unable to identify familiar persons (prosopagnosia), and in rare instances may not recognize him or herself in a mirror (the “mirror sign”). Over time, the ability to associate another person’s name and face may return, along with onset of the Capgras syndrome, that is, the delusional belief that a person with whom the patient is highly familiar (often a spouse) has been replaced by a double, who, though closely resembling the person, is merely acting the role. The patient will claim to be able to discern subtle differences that supposedly distinguish the alleged double from the actual person. Instances of a kind of self-oriented Capgras are reported in clinical studies, in which case the patient says or implies that he himself is a double, that he is not “himself” in a quite literal sense (Pachalska 2007).



Microgenetic Theory: Brain and Mind in Time. Fig. 5 The transition from misidentification through Capgras to auto-Fregoli and Cotard's delusion (psychological death) (Pachalska et al. 2010)

The Capgras syndrome may give way to the Fregoli syndrome, in which the patient is convinced that a complete stranger is someone he knows very well. In Capgras, a familiar is misidentified as another (usually with malevolent intent); in Fregoli, a stranger is misidentified as a familiar. The transition from Capgras to Fregoli may further evolve into “auto-Fregoli” symptoms in which the patient appropriates an identity that belongs to someone else (a casual acquaintance, a complete stranger). This is an episodic occurrence that may pass within a few hours or last for several days. Though phenomenologically distinct, the Capgras and the Fregoli syndromes lie on a single continuum of deterioration, which begins with Capgras, evolves into Fregoli, and comes near to close with auto-Fregoli symptoms (D. T. Bradford 2009, How the symptom evolves in neuropsychiatry, personal communication). The three stages represent, in reverse fashion, the microgenesis of self, which follows a path of increasing differentiation from the subliminal “core,” to a partially subliminal “self-concept,” to an “empirical self” actively engaged with others and the greater world.

In a case studied by the first and second authors of the present study (Pachalska et al. 2010), the

“auto-Fregoli” at some point gave way to a Cotard delusion – that is, the patient began to maintain that he was dead (this point is marked on Fig. 5 as “psychologically dead”). At least one other case of the Cotard delusion succeeding Capgras syndrome has been reported (Wright et al. 1993), in which the authors suggest that patients with Capgras syndrome project changes in themselves onto others, while in the Cotard delusion, the patient correctly attributes the change to him- or herself, but exaggerates its extent. The final stage in this progression, then, is a complete loss of identity, as most commonly seen in advanced stages of neurodegenerative diseases, such as (but not limited to) Alzheimer’s disease. We usually say then (colloquially) that “his mind is gone,” though few can be found who can give a coherent explanation of exactly what that expression means. Even if we find it inexact, naïve, or even offensive, the feeling that underlies it is clear enough: there no longer seems to be a self within this body, with which we could enter into an I-Thou relation. Thus, the ultimate psychic consequence of memory loss is not merely the loss of a certain kind or amount of information, but the disintegration of the self.

Not every patient, of course, exhibits all the syndromes in Fig. 5: a given patient may emerge from

pathology at any stage, or may persist in a given stage without moving on to the next. (Two patients described by the first author of the present study Pachalska et al. 2010 passed through most of the stages described in Fig. 5, and it is possible to see the whole sequence in the deterioration of self in the course of the middle and late stages of Alzheimer's disease.) The important point here for the present purposes is the sequence of qualitatively different stages by which one syndrome becomes another, differing from the previous one but reflecting the same process and leading in the same general direction. This "general direction," in turn, is clearly related to the development of the self in ontogeny: as the outer layers are destroyed or disorganized, or decay, the nature of the underlying layers becomes manifest, no longer buried under the products of later stages in the microgenesis of the self. This can be seen as the "microgenetic variant" of the regression hypothesis mentioned above. Although the regression hypothesis in its original form is untenable and has been rightly marginalized, the phenomenon that both Jackson and Jacobsen observed does exist, and can be explained, if microgenetic theory is applied.

Further Theoretical Implications

Microgenesis, like ontogeny and evolution, is a theory on the origins of present events, not a predictive theory as to future outcomes. The origins of events – whether over evolutionary, maturational, or psychological time – are inferred from present occurrences. In this respect, they deviate from the scientific paradigm in which effects are postulated from causes. This does not necessarily make genetic theory noncausal or nonscientific. The prediction of effect from cause is not logically so different from the retrodiction of cause from effect, though there are important psychological differences. In the first instance, the future effect does not yet, and may never, exist; in the latter, the putative cause is past; it has occurred but no longer exists. Predictive theories branch outward from causes to multiple possible effects, whereas in retrodictive theory causes converge to the present effect.

Predictive theories tend to be tightly controlled and limited to immediate data, as in a scientific experiment. One can forecast a future vacation, or predict that a strong hurricane will cause flooding on the coast, but the temporal window must be relatively narrow

for one to predict with accuracy. The greater the duration between cause and effect, the weaker the cause and/or the more contingent the effect. In contrast, retrodictive theories look to a more distant past in which an attempt is made to isolate a specific event or a more complex prehistory. The effect in question, that is, the present state, is the outcome of a convergence of prior causes – accidents, contingencies – distributed over a greater duration. There is also the question of how and why a particular state developed out of past states, especially with a lengthy series of intervening events. For these reasons, because complexity devolves to specificity, or proclivity becomes actuality, the past of a retrospective theory is often conceived less as a cause than as a potential that gives one of a multiplicity of possible actualities.

The shift to a theory in which a specific cause has many possible antecedents to one in which a specific cause has many possible consequents is the shift from a hermeneutic of coherence to a science of correspondence. The transition from potential and actual to cause and effect collapses the past into the present as possibility becomes fact. The specification of potential to a given actuality replaces the branching of a given cause to some future possibility. Put differently, the shift from unknown possibility to known fact in retrodictive theories is the opposite of predictive ones that go from known fact to unknown but hypothesized possibility. In contrast to ordinary causation, where a cause causes an effect, in retrospective theories the rumination on duration instead of immediate consequence conceives an effect not as the result of a cause but its replacement over a series of intervening states. We see this strikingly in ontogeny, where an organism changes each moment imperceptibly, causing itself to become the next moment in its existence. The same phenomenon appears in the replacement of mental states. The causal factor in genetic theories is that of *causal persistence*, that is, replacement, which is not a linear sequence of cause-effect pairs.

First, we will consider some further aspects of the relation of causality and potential that impact both fields of inquiry with the hope that deeper study will lead to a more precise formulation of basic principles that can ground a theory of becoming in psyche and nature, one that if not scientific in the usual sense, is concordant with the data of experience. However,

if process philosophy is to truly be an “adventure of ideas,” it must invite the novelty that was the creed of its founder even if this entails a revision of principles that have become almost axiomatic. It should also, where it can, seek empirical grounds without succumbing to the simplistic agenda of mechanical psychology. On the other hand, genetic psychology is a diverse field with little cross-talk among its members. The field is in some disarray and lacks an essential, that is, unitary, philosophical framework.

Subjectivist claims in philosophy can begin with either physical or psychological universals. Whitehead (1929/1978) approached psychology from the world of physics. Microgenesis began with psychology and reached a limit in fractal mathematics (Paul MacLean; in Hanlon 1990). A subjectivity of the inorganic that is continuous with human mind is a theory of mind continuous with physical nature. A coherent philosophy that begins with nature or human mind builds on the theory of cognition or nature, whether mechanical or subjective. A “mechanical” nature leaves quantum features unexplained, not to mention psychic states, while subjectivism grapples with the theory of substance and causation. The path that leads from nature to mind can import causal objects to the mind, or export duration and potential to nature. The appeal to process thinking of a genetic psychology rooted in subjectivity is that patterns in the actualization or becoming of the mental state can be mapped to features in the concrescence of physical entities that would otherwise be opaque to causal science.

Causation is accepted for the most part unquestioningly as the basis of all scientific work. The causal relation inheres in the objects of the science, as well as in their relation to the observer. For process theory, causation is a fundamental difficulty that must be confronted, no less for philosophical speculation than for genetic psychology. The growth of the child cannot be easily formulated in a causal discourse; mechanisms come into play at successive stages or are occluded or vanish as new ones appear. In the growth process, the child gradually becomes an adult by continuously replacing itself with a novel version of what it was a moment earlier. The causality most appropriate to the genetic model is that of “causal persistence,” defined as replication with minimal novelty between replicates.

Whitehead’s understanding of causality is relevant here. In a human psyche, each momentary occasion prehends or absorbs preceding occasions. What a person becomes moment by moment is largely conformal to the personal past. However, the new occasion also prehends other events in the ever-changing environment and integrates these prehensions with those of the personal past.

Causation

The two basic ways that causation is understood are object and agent causation. The doctrine of cause and effect between objects that is fundamental to much of science, for example, billiard-ball causation, has given the philosophy of mechanism. The causal interaction of solids in the world is imported to the mind in the interaction of brain areas or mental components. This notion of causality is deeply rooted and felt to be intuitively true but it has proved difficult to pin down.

One strategy for resolving the difference between object and agent causation entails a distinction of acts of will as “eventuations” or conclusions of thought that are preceded by deliberation, dissociated from prior states, and discontinuous with a causal continuation in nature. Rescher (2006) writes that “acts of will are mental eventuations that mark the completion of a process of which they do not constitute a part. . .,” though the force of the distinction is mitigated in that it is labeled as conceptual, not ontological. The approach uses object causation as a model for agent causation, even in distinguishing the latter as leading to a stoppage independent of its predecessors and not part of an ensuing series. However, a different picture emerges if instead of taking object causation as a model of the mind one begins with a theory of agency as foundational. On this view, physical events are like mental states in that they have a subjective (intrinsic) aim to completion, with the final effectuation conceived as internal to the process through which it unfolds. The “eventuation” is not, as Rescher would have it, the end product of a production line. An act that is the outcome of a period of deliberation is one in a series of mind/brain states that a self or observer takes to be a termination. Since events have no clear boundaries and states overlap, the point of termination is arbitrary.

One can say the froth of a fountain cannot exist, or can only exist artificially, without the surge of which it

is part. The ending is part of the story, the last word part of a sentence, and that part of a thought. Closing the cover is an act of cognition just as reading the last word. Every act or object – and every physical entity – is part of the whole of its development. This is not so clear when events are stretched out over time such as positing that deliberation is separate from the decision it leads to. But each outcome has a genetic undersurface, states develop and are replaced. An end point does not differ from a prior state, since every entity is an epoch replaced by another epoch, including inaction and silence. What is fractured is a logical, not ontological sequence. Physical events or mental eventuations are surface appearances of a microtemporal process, phase-transitions of internal relations of which outcomes are superficial marks.

Consistent with this view, the psychic precursor of (the feeling of) object causation is an ingrained sense of agent causation that precedes the feeling of transition in object causation. The agent causation that embraces the microtemporal structure of the mind/brain state should be the basis of a theory of object causation, not the reverse. The infant's control of its limbs and action on objects gives the feeling of causal power. The infant seizes a moving object or one that is displaced. To follow a trajectory is to anticipate. The primitive motion is to the future. The sense of causal power in the infant who reaches for a rubber ball is perhaps no more than the behavior of a cat that reaches for a rolling ball of wool, but with the individuation of the self, consciousness of this power develops to awareness of agency, or self-initiation, with its roots in organic process. The *necessity* in causation (Hume) that arises in infancy recurs as a psychic residue that informs and empowers agency in mature cognition. The grasp and control of an object that is the seed of agency is less a projection of human thought onto nature than a delimitation of unconscious potential into conscious actuality, just as indeterminateness in physical nature resolves into material fact. The momentary genesis of an act of cognition – or genetic process in general – is a model for the actualization of a physical entity. Mental state and physical entity develop over and actualize a temporal extensibility or minimal duration of existence.

The importation of simple causation to the mind is a classical instance of explaining complexity as

a compounding of the simple. This is, for example, the strategy of those who argue that mind is a collection of reflex operations, basically cause-effect pairs. But one does not easily go from the simple to the complex. The simple is never as simple as it seems, and the assumed simplicity obscures the process through which complexity develops. A reconstruction of the complex after it has been reduced to its elements – or from elements postulated to be constituent – is usually not possible. A pile of bricks is no more or less complex than one brick, though an artwork of a pile of bricks, or a wall, is a conceptual pattern distinct from an arbitrary assortment. The artwork or wall is a unitary whole in which separate elements are bound together contextually by the intrinsic relations of the mental state. The assumption of elements in the psyche bound by external relations in the mind as in the world generates and severs those elements in the distinction of cause and effect, a strategy that cannot regain the complexity lost when the elements were dismembered. In revealing the fundamental properties of the stage out of which it evolved, the complex better informs a theory of the simple than the reverse.

Further individuation of self and object leads to greater autonomy and a feeling of a self opposed to inner and outer contents. The direction of this relation promotes intentional feeling. Purposefulness achieves its aim when it terminates. The aim, not given beforehand, incorporates the potential it actualizes. As feeling takes on direction, what is implicit in drive becomes explicit in desire. In human thought, the derivation of affects and ideas out of conceptual feeling gives intention its direction. The immediate action of simple purposefulness transforms to conscious intention when an idea individuates in the self, and the external world abides in the background. The interposition of conscious ideas, verbal images, and feelings when the outgoing stream is abbreviated is obligatory for a conscious self. Unthinking action on objects involves a subject-object relation, not a self. Intention is awareness of goal or the “aboutness” of this direction, an attempt to mark off a closure that was satisfied in the immediacy of direct action. In sum, agency in organism is the basis of object causation. Intentionality in organism is the basis of a theory of (conscious, but incipient) agent causation. In all these matters, natural process insinuates itself into human thought.

As the self individuates, it perceives a world of particulars distributed in space and time, and interprets the particulars as a succession of causes and effects when, in fact, temporal order individuates in consciousness from unconscious simultaneity. The distinction of cause and effect in object causation complements the distinction of self and world in agent causation. Each mode of thought reflects a different metaphysic, one of mechanism, the other, of organism. In the latter, objects are categories of “events-with-meanings,” in the former, demarcations to which meanings are added. It is an error to dismiss the latter as prescientific, for it displays psychic qualities not evident to scientific thought.

Consider Piaget’s demonstration to Einstein that relativity theory is closer to the common space-time of young children rather than the separate space and time of the adult. Similarly, the felt curvature of dream space that differs from the open expanse and extension of waking perception foreshadows theory in modern physics.

The irrational, even mystical, has a significance in its proximity to organism. The need for an awareness of the unconscious structure of mature theory was expressed by Dewey (1926, p. 317): “as long as our own fundamental psycho-physical attitudes in dealing with external things are subconscious, or attention going only to the relations of external things, so long will our perception of the external situations be subject at its root to perversion and vitiation.”

Nevertheless, there are acute difficulties with both object and agent causation; in the former, the demarcation of cause, the doctrine of external relations, the transition to effect, or the role of contingency and accidental causation. These problems resist solution because they are analyzed by the very methods of the theory they subtend. A theory that cannot explain its core assumptions is vacuous, not merely incomplete. Persistent incoherence is close to unacknowledged refutation. Similar problems bedevil agent causation but here contingency embraces freedom, and the relation of cause and effect is still more obscure.

Object causation and agent causation give priority to the cause, whether going from cause to effect, or inferring effect from cause. In the conventional account, specific causes bring about specific effects. In medical science, a certain disease is caused by virus X,

or by X in combination with gene Y, or by X and Y with a preexisting constitution Z. The specificity of the cause is taken as equivalent to the specificity of the effect, especially if one begins with the effect and moves backward to the cause, since the effect is evident and can be identified. Another way of saying this is that an actual object, an actuality, entails a cause, and that even if the cause is multifactorial (XYZ in the above example), its components are as discrete as the effect, so that the transition from cause to effect is like that from one actual object to another.

The Actualization of Potential

When potential is thought of as the “cause” of the actual, no such precision of antecedent cause is forthcoming. This way of thinking entails that definite effects are not the outcomes of discriminable causes. Definiteness is in the effect, not the cause. In the transition from potential to actual, the presumed specificity of a present object is exchanged for the uncertainty of the potential in past ones. The efficacy of potential coincides with the priority of whole to part, or on a larger scale, in the relation of community to individual or of nature to individual organism. However, the doctrine of potential has its own difficulties, chiefly that potential is unspecifiable. In the mental life, potential corresponds (after Dewey) to the fringe of feeling-qualities, premonitions, and inchoate meanings – the stuff of intuitions – that guide the selection of acts. Those processes in the natural world that are the antecedents of these unconscious phenomena are no less inscrutable. For Whitehead, the “cause” as the real potential for the new actual occasion is the entire “actual world.” But cause in this sense does not determine what the effect will be, since the effect is also *causa sui*.

Genetic psychology is a subjective record of individual self-realization generalized to and across others. For genetic psychology, the past is revived in the present, which is felt as the outward crust of an inward history. The future is not what the present moves into, it is another present that the past deposits. There is a natural inclusion of the past, which makes up the major portion of the present, a past that is as important for the present as what the present holds for the future. An orientation to the past gives an inward focus on genuine change as reflection and retrospection take

precedence over anticipation and prediction. Each approach involves an implicit theory of (subjective) time. The excavation of the antecedents of known effects, or the consequents of known causes, takes the present as an actual datum in relation to an anterior or posterior extension. There is an infinite regress in the uncovering of earlier causes that are more like possibilities or probabilities than discrete occurrences. The retrospective approach is linked to the *transition from potential to actual*, the prospective approach to a *transition from cause to effect*.

Effects are the concrete facts we actually know, while causes are their anticipations or the potentials behind them inferred or vaguely sensed. The actual is describable, but its antecedents are uncertain unless viewed as collections of outcomes. If an actuality were the cause of a subsequent actuality as in linear or chain theory, it would be ingredient in the potential for the next round of actualization.

In some forms of process thought, such as for Whitehead, an actual object, on perishing, becomes part of the real potentiality for the next round of actualization. The world at state B actualizes out of the world at state A. This view entails that the actual occasion in one moment – with all other actualities at that moment – constitutes a potential for the ensuing occasion. On this interpretation, potential consists of perishing actualities and the actual has causal efficacy. A potential comprised of perished actualities gives new actualities that integrate elements of real potentiality in diverse ways. If the potential for a new occasion were exhausted by the real potential provided by past occasions, the novelty in new actualities would be limited to the reordering of elements in the past. Whitehead did not think this accounted for novelty in the world. In his view, every entity actualizes by its own “decision” out of the inclusive potentiality, which includes pure potentials not derived from its actual world.

A past entity can be considered a causal point. Microgenesis is a theory of becoming in which the final phase is not prepackaged or forecast at its onset. Actualities do not provide surface templates for ensuing actualizations but are cleared away (perish) for novel objects, while the entire process traversed in the actualization, but especially the initial segments, provides the ground for the next traversal. I look to one side and see a house, then the other side and see a tree.

The actual object has changed. The perception must be erased so a novel one can ensue. What recurs is the conceptual and experiential ground common to the series of actualities. This ground is part of the potential of the state as of the actuality. Since the scope of potential is wider than that of the actual, the actual object as an end point, that is, the *world as perceived*, delimits possibility and cannot form a comprehensive ground for the ensuing potential.

A consideration of the causal role of constraints on the actualization or concrescence of the mental state suggests the need for a different way to think about potential and actual in relation to cause and effect, namely, that the former are *phases in a single existent*, as opposed to elements in causal succession, in which *cause and effect are distinct existents*. Potential does not exist until it becomes actual, and it is then not causal but ingredient. The transition from potential to actual can be construed as causal if it is divisible into intervening phases, but this would not apply if potential and actual are part of a single entity. Potential perishes in actuality, not successively at each phase in a path to the actual. At each phase, potential is part of the actuality it leads to, that is, part of the epoch of actualization, or successive phases in a single momentary existence.

Development

The paradigm for mental development is mitosis, division within a membrane. In mind, the first division is subject and object, which is a psychological mitosis within the subjective field of the organism. The object, or objective world, does not so much confront the subject as it draws outward and objectifies a portion of a subjective ground. This creates an objective and subjective segment within the same subjective field. The subject apprehends and responds to an outside world that is an extension of its subjectivity. This is likely the mode of cognition in animals and young children.

The individuation of subject and object in a subjective ground is the initial phase. Gradually, within the subject portion, a self individuates in opposition to the world and in relation to its own subjective content. At the same time, the object-portion undergoes further articulation. The appearance of proto-intentional, then intentional, goals still remain within the mind’s outer garment. The separation of object from subject is

a transition from mind to world over a continuous sheet of mentation. This occurs in a recurrent sequence from a subjective core to an objective surface that is constrained by sensation at successive points. It leads to an objectified image that represents or models a world that results from the pruning of maladaptive form driven by the impact of sensory data on an endogenous process of image formation.

The Impact of Sense Data

After activation to a phase of vigilance or arousal, a construct of the act- and object-to-be that is organized about the body sets the process in motion, keeps it on track, and shapes unconscious precursors to their outcomes. Sensory data orient the incipient act-object at archaic formations in brain to an outcome in rational thought, veridical perception, and adaptive behavior. After the initial phase, there is a relative suspension of sense data as the construct passes to a space of dream, symbolic imagery, and thought. This phase is then propelled to conscious reason and adaptation. The gaining of reality, or the detachment of perception from the mind, requires sensory data at the end point of this microtemporal development.

When sensory constraints are in abeyance and the world is still present, say when we close our eyes and the visual data that impinge on the brain are reduced, earlier phases in thought development come to the fore. So long as there are auditory or other sense data to maintain an external world, these phases are rational and adaptive, as in contemplation, deliberation, or sustained concentration. With a persistent relaxation of constraints, thought can range from creative imagination to daydream and fantasy. With sensory data markedly reduced or eliminated, as in sleep or sensory deprivation, there is dream, hallucination, or psychosis. Sensation at the neocortical phase of the traversal is the final constraint on the emerging pre-object. Sensation is essential to the analysis and externalization of the pre-object. Otherwise, there is premature termination or an improbable route of actualization. Personal need must adapt to impersonal reality.

The final effect on primary neocortex is to model cognition to mirror the outer world. In pathological conditions, a veridical object can be achieved while preliminary phases are derailed. In normal perception, the application of sensation through the geniculostriate

pathways partitions the holistic pre-object and its space to a fully objectified image that appears distinct from its antecedent process in the mind of the observer. The foreshortened, palpable subject-centered space of imagery that underlies a proximate space of object relations – the perimeter of limb action or the world of the infant – becomes the open-ended, infinite expanse of waking perception. The transition is so abrupt, the model so accurate, the passivity and detachment so complete that we believe the outer world to be the source, not the product, of the perception. The restriction of the analysis and exteriorization to the distal segment of the mental state cleaves the object from the self, from private thought and feeling, to create an external rim of mind filled with seemingly extra-psychic objects. But all it takes is a brief spell of vertigo as the world spins around the observer to remind one that the world before us is an image in the mind.

Stages in Memory and Perception

The initial phases of the mental state arise out of an instinctual core – the inherited repertoire of drive-categories – then pass through a phase of affective and experiential memories that shape conceptual feeling in the direction of perception. Early phases are felt as memorial, later ones as perceptual, but a memory is an incomplete perception, and a perception is a memory specified to an object. The image transports the experiential past to the occurrent present. The same transition occurs in all domains of cognition, for example, when a word individuates a semantic category. At successive phases and with sensory guidance, whole-part shifts eliminate the potential irrelevance or maladaptation of possible objects to outer conditions. The transition from a perception that is like a memory to a memory that is like a perception delivers the present of ongoing experience out of the past of its own infrastructure.

The traversal of a pre-perception from phases of distant to recent memory embeds conceptual, experiential, and affective knowledge within what appears to be a naked object. The conventional belief that perception precedes memory merely translates common sense to theory of mind. The natural impulse is to ask, how can we recall something before we perceive it? But if object formation is parsed to a model of reality over an

endogenous phase-transition, the object incorporates as its trace the memorial sequence through which the world is realized. In forgetting, earlier phases in the object are recaptured. Memory is thinking to the extent it departs from perception, and perception is memory to the extent it fails to reach a veridical end point.

Feeling in Opposition to Objects

We seem to attach and direct feelings to an object. The feeling is felt inside the person as an interior phenomenon communicated in speech and action but largely inaccessible to others, as their feelings are to us. Most people believe that feeling is associated with objects, or derives from them, or that there is an external connection from self to object or other, but feeling in the object is part of what the object is, part of its becoming, or the process through which it is realized. The impression of an external relation to objects comes from their outward movement and loss. This splits the object off as something external, leaving its affective tonality behind. The effect is to reinforce the separation of mind and object and support the belief that the world is not ours to create but is out there to observe, react to, and experience, which of course it is, but not in the manner most people believe it to be. If we ponder how object worth or value is generated – the feelings we have for others, for animals, for things, possessions, memories – we come to understand that feeling is not applied to objects but *develops into them*. The intensity of feeling for memory, dream, the savoring of the past, the concept of memory as incomplete perception, all conform to the idea that as the memorial becomes the perceptual, the affect that accompanies the image distributes as value into objects.

Generally, feeling is more intense at early phases of drive and desire, less so at distal ones of object and word production. Moreover, feeling is felt as a pressure behind or directed to the object, not in it. In states of love or fear, emotion concentrates in one object that fills attention rather than being distributed evenly over the field. The process that leads outward from categories to objects accompanies a specification of drive to desire, to affect ideas, feelings of interest, and then outward in the externalization of the object, as value or worth. The qualitative change over successive phases is continuous from activation to termination. Feeling is the vitality and becoming of the object and the mark of its realness.

Mind Arises in Experience of the World

The mind is not a *tabula rasa*, but to the extent it is so conceived, it is a tablet on which letters are carved in relief by chipping away at maladaptation or redundancy. Mind is endowed with instincts and other primitive categories of knowledge that form part of the animal endowment. The enrichment of mind through instruction and experience seems inserted from outside. The diversity of the world is not felt to be created by the observer but exists for enjoyment or suffering, in any event, to be perceived, absorbed, felt, stored, and digested. There is a powerful impression of mind as a container filled by experience rather than sensation shaping the mind to conform or adapt to what is experienced. The reflection of the physical world is taken for the real. The creativity trimmed away in each cycle of world creation is attributed to the internal portion of mind before the world appears. The incessant novelty that is the work of nature – the astonishing creativity of life – in the novelty of each perception is a tributary of creativity in the mind.

Extension and Causality: Space and Time

One of the earliest objections to a conflation of the mental and physical concerns the extension of external space. We know there are levels of space formation in the mental state, such as the space of dream, the space of the body, that of the newborn and congenitally blind, so that an extended three-dimensional space, along with its objects, is achieved out of earlier space forms. External space is elaborated over a transition in which an initial nonspatial field of insubstantial mind is set in opposition to the extensive space of a substantial world.

Subjective time, duration, and the virtual present, which preclude instantaneity, differ from objective time order and the causal sequence of world events (Bohm 1980). The causal interaction of external objects is observed but not felt, unless there is impact by an external cause, while in agent causation, an action willed by the self is strongly felt but not observed. Specifically, we perceive the cause–effect relation in the world and we feel it in the mind. If we act on a decision, it is not the decision that instigates the action, but the self that makes the decision and feels an agent to the act. A decision is not the cause of an

action, no more than options that are blocked, abandoned, or exhausted are the cause of inaction. In conscious thought, we are informed of acts that are instigated at unconscious phases.

For the most part, the direction of world events is from cause to effect, that of mental events is from possibility to commitment. In the world, fact is primary and mind-independent, though influenced by probability and contingency. In the mind, possibility is the ground of freedom and fact is the final stage of belief. In mind, the progression is from potential to actual, in the world, from cause to effect. Consciousness involves a trajectory from self to object, and thus mediates a transition from the simultaneity of the unconscious to the temporal order of world events. The discovery of transitional phases in the *creation* of temporal order undermines a sharp opposition of these two frames of time experience.

Transience and Permanence

The inner perception of time and the outer perception of space, the feeling of transience in the mind, the coming and going of mental phenomena, the evanescence of life generally, the passing of things mental and the endurance of things physical, the stability of objects, the insubstantiality of thought, all combine to set one world against the other. All things are in change, indeed, it is intrinsic to them, but the tree in my garden will outlast my thoughts about it, the telephone will be there long after my conversation is over, and the generic cows in the meadow will replicate themselves long after my individuality is lost. Stability is the iteration of like-objects; impermanence is the iteration of dissimilar ones. It is a matter of the perceptibility of change and the repeatability of occasions. But, the tendency of mind to apprehend the extremes rather than the gradations accentuates these distinctions and makes overcoming them all the more difficult.

Evolution and Cognition

The pillars of evolutionary thought are abundance of form and elimination of the unfit as the environment trims away and prevents the reproduction of less-fit organisms. Adaptation entails a pruning of organism so only those best-fitted to the environment will survive. The population dynamic of evolution is realized in the micro-transition of the mental state. The

environment in the form of sensation trims away irrelevant or maladaptive possibilities, so what survives – an act, a thought, an object – is best suited to its social or physical habitat. The world of the organism, like that of object formation, is a limiting point on degrees of freedom. The aim of evolution to produce and reproduce an organism best adapted to some niche in the physical world is the same as the aim of thought to produce and reproduce (replicate) an object best adapted to a momentary niche in the physical world. Both processes lead to an objectification and a continual retesting of fitness.

Agency and Recipience

An essential aspect of the indifference of the world to individual mind, and the feeling that the objects that grow out of us are, like the children we bear, independent of their conception is the transition from agency to recipience in the outward-going flow. The feeling of agency is that of the self willing an action. This feeling is conveyed into an action to give it a volitional character. This is because agentive feeling deposits in the body, not the world. I do not raise the glass – that would be telekinesis – rather, I move my hand which then raises the glass. An action belongs to the agent because it remains in the body and does not fully externalize. In object development, intermediate phases prior to detachment may have a volitional quality. I can will a mental image to occur and *manipulate* it as I like. The image is *my* image. It has not fully separated. In instances of incomplete object development, agency can be carried outward with the image, as in hallucinatory voices that command actions by the percipient observer.

As the endogenous phases that actualize an image are guided by sensory data to veridical objects, there is a progressive loss of voluntary control, which is ceded to terminal sensory constraints, finally to the world. As the image detaches and is felt to be independent of the perceiver, the agent becomes passive to the outcomes of his own image formation. The feeling of passivity to objects is an essential element in the detachment, but agency is dependent on the nature and the phase of the content it accompanies. Agency can be lost or regained in pathology, as when an individual feels that objectified thoughts are transmitted to others. The differing modes of agency in various forms of mental

imagery – after-images, eidetic images, memory images, and so on – illustrate a transition from the voluntary to the involuntary in the passage outward to objects.

Knowledge and Insight

We are constantly guided by knowledge of the world, especially the pragmatics of life, much of which is attributed to the cumulative wisdom of common sense. Common sense draws its considerable authority as a tactic for coping and survival that, by genetic or cultural transmission, has passed down over the ages. The perils attached to ignoring common sense have, no doubt, eradicated most of the outliers who raised questions about it or acted in a way as to deny what seem to be obvious truths. When applied to behavior in the world, common sense is a reasonable strategy. The difficulty arises when such beliefs are transferred to a theory of the mind, or become a standard against which theory is judged.

Much of microgenetic theory is a challenge to common sense beliefs, though the theory can explicate their origins. The problem occurs when a common sense theory of the world is interiorized as a theory of mind, or of antecedent phases in the mental state, or when early phases or constituents in perception are described in terms of final ones, or the flux of brain activity is depicted from the standpoint of external solids, or when memorial or unconscious contents are held to be copies of what is selected by consciousness. That a model of the real should grow out of fantasy, that objects are recognized before they are consciously perceived, that the world is an extension of the mind, that succession in time is generated out of simultaneity, or that the pathology of cognition displays preliminary normal phases is not common sense dogma.

Prospects

Implications of Microgenetic Theory for Psychology and Philosophy of Mind

Science and psychology take an objectivist or externalist view of the same material as the subjectivism of microgenesis. Externalism imports objects into the mind and isolates them from their spatial and

temporal context, achieving an account of mind at the cost of its most essential features. For direct realism, which extracts the subjective from nature, then mind, objects of perception are the constituents of reality. Internalism, of which microgenesis is an example, works with the same data but leads to an account that retains more of the richness of its topic even if it seems untestable and speculative. Both accounts have ontological implications. For externalism, it is simply that objects, mental or external, are substance-like, either physical or logical solids. For the internalism of microgenesis, a *becoming* over the temporal extensibility of an object or an entity – a rock or a mental state – deposits the *being* that the thing becomes. There is much truth in the comment of William James that the basic problems of psychology – mind and brain, thought and nature, knowledge and reality – are ultimately metaphysical.

There is one reality but many doors through which it is apprehended, and each doorway is a perspective that takes the reality it perceives as the true one. Some of these perspectives, especially those shared by many observers, are taken for a direct view of the one, others are dismissed as perspectival. For most people, the world of perception is the real world. For some, the question is the degree to which mind encroaches on the physical or the degree to which the physical is installed in the mind. The debate is whether the perspective is a direct, subjective appearance, a model or representation, an illusion or false belief.

In our view, knowledge of reality is inferred from its copy or representation. This takes the subjective to its limits. A long tradition of such thinking includes a negation of the real by denying its existence, creating an alternate reality in art or mystical contemplation, or retreating to dream and fantasy, even psychosis. An intuition of the primacy of the subjective is the starting point of philosophy. In an echo of Descartes, Schelling (1800/1978, p. 31) wrote that “the science of knowledge cannot proceed from anything *objective*, since it actually begins with a general doubt about the reality of the objective.”

Transitional phenomena help us to understand that the division of mind and world is not as stark as at first it appears. There was a time before the universe was purged of subjectivity or divinity and mind was pervasive that nature was replete with spirit and mentality.

This animistic mode of thinking is still found in dreams, primitive cultures, and pathological states. In our view, it is embedded in preliminary stages of waking thought. At present, except for symptoms or experiences that display a continuum from inner to outer, there is a bifurcation of nature into two portions, one mental, one physical, a way of thinking that derives from, and in turn supports, the distinction of self and other, past and present, feeling and mechanism. The bifurcation dissolves in all-mind or all-nature by eliminating one of its limbs, the physical in idealism, the mental in materialism, the replacement of nature by mind, or the gradual removal of mind from nature and brain, restricting subjectivity to pains, after-images, and other *qualia*, or assuming that consciousness is the last remaining problem before mind can be fully reduced to material brain function.

Current Work in Neuroscience and Microgenetic Theory

The relative neglect of microgenetic theory in the “mainstream” of current neuropsychology and other sciences has perhaps already been adequately explained and lamented. The theory challenges so many and such basic assumptions in the largely cognitivist establishment of academic psychology and neuroscience that accepting it or even acknowledging it would bring a great deal of contemporary research (“normal science” in Thomas Kuhn’s sense; cf. Kuhn 1996) into serious question. Nevertheless, it is of some interest (and no small gratification to the present authors) to note that many predictions made by microgenetic theory and passed over in silence for 10, 20, or 30 years can be verified by recent developments. The emergence of new brain-imaging techniques has brought us results that in fact undercut the old assumptions, and can be much better explained by microgenetic theory. In a recent paper, Talis Bachman (2009) has listed a number of such studies, detailing their relation to microgenetic theory – even though, in many cases, the authors who have published their results are baffled by them, and unaware that they had previously been predicted by microgenetic theory.

Examples of this phenomenon include the back-propagation theory of visual awareness (Lamme et al. 2004) or the neurobiological framework for

consciousness proposed by Crick and Koch (2003). These new developments have reversed the conventional view about how perception evolves (which sees the percept as the result of the gradual accumulation of “bits” of “raw” information that the brain subsequently synthesizes into an image), but the authors themselves do not seem to be aware that similar views have already been expressed, several decades before the imaging technology was available to confirm them (Brown 1988). An increasing number of neuroscientists now understand that the perceptual essence of the object (the feeling that there is an object and its assignment to a primitive functional category) precedes the awareness of fine perceptual details in percept formation. In microgenetic theory, this has been understood and substantiated already by Nikolai Lange, Felix Krueger, Friedrich Sander, Heinz Werner, and, especially, the third author of the present study. Although attempts have indeed been made to import the central concepts of microgenesis into mainstream cognitive neuroscience, experimental psychology (e.g., Bachmann 2008), psychophysics (e.g., Tucker 2008), and neurophysiology (e.g., Kropotov and Mueller 2009), additional research is needed to further demonstrate the theory’s empirical validity. Otherwise, the microgenetic school may acquire a status somewhat similar to psychoanalysis, with a still receptive audience in philosophy, therapy, and fine arts, but with no foundation in mainstream empirical research to keep the theory alive. A merger of scientific data, philosophical vision, and the art of thinking is in the making.

The further development of approaches to neural systems that are not fully deterministic may lend further support to microgenetic theory. Mental states, like weather systems, change in ways that are neither fully linear nor entirely random, a fact that brings to mind the application of chaos theory to evolutionary biology. The appearance of novelty in the course of replication, as previously mentioned, does not allow either for a strict determinism or a roll-of-the-dice randomness. Microgenetic theory stresses the evanescence of each phase in the unfolding of a mental state, but it is never the case that, literally, anything can happen from one moment to the next. The advantage of microgenetic theory here over other current psychological paradigms is that it is not inordinately dependent on a

deterministic certainty of the cause–effect relation, but neither does it deny the possibility of rigorous scientific inquiry.

Another advantage of microgenetic theory (by no means the least, in our opinion) is that it provides a workable, reasonable alternative to the currently fashionable, highly reductionist, and naively materialistic models of the brain. Philosophical dualism of mind (soul, spirit, psyche) and body is not the only viable alternative to a theory that reduces mind to brain and brain to neurons or genes. As contemporary physics forces us to rethink the nature of matter itself and the ways by which information is transmitted, models of the mind/brain built on the assumptions of classical mechanics and information theory also need to be rethought. Experimental work has confirmed theories that have been circulating among physicists since Einstein's day, that two quantum particles, which once belonged to the same physical system can continue to resonate together even when they are far separated in space, as though they were still parts of the same system ("quantum entanglement," cf. Schrödinger 1935). It may be that the entanglement effect, once thought to be limited to the microscale, may be observable in macro-objects (Musser 2009). The implications of this discovery far outside the bounds of theoretical physics may be profound. For the present purposes, it may be enough to point out that the very existence of bonds independent of space-time suggests that matter is not what we thought it was. And what is true of photons in a physics laboratory may well prove to be true also, *mutatis mutandis*, of neurons in a living brain.

Conclusion

This discussion reviews some phenomena that account for our experience of reality and the bases for believing, indeed, rarely questioning the naive view that the real world is just as it appears before us. We have learned that fact in the world is appearance in the mind – "irreducible values" as Dewey wrote – and that the phase-transition in the actualization of the world, as revealed by pathological conditions and altered states, is a continuum over neural substrates and psychic phases, not a sudden break from mind to nature. As in object formation, feeling goes into objects as interest,

value, or worth, seeks reciprocity in friendship or in love, and suffers grief in loss. Love is a feeling that is sequestered in one object of inestimable value, the loss of that object being an excision of its conceptual precursors in the self. The notion of the unconscious and the perceptible world as *physical* spheres surrounding a psychic arena of consciousness is refuted by the perturbations of neuropsychology that expose phases that fill the process from unconscious to conscious and from consciousness to the world. (For recent studies in neuropsychology from a microgenetic perspective, see Pachalska and MacQueen 2008.)

The psychic landscape before us is not a hallucinatory vision, but a representation of reality, though not the reality it represents. This changes little unless, like a schizophrenic, we *feel* the phenomenal basis of conscious experience in which case the model, in its distortion or incompleteness, is exposed for what it is and life becomes intolerable. To know the real is inaccessible is an intellectual challenge or limitation, but to *feel* it is unreal is to live in the transition from dream to wakefulness.

Apart from an entrapment in the mind, the temporal extensibility of physical entities, as inferred from that of the mental state, entails that knowledge of a thing is knowledge of the change by which the thing exists. This means that being is not a frozen substance or slice but a becoming, a before and an after, that brings the thing into existence. It is probable that uncertainties at the quantum level in physics, or ambiguities that cannot be resolved by calculation, or do not obey some of the laws that underlie prediction, can be attributed to the temporal extensibility of nature, compounded in the mind, and the inability to escape the psyche regardless of the instrumentalities that are employed. A slight but significant error will occur owing to the approximation of mind to reality, or to the psychic process through which reality is encountered. We study the reality in the mind, not what a reality mind can perfectly measure, for even in the most accurate representation there is inevitably some immeasurable disparity.

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Miles, Walter R.

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Basic Biographical Information

Born: March 29, 1885; Died: May 15, 1978.

Walter Miles was born in Dakota Territory and then moved to Oregon, beginning his study of Psychology at Pacific College in Oregon and Earlham College in Indiana. He was invited to the graduate program at the University of Iowa by Carl Seashore, who on a tour of Iowa colleges in 1909 visited William Penn College in Oskaloosa where Miles, a devout Quaker, was a new instructor. Miles supplanted his graduate funds by serving as a Quaker pastor in Iowa. He obtained the Ph.D. in 1913 and moved to Wesleyan University where he replaced, for a year, Raymond Dodge on leave for his

work with F. G. Benedict with the Carnegie Institution of Washington on the effects of alcohol. Dodge and Miles formed a close friendship and Miles, through Dodge, became associated with the Carnegie Nutrition Laboratory in Boston in 1914. There he conducted research on the effect of alcohol on basic psychomotor and physiological functions (Miles 1918) and worked with F. G. Benedict and other staff members on an extensive research project undertaken during the First World War on the effect of restricted diet on human performance (Benedict et al. 1919). He remained at Carnegie until 1922 when he moved to Stanford University for 10 years. He moved permanently to Yale in 1932 and remained there until retiring in 1953. He then spent 3 years in Turkey and after that took up another career at the Medical Research Laboratory for the naval submarine base at New London, Connecticut, echoing the activity of his mentor Dodge 40 years earlier. There he remained until finally retiring in 1965.

Major Accomplishments/Contributions

Miles was a scientist's scientist and an experimenter's experimenter, confirmed in his interests in measurement and instrumentation by both Seashore and Dodge. Like them, he was not particularly theoretical; rather, he saw experimentation as a method that could be turned to practical advantage in any area, and this is reflected in the range of his interests. Represented in his published work, starting with his work on the accuracy of pitch in singing (Miles 1914), are studies on honey-bee olfaction, alcohol and its effects on driving, interpretation of shadow movement, ocular dominance, elevation of the eyeball in winking, reaction time and football linemen's charging, methods of using binoculars, and the metabolic changes associated with several yoga techniques. These last he studied with Kovoov Behanan, a graduate student at Yale who authored *Yoga: A Scientific Explanation* in 1937 for which Miles wrote the foreword (Behanan 1937). Miles created and refined apparatus including the pursuitmeter and the elevated maze, which became a standard device in rat laboratories in the 1920s, and is also credited with the introduction of the use of the old darkroom technique of safe red light to maintain pilots' dark adaptation during the Second World War (Miller 1980). He also wrote on the relation of psychology to other

professions (Miles 1932; Miles 1934) and edited a substantial collection of studies on human variability, a homage to Dodge on his retirement (Miles 1936). In 1927, 2 years after the death of his first wife, he married Catherine Cox, another devout Quaker, the author of a study of intelligence in historical geniuses and a student of Lewis Terman. He collaborated with her on a series of studies of the maintenance of intellectual capacity in old age: Their work was instrumental in changing psychological and public views of ability and its relation to aging (Miles 1933). He was also a meticulous diarist and note writer, and left a very extensive collection of not only the usual manuscripts and papers but also of records of conversation, trip diaries, home movies, and personal documents. This is one of the most complete collections of personal data and material artifacts of any American psychologist of that time and is a primary source for the “fine texture” of psychology’s history (Goodwin 2003).

See Also

- ▶ Cox, C. M.
- ▶ Dodge, Raymond
- ▶ Terman, Lewis M.

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Military Psychology

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Introduction

Military Psychology: Yesterday, Today, and Tomorrow

Military psychology, a special discipline of work psychology, focuses on research and application of psychological methods and principles to unique job facets in innumerable military settings. In various countries, military research psychologists, both uniformed officers and civilians, work in government and university settings, or with defense contract groups, where they conduct laboratory and field research on topics important to soldiers, sailors, airmen, marines, and coastguardsmen, to their families, and to their leaders. Military psychologists design screening tests for aptitude and mental ability in recruits. They are involved in placement of large numbers of personnel into appropriate job categories or in selection of individuals based upon abilities to fulfill specialized jobs and mission assignments. Psychologists do research on improved techniques used in training tens of thousands of military personnel per year; they provide advice to training officers and, occasionally, conduct training themselves. Psychologists supply guidance to military leaders and decision makers on behavioral issues regarding individual combatant or team performance, on human engineering design of developmental weapon systems, and on operational procedural matters to prevent or reduce physical and psychological casualties that accompany battlefield exigencies of war. Occasionally, psychologists serve as behavioral science advisors at staff headquarters or on governmental legislative committees with oversight of a broad range of national personnel policies impacting millions of military personnel.

Military psychologists also work in military medical centers, schools of medicine, and at outpatient mental health or family counseling clinics. Clinical psychology teams provide mental health services and

psychological treatment to military populations, striving to improve the lives of armed services personnel and their families, especially important work when military members are separated from loved ones while deployed to other countries with unfamiliar cultures and surroundings. Uniformed psychologists work in troop units on field assignments and, occasionally, they accompany combatants on dangerous military missions. In newer military venues, psychologists analyze and advise on humanitarian and peacekeeping missions to determine procedures for saving military and civilian lives.

Across the millennia, military leaders have been interested in the *psychology* and *behavior* of their own warriors in combat, as well as that of the adversary leaders against whom they fight. From the great captains of war, Alexander the Great, Caesar, Napoleon, and others, to today's combatant leaders, they all have searched for ways to motivate troops to put their lives on the line, to fight for political, philosophic, or economic ideals, for the security of their fellow countrymen, and due to the special camaraderie they share with fellow soldiers in arms – first and foremost to fight for one another. Military planners seek answers to such questions as: Can we select the best individuals for leadership positions; are leaders born or are they made? How best to train military competency into military forces? How to develop stress hardiness and resilience in individual combatants and military teams? How do we prepare military forces psychologically for the fog, the shock, and the exigencies of war? To gain tactical advantage in combat, military strategists gather intelligence information about an enemy's vulnerabilities and then employ psychological warfare targeted at enemy soldiers and the indigenous local populace. The list of issues military psychologists address is extensive. Such work invokes numerous psychological theories and principles, and pushes the envelope for new psychological constructs to resolve the constantly changing issues that arise.

Military Psychology in World War I

Late in the nineteenth century, university-based study and research on predicting human behavior formally established *Psychology* as a scientific discipline and profession. One of psychology's predominant academic pursuits was to demonstrate measurement of mental

abilities of individuals. Alfred Binet's work on the measurement of intelligence helped form the basis for employment testing for industry, whose leaders were interested in systematic selection of the right man for the right job so as to net more efficient management of personnel. *Psychological theory* received a huge boost as did the relatively new profession of being a *psychologist* when US academic psychologists took on the challenge in World War I of assisting the military to gain better understanding of people's mental abilities and prediction of their performance at work.

Immediately after the United States declared war on Germany on April 6, 1917, Robert M. Yerkes, a Harvard University professor, and then President of the American Psychological Association (the APA was established in 1892) convened fellow psychologists into a number of committees to assist in the war effort. The influx of millions of conscripted men into the US Army required an economical and efficient method of classifying new soldiers and identifying potential officer candidates. In August 1917, the US Army Medical Department appointed Yerkes to the rank of Major and assigned him to organize and direct psychological examinations for selecting and classifying recruits on the basis of intellectual ability. In keeping with the emphasis of testing for feeble-mindedness at the time, the Army planned to use such tests to eliminate the unfit and to identify the exceptionally superior. To perform this and other work, in January 1918, the US Army Surgeon General's Division of Psychology was authorized 132 psychology officers – many of whom played prominent roles in development of American psychology.

The Army Alpha test designed for literate recruits had eight parts covering grammar, vocabulary, arithmetic, analogies, common sense, filling in next numbers in a sequence, and unscrambling sentences. The pictorial Army Beta test for illiterates included mazes, block counting, number similarities, what is missing in this drawing, and figure similarities. During WWI, 1.7 million US military recruits were rapidly tested, screened, and identified for their intellectual levels. Test scores were made available to commanding officers for use in assigning individuals to specific duties, selecting officers and "balancing the intelligence" of military units. The Division's tests helped select 42,000 recruits for admission to officer training.

The Army Alpha and Beta tests, Psychology's first mass-produced written tests of intelligence, gained respect because they could be administered to groups, and they represented a convenient means for ranking everyone for nearly every purpose. The US military adopted mental measurement and psychometric screening tests as important aids in manpower management, giving credence to applied psychology within the academically based APA (Gal and Mangelsdorff 1991). Experiences with Army intelligence testing during WW I gave impetus to personnel testing and selection screening by psychologists in other venues – for children's placement in school, for entrance into universities, for professional certification and licensing, and for a variety of other endeavors. The Army testing spurred industry into administering tests for both employment and educational purposes.

In the USA, civilian and uniformed military psychologists serving during WW I performed many other functions, including lecturing on training methods, and advising training officers, planners, and program directors in development battalions and special training companies. They measured troop morale and assimilation into the military and developed methods and procedures to improve combat effectiveness. In 1918, the U.S. Army Surgeon General authorized the first duty assignments of psychologists to assist in evaluation of neuropsychiatric patients at the Walter Reed Army Hospital in Washington, DC – thus giving a boost to the clinical practice role of professional psychologists in the military.

The WW I Committee on Psychological Problems in Aviation developed mental, physical, visual, and physiological tests predictive of flying ability. Edward Thorndike studied records of over 2,000 fliers to determine the relation between actual success as a military aviator and predictors based on age, social status, intellectual ability, business achievement, athletic ability, and a number of other characteristics – an effort that informed psychological testing in the selection of aviators. Such work became the precursor to the numerous aerospace medicine and psychological research laboratories that sprang up after WW II.

After WW I, the military forces of most countries demobilized. Psychologists returned to their academic pursuits where they applied their wartime lessons to advancing the science of psychology. Between the two

World Wars, the military continued to make minor improvements in psychological testing; but most areas of military psychology were relatively inactive. In professional practice, rendering psychological decisions regarding selection and placement of US naval personnel, even for aviators and submariners, was largely delegated to general medical officers, and to line officers and, therefore, not to psychologists (McGuire 1990).

World War II and Military Psychology

In the early 1940s, military forces resumed interest in psychological applications for selection, classification and placement of military personnel. During WW II, over 2,000 civilian and uniformed psychologists in the USA addressed military problems, firmly establishing the role of psychology in the military. To replace the Army Alpha test, US Army psychologists developed the new Army General Classification Test (AGCT). It was administered to 12 million men during WW II. Instead of striving to eliminate those who were not good risks, the newer psychometric screening tools sought to identify individuals who could effectively acquire certain military skills or to perform specific tasks. These tests evolved into the widely used Armed Forces Vocational Aptitude Battery (ASVAB). At the time, several European countries established military behavioral science activities and research groups. Psychologists used psychomotor tests of coordination and physical ability for the selection of pilot candidates, and employed specialized tests for navigators and other military specialties. Psychological assessment centers were formed to develop performance-oriented tests and to select and train military operators for the British Special Operations Executive (SOE) and for the US Office of Strategic Services (OSS) – the predecessor to the US Central Intelligence Agency (CIA).

The rapid buildup of military forces again gave impetus to developing psychological tests to identify individuals possessing innate characteristics and abilities desirable in leaders. Other psychologists downplayed innate qualities and insisted instead that leadership skills could be developed through training. Both views were supported by studies of officers' leadership performance, and instructional innovations. Since the early days of psychological testing, military psychologists have been in the midst of controversy about both the structure and nature of intelligence

and about how to select and train good leaders (Zeidner and Drucker 1988; McGuire 1990).

During WW II, hundreds of experimental psychologists teamed with military weapon system design engineers to conduct laboratory and simulation research, assessing abilities of men to effectively operate complex equipment systems. The advent of radar, sonar, high-performance aircraft, submarines, large naval vessels, command and control centers, and other military hardware challenged the cognitive capabilities of military personnel. Studies assessed sensory and perceptual demands, cognitive skills of sonar and radar operators, visual search techniques, aviator visual capabilities, psychomotor skills of equipment operators, design and location of controls and displays in vehicles and aircraft, other man-machine interfaces, and work-rest schedules. Important military research included studies of human performance in extreme heat, cold, high altitude, and the effects of environmental factors such as acoustical noise, vibration, and toxic fumes on military performance (Krueger in Gal and Mangelsdorff 1991; Krueger 2008).

In aiding weapon system designers to understand human capabilities and limitations in operation of complex equipment and jobs, these military psychologists became known as *engineering psychologists* as they strove to optimize integration of human operators into “total system designs.” These psychologists developed analytical tools such as functional-, task-, and time-line analyses, as well as simulation testing techniques for examining operational procedures, information flow, and soldier decision making (Parsons 1972). After WW II, in Europe, engineering psychology became embedded into ergonomics with more emphasis on biomechanics and physiology (Zinchenko and Munipov 1989), whereas in the USA, it was called human factors psychology, or human engineering because of its focus on cognitive processing. The principles of military engineering psychology developed in WW II were integrated into system engineering’s military equipment design centers in industrialized countries (Krueger 2011).

Military social psychologists conducted attitude surveys, examined soldier/sailor morale and motivation, developed small group performance assessment techniques, expanded psychological warfare techniques, added new psychosocial perspectives to

enemy intelligence analyses, and did studies of prisoners of war. Their applied research solidified generalizable social psychological findings. Many important social psychological findings, documented in “The American Soldier” (Stouffer et al. 1949), described the importance of: (a) cultural and personality influences in understanding and predicting behavior, (b) the role of attitudes in predicting and controlling behavior, and (c) the role of the primary group in determining the morale and motivation of soldiers (Gal and Mangelsdorff 1991). The social psychological studies in several countries informed WW II personnel policy makers and thereby established the use of the social survey as a military personnel management tool.

Military Psychology Since 1950

After WW II, during the so-called “cold war” era (1946–1990), several victorious countries did not want ever again to be caught unprepared for large-scale war. They recognized the importance of maintaining in-house engineering development and human-related research laboratory capabilities to continually push the state of the art, and to stay abreast of new technologies, advances in weapon system developments, and so on. With these notions, there was an accompanying need to fully understand the human variables associated with managing or operating modern warfare systems, and also to shape and manage manpower and personnel systems for large standing armies, navies, and air forces. Accordingly, a collection of military research laboratories was retained, and some were developed anew, to conduct multidisciplinary work in such topics as human engineering of materiel systems, aviation and submarine medicine, psychological assessment of military personnel for use in selection, placement, training, and retention. They also conducted training studies to continually prepare rotating military forces for battle. With these needs, there was employment of large numbers of both research and applications psychologists, assigned to work in government laboratories or at universities on defense grants and contracts, and at industrial research firms (Mangelsdorff 2006).

Since the 1950s, military psychologists have studied extensively psychological and performance effects of highly stressful military environments. Diverse stressors not commonly found in civilian life include

conditions of fear, sensory overload, sensory deprivation, social isolation, sleep deprivation, sustained operations, operating while wearing bulky chemical warfare protective uniforms, working at high mountain altitudes, climatic temperature extremes of deserts and tropics, enduring severe winters, living under the sea, on remote stark land masses, and in outer space. Military personnel are exposed to extreme heat in combat vehicles, to high rates of vehicle acceleration, vibration, high acoustical noise, high levels of toxic gases, air pollutants in the work station, and even to unusual dietary and nutritional mixes (Krueger in Hancock and Szalma 2008).

Today's Military Psychology Morphs into Tomorrow

Between major global wars, government cost-cutting measures winnowed down the number of military research laboratories and decreased the number of psychologists working in them. However, among the NATO nations and several other westernized countries at least, there has been a sufficient continuity of labs to promote longitudinal research and development programs. Based upon collaboration across international boundaries, some of these labs participate in regular sharing of research instrumentation, expertise, and research data, technical reports, and published articles (Bartone et al. 2010a). Frequent exchanges and dialogue among military psychologists and operational military agencies ensure adaptation of psychological research results (Bartone et al. 2010b; Krueger 2011; the journal of the Society of Military Psychologists – the Division 19 of APA, 1988–2011).

Forward looking topics in military psychology research labs include determining: (a) how battlefield soldiers are to cope with an inundation of computer systems and digital data streams in the face of rapid decision making; (b) what the role and treatment regimen should be for prescribed ingestion of psychoactive chemical and nutritional substances proposed as human performance enhancers; (c) how best to integrate large numbers of women, ethnic minorities, and gays and lesbian soldiers into the workforce; (d) how changing paradigms of leadership will affect future military operations; and (e) how military leadership must change to accommodate intercultural and international alliances.

Since 2001 military forces of NATO and in particular of the United States have conducted repeated extended deployments to the mid-East (e.g., Iraq, Afghanistan, and surrounding neighboring countries). Combatants there undergo many traditional, but now also many new stressors such as being exposed to bomb blasts on an individual level (i.e., from Improvised Explosive Devices: IEDs), wherein the devastating injuries of those conflicts are limb loss, traumatic brain injuries, and post-traumatic stress disorders (PTSD). Extensive post-injury medical and psychological rehabilitation programs are in place; and numerous psychologists and other medical specialists are making tremendous advances in both individual treatments and by pushing the state of the art in neuroscience.

In terms of newer psychological advances for the troops, today military psychologists are constructing tomorrow's comprehensive soldier fitness (CSF) programs to include preventive medicine, training to attain developing psychological hardiness, and increasing an individual's and a unit's resilience to cope with multiple stressors in order to preserve health and performance. Recent developments include developing a Global Assessment Tool (GAT) as a self-report inventory to measure psychological strengths, assets and problems of each soldier, by tapping into emotional, social, family, and spiritual fitness. GAT provides soldiers with immediate feedback as to their individual strengths and needs and can be used to assign soldiers to appropriate training protocols for each. In WWI, psychological assessment focused on *abilities*; assessment in WW II focused on *attitudes*. In the new millennium, the Comprehensive Soldier Fitness program focuses on *assets* – on what people do well, and then cultivates excellence on a larger scale. While experiences with this approach are new, such a comprehensive soldier fitness program could eventually be a model for psychological fitness training in other large organizations (Seligman and Matthews 2011).

For almost 100 years, military psychology has continued to contribute meaningfully to national defense in countries that maintain military forces. Military psychologists bring psychological principles to bear in tackling “real world problems,” including operational military personnel performance-related issues, as well

as addressing issues confronting individual military service personnel, their families, and their leaders. Military psychologists are pacesetters in numerous topical matters of critical importance to military organizations. Their work often has far-reaching implications for the civilian populace. In that process, military psychologists continue to make significant contributions to psychology as a whole.

See Also

► [Human Factors Psychology](#)

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Basic Biography

George Armitage Miller (February 3, 1920–) Charleston, West Virginia, United States. American psychologist and innovator in the study of language and cognition. Helped establish psycholinguistics as an independent field of research in psychology. Married to Katherine James.

George Miller was born on February 3, 1920, in Charleston, Virginia. Miller, was raised a Christian Scientist and lived with his parents until they divorced in 1927. In 1937, after graduating from Charleston High School, Miller moved to Washington D.C., with his mother and stepfather and enrolled in George Washington University for one year.

In 1938, Miller transferred to the University of Alabama where he met Katherine James, whom he married in 1939. Katherine introduced him to

psychological science and to Donald A. Ramsdell, head of Alabama's psychology department. Miller earned his master's degree in 1941 from the Department of Speech. After graduation, Ramsdell offered him a position as a psychology instructor, and helped him get into graduate school at Harvard University in 1942.

At Harvard University, Miller met Gordon Allport, Wendell Garner, and J.C.R. Licklider with whom he worked extensively on war-related research throughout World War II. Miller's research, based on his knowledge of speech and hearing, focused on psychological operations, primarily psychoacoustics and the impact of sounds on auditory reception. He also taught in the Army Specialized Training Program. In 1944, he became a member of the Psycho-Acoustic Laboratory at Harvard, where his research focused on evaluation of radio-telephonic systems for the armed services. J.C.R. Licklider had worked with Miller at Harvard in 1942 on cold war psychological operations, worked again with Miller in 1951 at Massachusetts Institute of Technology (MIT) on Cold War radar engineering. Their research led to the opening of a speech perception lab focusing on phonetics. Miller's first book, *Language and Communication* (1951) helped to establish psycholinguistics as an independent field of study.

On September 1956, Miller met Noam Chomsky at MIT. Chomsky exposed Miller to the phonetic differences between languages. With Chomsky's help, Miller was able to formalize his theories, and together they began their study of semantics, which eventually resulted in the creation of the TOTE concept.

In 1960, Miller founded the *Center for Cognitive Studies* at Harvard with *Jerome Bruner*. His book *Language and Perception* (1976), coauthored with Philip Johnson-Laird, was the basis for the discipline of cognitive psychology.

In 1985, Miller founded *WordNet*, a *lexical database* for the *English language* operating out of the *Cognitive Science Laboratory* at *Princeton University*, which he help found in 1986. Miller also created commercial applications based on *WordNet*, the most popular being *Simpli*, an Internet search and marketing engine. *Google AdSense* and *WordNet* were based on the *WordNet* lexicon.

Dr. Miller is the author of more than 160 publications, the recipient of numerous honors including honorary doctorates from the University of Sussex (1984), Columbia University (1980), Yale University (1979),

and the Catholic University of Louvain (1978) and the recipient several awards. He is the recipient of the Distinguished Scientific Contribution Award of the American Psychological Association (1963), Distinguished Service Award of the American Speech and Hearing Association (1976), and the Warren Medal from the Society of Experimental Psychologists (1972). In 1991, Dr. Miller received the National Medal of Science, the highest scientific honor awarded by the United States, and in 2003, the American Psychological Association awarded him with the Outstanding Lifetime Contribution to Psychology Award.

In 1992, Dr. Miller was elected to the National Academy of Sciences and was president of the American Psychological Association in 1969 and Eastern Psychological Association in 1962.

Accomplishments

The behaviorists led by B.F. Skinner, whose work in operant conditioning had dominated psychological research, did not seriously acknowledge the mind, and believed that consciousness, introspection, and other mental activities could not be subjected to scientific study because they could not be observed. However, with the "Cognitive Revolution" of the 1950s, spurred by a series of events, including the convergence of various scientific disciplines, which sought the understanding of human mental activity, put cognitive psychology on the forefront of psychological science. In 1956, George Miller's research on the limitations of human thought, especially memory, challenged their dominant position, stressing that learning was a change in knowledge stored in memory and governed by internal processes rather than by external circumstances, as the behaviorists believed. His research proposed a series of representations and processes for the coding and decoding of information at a time when computers were in their infancy and were no more than calculating machines.

Miller contributed two major theoretical concepts considered fundamental to the information-processing framework and cognitive psychology, in general.

His first theoretical concept known as "chunking" and the capacity of short-term memory first appeared in his landmark article *"The magical number seven, plus or minus two: Some limits on our capacity for processing information,"* published in 1956 in *The Psychological*

Review. His article presented the idea that human short-term memory could only record seven (seven plus or minus two) pieces of information at any given time. These bits of information he called “chunks,” and they characterized people’s memory performance on random lists of words, numbers, or any kind of meaningful familiar items. The phenomenon of chunking and the limited capacity of short-term memory has become a basic element of all subsequent theories of memory. However, recent research has revealed that span does depend on the category of chunks used, and even on features of the chunks within a category. Cowan (2001) proposed that working memory has a capacity of about four chunks in young adults (and less in children and old adults).

The second concept is known as the Information Processing Theory of Learning (IP). Information processing posits the idea that the human mind functions much like a computer. The human mind takes in information (input), changes its form and content (processing), stores and locates it (storage), and generates responses (output). This theory also states that there are three kinds of memory: sensory registers (the area of memory responsible for receiving information through the senses); short-term memory (STM) or working memory, the area of memory where new information is temporarily stored, either placed into long-term memory or erased; and long-term memory (LTM) which has unlimited capacity and can hold information indefinitely.

Dr. Miller is currently professor emeritus and senior research psychologist at Princeton University as well as the director of the McDonnell-Pew Program in Cognitive Science.

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Basic Biography

Neal Miller noted American psychologist, who together with colleague John Dollard advanced a theory of

behavioral analysis based on the combined scientific insights from learning theory and findings from psychoanalysis, was born in Milwaukee on August 3, 1909. His father, an educational psychologist, and mother, a schoolteacher, moved the family to Bellingham, Washington when Miller was still a boy. He received a BS from University of Washington, an M.A. from Stanford, and a Ph.D. from Yale. In 1935, Miller traveled to Vienna to study psychoanalysis with psychoanalyst, Heinz Hartman. Miller had hoped to study with Freud himself, but could not afford his fees. Upon returning to America, Miller became a faculty member at Yale and a research psychologist at *The Institute for Human Relations*. It was during this period that Miller and fellow researcher John Dollard began to advance their ideas on psychology, social theory, and culture. Miller died in New York on March 23, 2002, at the age of 92.

Major Contributions

In 1939, Miller and Dollard, together with several fellow colleagues at Yale, most notably, O. Hobart Mowrer and Robert R. Sears, published *Frustration and Aggression*. This powerful exposition on the etiology of conflict and violence includes, as one of its many accomplishments, a cautious validation of the psychoanalytic concepts of displacement and repression. Yet, Miller, Dollard, and associates, approach aggression and frustration, not from the theoretical standpoint that is specific to psychoanalysis, or any other theoretical affiliation. On the contrary, their exposition transcends any exclusive paradigmatic claims that imply an exclusive paradigmatic affiliation, or theoretical hegemony. Psychology's well-known frustration–aggression hypothesis was developed from the findings that Miller, Dollard, and associates advance, in this pioneering work.

Following the appearance of *Frustration and Aggression*, a cross-disciplinary *tour de force*, Miller and Dollard published in July 1941, *Social Learning and Imitation*. This publication, like their previous collaboration with colleagues, Mowrer and Sears, conveyed the *Institute's* expressed intention of combining the various facts obtained from the social sciences into a comprehensive social theory. The book was dedicated to Mark May, the *Institute for Human Relations* founder, and drive psychologist and scientist Clark Hull,

the pair's mentor at Yale. The primary goal of Miller and Dollard's text was to present a scientifically nuanced account of the principles and conditions of learning and then examine the various behavioral contexts by which imitation manifests as a social fact. Another goal concerned Miller and Dollard's desire to reformulate the psychoanalytic concept of identification in terms of learning theory, and further *differentiate between imitation as a function of socialization and learning*, and *imitation as a function of heredity*.

After serving as a research psychologist and intelligence analyst for the Office of Strategic Services during the Second World War, Miller returned to Yale to teach and continue his collaboration with Dollard. Miller's return was heralded by his prestigious appointment to the James Rowland Angell chair of psychology at Yale. Their second book, *Personality and Psychotherapy*, published in September 1950, replete with a dedication to Freud and Pavlov and their students, reveals like their previous collaboration, the pronounced influence of Clark Hull. The structure, dynamics, and development of the personality is outlined by employing a relatively small but effective collection of concepts derived from learning theory, including drive, cue (or discriminate stimulus), response, and reward. The principles of psychology and learning are set forth amidst a discussion of behavior, the formation of the personality, and the practice of psychotherapy. It is worth noting, that the elaboration of the relationship between experiences of frustration and aggression, is carried out with the goal of ameliorating and integrating stimulus and response differences, arriving at a new scientific understanding of the conditions that facilitate learning. *Personality and Psychotherapy* is now considered by many historians of behavioral science, to be foundational for understanding the principles of learning theory and for anticipating the ascendancy of the neo-behaviorist psychotherapeutic perspective.

In the years following his second and last book with Dollard, Miller began to focus increasingly in his research upon the neurological, biochemical, and physiological components that accompany the activation of drives, related behaviors, and challenges to learning. The question that asks, what happens in the body during drive activation was addressed almost

immediately. One year after the publication of *Personality and Psychotherapy*, Miller published independently of Dollard, a highly influential chapter titled, "Learnable Drives and Rewards" in *The Handbook of Experimental Psychology*. For Miller, the concept of drive may be understood most simply, but not exclusively, as an expression of the organism's basic physiological needs for survival. Learning theory acknowledges these basic physiological needs but goes farther in the application of drives to behavior and learning. Miller borrowed from the work of drive psychologist Clark Hull, and understood drive broadly, to indicate *any stimulus forceful enough to evince action*. *Drives are primary*, when they are an expression of physiological need. Drives are *acquired* when their origin is environmental, or owe their origin to other sources than the body's basic needs for survival. *Acquired drives* are learned, and include, the need for power, approval, money, affiliation, and achievement, just to name a few. With the activation of a drive, there is then the potential recognition of the various *intrapyschic* (awareness of bodily psychic stimuli) and *extrapsychic* (environmental) impressions, or *cues*. *Discriminatory stimuli, or cues*, are thus distinguished from other stimuli by virtue of their recognition. Learning consists of strengthening, or rewarding specific behaviors (i.e., responses) and accompanying cues (stimuli awareness, or discriminate stimuli), when and where this action is desirable. Hence, any drive reinforcement must speak to the variety of contexts of the drive[s] manifestations: the biophysiological, social, and psychological needs of the organism. The problem of understanding the nature of drives, antedates Miller's inquiry into the *voluntary and involuntary* aspects of the body, and the limits of mind or consciousness.

In 1957, Miller was awarded the prestigious *Warren medal from the Society of Experimental Psychologists*, and in 1959, elected President of the *American Psychological Association*. Several years before, Miller's contributions to psychology garnered him membership in the *National Academy of the Sciences*. He became a strong defendant of the use of animals in scientific research, a position that was periodically assailed by animal rights organizations. Miller had been experimenting with animals since the 1930s at Yale, testing for neurological changes and biophysiological

reactions to anxiety, conflict, and fear, in a variety of motivational settings. Much of the research that led Miller to formulate the concepts of *behavioral modification and biofeedback*, involved animals. The tendency, for example, to approach or avoid, a parcel of food, given the imposition of an aversive element, such as the presence of another more aggressive animal, or the lingering memory of a painful jolt of electricity, tells us something about the strength of the drive mechanisms activated and the animal's decision, to *approach and feed*, or in decisions of *avoidance, to take flight*. The need for food, corresponding to the primary drive of hunger, is confounded by the possibility of *conflict*, or the *anxiety* associated with a violent shock, or deafening noise. At the same time, Miller noted the acceleration of heart activity, production of gastrointestinal fluid, breathing, as well as changes in other vital organs. Miller kept a record of the fluctuations that occurred with the physiology of the animals. When learning had been achieved (i.e., in life enhancing decisions, or the acquisition of new behaviors), the animal was rewarded. Miller's practice of rewarding learning and life-enhancing behavior in animals, including the optimum performance of the vital organs, led to his belief that the autonomic nervous system could be educated. The implication for human beings was even more impressive. Virtually, every aspect of *voluntary behavior* and many aspects of the *involuntary functions of the body*, respond to conditioning. Miller suggested behavioral modification founded on principles of learning to correct maladaptive behaviors. He also suggested biofeedback training in cases where a lifestyle change was desirable, or necessary. In biofeedback training, individuals are taught to monitor their own physiological processes (heart rate, blood pressure, breathing), toward the goal of increased *awareness of the involuntary aspects of the body*.

In 1966, Miller left Yale, to work as the director of the *Laboratory of Physiological Psychology at Rockefeller University* in New York. A year earlier, he was awarded the President's *Medal of Science*. In 1969, he began to test his ideas on behavioral modification and biofeedback. Miller retired from Rockefeller University in 1981, retaining the title of Professor Emeritus. When *The American Psychological Association*, honored him in 1992 with the *Citation for Outstanding Lifetime*

Achievement in Psychology, he was still conducting research on potential learning applications in the autonomic nervous system.

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Basic Biographical Information

Wesley Mills was born in a small Ontario town, Brockville, on February 22, 1847. While he was a medical student at the University of Toronto, he formed a congenial friendship with William Osler (1849–1919), who would go on to become one of the best-known doctors in North American history. Osler early became a popular professor of medicine at McGill University in Montreal, and in that capacity offered strong support to Wesley Mills when the latter was attracted there in 1881 to teach physiology at McGill alongside Osler. Both Osler and Mills complemented their studies by experiences in Europe, notably with Sir John Burdon-Sanderson in England; Burdon-Sanderson had written a widely used textbook, and this must have inspired Mills (1886, 1889) to write his textbooks on comparative physiology, which Murray (1990, p. 206) praised because of their usefulness to present-day historians of psychology who can learn from them what black and yellow bile are and to what anatomical structure Galen's *rete mirabile* refers. Osler (1892) went on to write what would become the dominant medical textbook in the English-speaking world.

When Osler (1915) came to write Mills's obituary, he described Mills, who had achieved an excellent reputation at McGill as a teacher and researcher on comparative physiology, as being somber in outlook, and wrote:

- ▶ Upon men obviously striving to be taken at their own valuation the world has no mercy; now and again one wins out, but the majority form a battered band whose work and worth never receive a due mead of appreciation. It is the careless sinner who goes a-whistling and working through life, caring not for what the world thinks, who gets more than his due (Osler 1915, p. 339)

The last years of Mills's life were spent in England, where he gave time to his hobby of violin-playing, amassing a collection of books on teaching violin performance and on the manufacture of violins; he bequeathed this collection to McGill University (Cyr 1990). He also wrote a well-informed and highly regarded book (Mills 1906) on the physiology underlying the singing voice (his second wife was an opera singer). In 1910, Mills underwent a prostatectomy, remaining ill for months until his passing on February 13, 1915. His old friend William Osler (1915) praised him for his first-person account of what he felt like to be a patient during those months.

Major Contributions

Mills did more for the propagation of comparative psychology as a subdiscipline than is generally realized. At McGill, he spent time involved not only with the Physiology Department, but also with the School of Veterinary Medicine. He founded an Association for the Study of Comparative Psychology; he started private kennels that allowed him to make protracted scientific studies of dog behavior (Mills 1891, 1892); and he published research articles on the behavior of both wild animals native to the Montreal region (e.g., beavers, squirrels, and chipmunks) and domesticated animals and birds (e.g., guinea pigs, hens, and rabbits). His best-known work consists of his meticulously kept diaries of the behavior of kittens, puppies, and the young of the above-named fauna. These diaries were collected in a single volume (Mills 1898) and are full of facts that still strike us as relevant. For example, he reported a case of “one-trial

avoidance learning” in a pedigree St. Bernard puppy aged 45 days. A cat's first purr was recorded when it was aged 54 days.

Apart from his book, he courted controversy with an article (Mills 1899) in the widely read *Psychological Review* in which he took E. L. Thorndike (1898) to task for what Mills thought were inadequacies in Thorndike's otherwise highly regarded studies of how cats escape from puzzle boxes. Mills considered Thorndike's emphasis on reinforcement to be simplistic and Thorndike's rejection of cognition in his animal subjects to have been founded on ignorance. Thorndike had written that “cognition, inference, judgment, memory, self-consciousness, social consciousness, imagination, association and perceptions, in the common acceptance of the terms, are all absent from the animal mind” (quoted by Mills 1899, p. 264). Mills's riposte to Thorndike's rejection of imitation as a feature of animal behavior was to write: “So obvious an example of imitation as the talking parrot is set aside or twisted out of recognition” (Mills 1899, p. 267). Mills added that it can often be adaptive for an animal to desist from imitating another; it cannot be assumed, therefore, that, when an animal shows no evidence of imitation, that animal is not capable of imitation.

Thorndike's rejection of memory as a determinant of animal behavior was disputed by Mills, who reported the following experimental result with one of his dogs:

- ▶ I had a greyhound that was very prone to chase cats, a habit which became with him more and more pronounced, I presume, from his success in consequence of his speed. On the occasion I wish to emphasize I had taken the dog in a certain direction, and, as a result, a cat crossing the street was so highly pursued by him that she took to a tree. Many months after I brought the dog along this same way, but approached the scene of the exciting chase from the opposite direction. Long before the exact spot was reached the dog was all attention. It was perfectly plain that he remembered the long-past incident, and that certain feelings (which accompanying feelings Dr. Thorndike denies to animals) were also aroused; but great was my astonishment when the dog stopped at a certain tree, looked up and behaved otherwise in such a manner as left no doubt in my mind that he remembered the

identical tree and every detail of the whole incident. This cannot be explained by the sort of consecutive association that Dr. Thorndike would substitute for “memory” as ordinarily understood, for the locality was approached from the opposite direction. (Mills 1899, p. 269)

Finally, Mills thought that the puzzle boxes were so small as to submit the cat to a state of entrapment, and its behavior would be as “unnatural” as that of a human likewise confined. Mills also became embroiled in a polemic with Conwy Lloyd Morgan (1852–1936) and others on whether newly hatched chickens and other birds know “instinctively” how to drink water. Mills established that the bird’s beak had to be dipped in water before a “drinking” response (gulping, swallowing) would ensue. This exchange of scientific communications was also reprinted in *The Nature and Development of Animal Intelligence* (Mills 1898).

See Also

- ▶ [Behaviorism](#)
- ▶ [Comparative Psychology](#)
- ▶ [Evolutionary Psychology](#)
- ▶ [Morgan, C. Lloyd](#)
- ▶ [Perception](#)
- ▶ [Romanes, G. J.](#)

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Mischel, Walter

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Mischel, Walter (22 February 1930–) is an American psychologist specializing in social psychology and personality theory. His research interests focus on: personality development, structure, and processes as well as self-/emotional regulation (control). Since 1994, Mischel has held the Niven Professor of Humane Letters position at Columbia University, while continuing his research in personality psychology.

Basic Biographical Information

Walter Mischel was born in 1930 in Vienna, Austria. Shortly after the Nazi invasion of Austria, in 1938, Mischel and his family fled to the United States where they began living in Brooklyn, New York. Years later, he would attend New York University, where he studied poetry under Delmore Schwartz and Allen Tate. While attending, Mischel became fascinated by psychoanalysis, furthering his interest in personality measures at Ohio State University.

After receiving his Ph.D. in clinical psychology at Ohio State University in 1956, Mischel began teaching at the University of Colorado in Boulder until 1958, at Harvard University from 1958 to 1962, and then at Stanford University from 1962 to 1983. Since then, Mischel has been in the Department of Psychology at Columbia University, and has served as the Robert Johnston Niven Professor of Humane Letters since 1994.

In 1955, Mischel was given the opportunity to observe the Orisha religious ceremonies in Trinidad. Living on a part of the island split between people of African and of East Indian descent, Mischel was fascinated with the opposing lifestyles and beliefs held by

each group. The people of East Indian descent saw the Africans as hedonists, who lived their lives without any concern for the future, while the Africans felt the East Indians were unreasonably disciplined and left no room for themselves to enjoy the pleasures of life. Mischel wanted to reveal opposing attitudes through an experiment with indulgence. Mischel offered children of both ethnic groups a choice to receive a small chocolate bar immediately or, if they were willing to wait, receive a larger chocolate bar later. With his experiment, Mischel intended to demonstrate the groups' opposing mentalities with how quickly they submitted to their desires. However, the children's ability to wait or not corresponded with social and economic backgrounds, rather than their ethnic group. Although the experiment did not produce the anticipated results, they revealed a correlation between self-control and other variables, prompting Mischel to become interested in the concept of "delayed gratification" (Mischel 1974). What enabled some of these children to withstand temptation? What cognitive mechanisms did these young children use to do this? These questions led Mischel to continue his research, determined to answer them.

Major Contributions

From 1968 to 1974, Mischel and his colleagues conducted a series of experiments at the Bing School located on Stanford's campus. The experiment, often referred to as "The Marshmallow Test," analyzed "cognitive-attentional" processes and mechanisms that allowed children to defer gratification. In these studies, children were placed individually into a room with an experimenter. Each child was given a single marshmallow (or another appropriate reward) and told they would receive an additional marshmallow if they could resist eating the first one before the experimenter returned to the room. The preschool delay-of-gratification situations revealed cognitive processes that allowed young children to delay when given the choice between two different outcomes: an immediate but less desirable reward, or a delayed but more desirable reward. The preschoolers who succeeded were able to withstand temptation using cognitive-attentional processes that allowed them to orient their delay toward the reward (the more desirable outcome) by minimizing the less desirable reward

in front of them using mental manipulation. In an interview conducted by author Jonah Lehrer, Mischel says, "What we're really measuring with the marshmallows isn't will power or self-control," adding, "It's much more important than that. This task forces kids to find a way to make the situation work for them. They want the second marshmallow, but how can they get it? We can't control the world, but we can control how we think about it" (Lehrer 2009). Presently, Mischel and his team continue following up on those preschoolers. Now in adulthood, the "Marshmallow Test" has provided direct correlations between the ability to delay gratification with vast successes in life. From the ability to cope in stressful situations to higher Scholastic Aptitude Test (SAT) scores, the delay situations have shown strong connections with cognitive adolescent and outcomes later in life (Mischel 1974, 1996 and Shoda et al. 1990).

When Mischel published his monograph, "Personality and Assessment" in 1968, he challenged traditional principles of personality theory. Mischel proposed that conventional theory suggested that personality (qualities and traits) stood constant in individuals even across a wide range of diverse situations. Mischel claimed the existing data, evaluation, and measurement techniques failed to demonstrate that notion. The techniques being used at the time were created on the basis of an unchangeable personality, which Mischel argued was sensitive and fluctuated from situation to situation. This meant that the field of personality psychology was looking for stability where it should not be; The human mind was actually changeable to circumstance (Mischel 1996). His claim meant personality theory placed human social behavior within a "nonsocial," even "nonhuman" context and was therefore unreliable – stirring considerable conflict within the field. At the time his book produced a paradigm crisis in psychology. Today, it is recognized for having transformed the field of personality psychology to how we understand it today.

Since then, Mischel has been a prominent figure in the field playing an extensive role in its advancement. His insight to the human psyche has earned him a professional reputation in the field of psychology. Mischel served as President of the American Psychological Association Division of Social and Personality Psychology and of the Association for Research in

Personality, earning such honors as: the Distinguished Scientific Contribution Award from the American Psychological Association, the Distinguished Scientist Award of American Psychological Association's Division of Clinical Psychology, the Distinguished Contributions to Personality Award of the Society of Social and Personality Psychologists, and the Distinguished Scientist Award of the Society of Experimental Social Psychologists.

Mischel has made incredible contributions to both personality theory and social psychology. There has been significant progress in the field of psychology and in its ability to access the human personality in a more relevant direction. His concepts and theories have enabled psychologists and researchers to assess the human mind more objectively and with greater success.

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Montessori, Maria

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Basic Biographical Information

Maria Montessori is best known as the creator of an educational system that emphasizes the interaction of a structured environment and the inner timetable of a child's development. Her system experienced an enormous popularity soon after its introduction, ultimately having an impact on early childhood education around the world. After a period of decline in the USA, her

method has gone through a revival, along with the recognition that she was a developmental theorist of substance.

Maria Montessori was born in Chiaravalle, Italy on August 31, 1870. A precocious child, she ignored occupational gender stereotypes of her time and originally intended to be an engineer. She eventually graduated from the University of Rome in 1896 with an MD degree, the first woman in Italy to receive a medical degree (Kramer 1976).

Her early work in a psychiatric clinic affiliated with the University of Rome sparked her interest in working with retarded and emotionally disturbed children. She was particularly influenced by the writing of Jean-Marc Itard (1774–1838) and Edouard Séguin (1812–1880). Itard, a French physician who was noted for his work with Victor, the Wild Boy of Aveyron, developed an approach to learning whose elements can be found in Montessori schools even today. Séguin, a student and follower of Itard, continued and extended Itard's beliefs while working with retarded children.

In 1907, Montessori was offered the opportunity to run a children's school in a slum section of Rome. She accepted and dubbed the school *Casa dei Bambini* (Children's House). It became the first Montessori School and it is still in existence. It was here that she developed many of the principles that would guide her educational and developmental theory (Standing 1984).

The success of Montessori's *Casa dei Bambini* was immediate, and within a few years she had achieved an international reputation. Schools around the world began to adopt her approach and she traveled to other parts of the world to discuss her method. Later, she was forced to leave Italy because of pressure from Mussolini to make her teaching more consistent with his political goals. She spent the period of World War II in India. At the end of the war, she returned to Europe to live in the Netherlands where the International Montessori Society had its headquarters. Greatly honored in her lifetime – she was nominated for the Nobel Prize three times – she died in the Netherlands on May 6, 1952.

Major Accomplishments/Contributions

Although highly regarded as an educator, it is not often appreciated that Montessori was an important

developmental theorist. While some of her language and ideas are outdated, many of her principles retain their usefulness and explanatory power today. For example, her use of naturalistic observation as a primary method for understanding the child as well as her child-centered approach are considered important elements of contemporary child care and research.

Montessori's ideas fall squarely in the tradition of classical developmental theory, informed by Rousseau, with an emphasis on maturation and stages of development. Her observation of children in the Casa dei Bambini led her to posit many natural needs and abilities in them that were largely independent of the environment. Among her primary beliefs, Montessori argued that children experience genetically derived *sensitive periods*, similar in concept to critical periods. During a sensitive period, the child is at his or her greatest potential for learning. If the child does not have the appropriate experience during this period, the child's ability in that particular domain may suffer. Montessori believed in a host of sensitive periods ranging from the need for order to the development of language.

Montessori believed that young children learned differently from adults, and were possessed of an *absorbent mind*. Consequently, the role of the parent or teacher was not to direct the child to particular activities, but rather to make available opportunities to the child. It was up to the children to select those activities that would best fulfill their current need. As a result, Montessori classrooms are very child-centered, with the children displaying a great deal of independence in choosing activities. Montessori spoke of the intense concentration that her children would often exhibit, as if they were fulfilling some great inner need (Montessori 1964).

At the same time, Montessori did not ignore more traditional goals of early education. In fact, it was probably her success in teaching reading and writing that was a major reason for her fame. Montessori made available to her original group of children cutout letters for which she would supply the sounds. She also prepared them with related motor activities and with moveable letters. As Montessori later explained, the children did not understand the connection between the preparation and the act. Suddenly, they burst into writing as if it were a natural ability that came with age.

She referred to these "explosions" as commonplace among her students, and they were not confined to writing. They included other basic abilities as well (Shephard 1996).

Montessori's method was not accepted by everyone. Criticisms of her work included her ambivalent attitude toward fantasy and some aspects of creativity. She judged them to be immature and unrealistic behaviors. Additionally, material that was prepared for her classrooms was to be used in a prescribed way only. Some critics found this a significant limitation on the child. Montessori also seemed to downplay the importance of social development of children while emphasizing cognitive development. Despite the criticism, her work represents a major contribution to developmental theory and education (Lillard 1996).

See Also

- ▶ Dewey, John
- ▶ Piaget, Jean
- ▶ Vygotsky, Lev

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Morgan, C. Lloyd

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Basic Biographical Information

Born: February 6, 1852 Died: March 6, 1936.

Conwy Lloyd Morgan trained as mining engineer but lost interest in that in proportion to his fascination with biological science. However, his first love was philosophy and he conceived of his career as

a continual search for evidence to bring to bear on the Berkeleian conception of direct conscious perception and the question of knowing other minds (Morgan 1930). He came to study under T. H. Huxley and immersed himself in Darwin. He evolved, after some time as a teacher in South Africa and after his return to the University of Bristol where he spent the rest of his career, a systematic approach to the understanding of consciousness both through self-directed introspection and through the relation of the insights gained through such introspection to minds in other species.

Major Accomplishments/ Contributions

Within psychology Morgan is properly classified as a comparative psychologist – indeed, one of the founders of comparative psychology – who bridged the era in which the Darwinian postulates of mental evolution supported by organized bodies of anecdotal reports of animals in the field gave way to the laboratory study of elements of behavior situated in experimental paradigms. Morgan was far more interested in incorporating the wealth of observational (if anecdotal) data gained by his contemporaries such as George Romanes and St. George Jackson Mivart into a framework of an evolutionary psychology of consciousness. Morgan was more interested in incorporating Mivart's conception of "consentience" as the essential level at which cats, Mivart's special study, interacted with the environment rather than fullblown consciousness, and this he did on the basis of a scheme of levels of consciousness theoretically derived from philosophical writings and from introspection. Morgan sometimes is known only for a statement made in *An Introduction to Comparative Psychology* which he termed a "basal principle" and which has since come to be known as his "canon": "In no case may we interpret an action as the outcome of the exercise of a higher psychical faculty, if it can be interpreted as the outcome of the exercise of one which stands lower in the psychological scale" (Morgan 1894, p. 53). Morgan advanced this principle in order to counteract a tendency to offer simple explanations of animal behavior in terms of Lamarckian inheritance or by analogies to human capabilities. However, in practical effect it placed mind on a sliding scale with the canon as a cursor: while Morgan and others of his generation

were generous in including varieties of consciousness throughout the scale, others who came later adjusted it to exclude consciousness from most of the forms of animal life, and at least between 1910 and 1945, from humans themselves in the most radical behaviorist interpretations. Many modern commentators have noted that interpretations of Morgan's canon which make a direct analogy between it and Occam's Razor misinterpret both the intent of Morgan's proposal and the evidence for substantial amounts of thoughtlike behavior at many levels of brain complexity and organismic development. But this was known comparatively early: Donald K. Adams, a progenitor of the study of insight and of animal cognition in naturalistic environments, identified the problems and potential distortions inherent in Morgan's canon in 1928 (Adams 1928). Morgan's several books on animal intelligence stressed an evolutionary model, suggesting levels of consciousness that represented different degrees or directions of evolution in different species: this idea was formative in the development of Robert Yerkes's even earlier approach to comparative cognition (Yerkes 1905). It is in the context of this hierarchical model of mentation that his "canon" should be properly understood (Wozniak 1997). Morgan's academic title evolved as well, from zoology in the 1880s to psychology and philosophy at the end of his distinguished academic career. In 1921–1922, he was invited to give the Gifford Lectures in Natural Theology at St. Andrews on the subject of emergent evolution (Morgan 1923), wherein he speculated on the potential intuitive awareness of unity with God at the highest evolutionary levels of consciousness.

See Also

► Adams, D. K.

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Morgan, T. H.

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Basic Biographical Information

Born: September 25, 1866; Died: December 4, 1945.

The zoologist Thomas Hunt Morgan was born in Kentucky and attended the State College of Kentucky, then went to Johns Hopkins where he obtained the MS in 1888 and the Ph.D. in 1890. His early influences were Jacques Loeb and Hans Driesch. He began his lifelong interests in morphology, embryology, and development in sojourns at Woods Hole between 1888 and 1890. He taught at Bryn Mawr between 1891 and 1904, at Columbia from 1904 until 1928, and then at the California Institute of Technology for the rest of his life.

Major Accomplishments/Contributions

Morgan's great contribution, for which he won the Nobel Prize in Medicine in 1933, was the elucidation of the chromosomal mechanism of heredity. Starting around 1908, Morgan and his colleagues isolated the chromosomes of *Drosophila*, the fruit fly, and made visible the principles on which the Mendelian theory was predicated – the elements of modern genetics. Morgan's magnum opus was actually in two parts. The first, authored with his Columbia colleagues Sturtevant, Bridges, and Muller in 1915, *The Mechanisms of Mendelian Heredity* (Morgan et al. 1915) was a masterpiece of lucid expository prose and perfectly matched illustrations of chromosomal activity, which presented the new science of genetics to a wide

readership inside and outside of the biological sciences. The second was a work of several years' gestation, *A Critique of the Theory of Evolution* (Morgan 1916), revised as *Evolution and Genetics* (Morgan 1925). This work was essential to forging the link between Darwinian theory and Mendelian genetics, which was further developed into the "modern synthesis" by Morgan's colleagues and students, especially Theodosius Dobzhansky.

One might expect that Morgan's work would have had a substantial effect on psychology, especially at a period of its development where hereditarian explanations of behavior were widespread. However, this was not the case, for many reasons. Mainstream American psychology was decidedly British and pre-genetic in its choice of contemporary biological theories. Thus, most psychologists' thinking about heredity was more likely to be couched in terms connected with selective breeding and to rely on statistical analysis of the results of crosses as well as the inspection of pedigree charts rather than on explanations at the cellular level. Among biologically oriented psychologists, there was a preference for the analysis of molar behavior and, secondarily, for referring behavior to putative brain mechanisms which themselves were conceptually comparatively primitive. Theorizing in terms of brain chemistry and neurological microstructure was still in the future, and genetics at the chromosomal level, as practiced by Morgan and his colleagues, was not in psychologists' field of vision. Also, genetics as a specialized science was quite new, as Morgan himself observed: There was no tradition to emulate and the inertia of older approaches based in embryology and physiology determined the direction of psychobiological research. During the 1930s, the new evolutionary synthesis became more accessible due in part to Morgan's effective popularizing, and psychologists began to speculate about specific connections between genetics and behavior, one of the prime areas for future research identified by Morgan at the time of his Nobel Award (Morgan 1933). Finally, the prevalence of eugenic theories in psychology worked against the inclusion of Morgan's theories, which were sober, laboratory-bound, and only rarely connected with any hint of their importance for a eugenic program, although this occasionally surfaced (Morgan 1938).

Morgan may serve as an example of psychology's reaction to a new science and also as a gauge of the boundaries of biopsychological "normal science" in that era. It may be, too, that Morgan's work is a touchstone for the level of explanatory detail to which psychologists have aspired and fallen short. Morgan's isolation of a physical element of heredity points up the difficulty, for psychology, of identifying a comparably specific element of mind. For all these reasons, Morgan's presence in psychology is not great. He did publish an early contribution in the *American Journal of Psychology* on a rudimentary sense organ (Morgan 1889). Insofar as psychologists noticed genetics between 1910 and 1930, Morgan was the source to which they turned: E. G. Boring cited *A Critique of the Theory of Evolution* as the definitive view of evolution in a single note in *A History of Experimental Psychology*. There may have been a connection between Boring and Morgan via Boring's sister Alice, who was a student of Morgan's at Bryn Mawr and who collaborated with him on research for several years thereafter. Morgan contributed chapters to Murchison's edited volume *The Foundations of Experimental Psychology* (Morgan 1929) and in its subsequent handbook version in 1934. There is also a distant conceptual relation between Morgan and the work of Roger Sperry. Sperry's experiments involving regeneration, which led him to his theories of brain functional organization, were presaged by Morgan's regeneration studies which were among his main interests before he turned to genetics.

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Mowrer, O. H.

R. W. RIEBER

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Basic Biographical Information/Major Accomplishments

American psychologist. Born in Unionville, Missouri, June 23, 1907. Studied at the University of Missouri, Columbia, B.A. 1929; Johns Hopkins University, Baltimore, Ph.D. 1932. Served as a clinical psychologist. Office of Strategic Services, 1944–1945. Married Willa Mae Cook in 1931; three children. National Research Council Fellow, Northwestern University, Evanston, Illinois, 1932–1933, and Princeton University, New Jersey, 1933–34; Sterling Fellow, 1934–1936, and Instructor in Psychology and Member of Research Staff, Institute of Human Relations, Yale University, New Haven, Connecticut, 1936–1940; Assistant Professor, 1940–1943, and Associate Professor, 1943–1948, Harvard University, Cambridge, Massachusetts; Research Professor, 1948–1975, and since 1975 Professor Emeritus, University of Illinois, Urbana. President, American Psychological Association, 1954, and American Psychological Foundation, 1959–1960. Recipient: Certificate of Merit, University of Missouri, 1956; Distinguished Contribution Award, Illinois Psychological Association, 1975. Fellow, American Psychological Association. *Died in June 1982*.

O. Hobart Mowrer was in many ways a psychologist of all seasons. One of the factors that made Mowrer such a maverick in the field is that he managed to bridge the gap between experimental psychology and applied psychology without detriment to either field. He is among the five psychologists most often cited in the literature for their scientific contributions. From the time he retired until his recent death, Mowrer remained an active author and speaker within the fields he worked in. Mowrer studied as an undergraduate at the University of Missouri, graduating in 1929. Following this, he began his graduate work at Johns Hopkins University. During this time, Mowrer became interested in vestibulo-ocular functions and spatial orientation, and he published extensively on this subject between 1929 and 1934 when he joined the Yale Institute of Human Relations.

In the mid-1940s, Mowrer's work led him into the field of language and learning. One of the results of these studies was one of his most important contributions to the field of language and thought, the Autism Theory of Speech Development. This theory arose out of Mowrer's work with talking birds (as opposed to laboratory animals such as rats) such as the mynah bird. In this theory, Mowrer developed the idea of subjective utility as secondary reinforcement in the process of the bird's learning to "talk."

According to Mowrer, the use of certain words or phrases in intimate connection with the process of caring for the bird results in a positive conditioning of the bird; that is, the bird comes to consider them *good sounds*. In the course of its own, at first random, vocalizations, the bird will make somewhat similar sounds. Writing in the *Journal of Speech and Hearing Disorder*, Mowrer had this to say: "By the principle of generalization, some of the derived satisfaction of pleasure which has become attached to the trainer's sounds will now be experienced when the bird itself makes and hears like sounds: and when this begins to happen the stage is set for the bird's learning to 'talk.'" Essentially this means that when the bird hears itself making sounds like the trainer's, it is encouraged to continue making the same sounds. Further, the bird soon learns that he can use these sounds instrumentally as a means of indicating some need or simply to attract an admiring crowd. Mowrer ascribes such an action to a desire in the bird to be like its trainer, which results from the development of a positive relationship between the bird and the human being.

From this Mowrer extrapolated a theory of language development in human infants. The child first identifies certain sounds as being good because his parents use them in connection with actions that provide the child with pleasure. He begins imitating them and perfecting his imitations; this provides him with a sense of gratification and attracts attention from his parents, which encourages him to continue. Finally he discovers the use of words in communicating by learning to use them to control his parents and other people, and to get what he wants. In his 1952 paper, Mowrer concludes that:

- By the procedures indicated, the response is, so to speak, *baited* in advance with secondary reinforcement

so that whenever a closely related response occurs, a satisfying experience is assured, without our necessarily being present to reward it. The autistic satisfaction is, of course, likely to be relatively weak and ephemeral but it is often strong enough to carry the desired response along until it can occur in the presence of another organism and thus elicit a more powerful external reinforcement. Then its stability can be assured.

In the early 1960s, Mowrer became interested in psychopathology, and this led him through the "back door" as he describes it to become interested in deception and its effects on personality. One of the first pieces he wrote on deception was for the Alcoholics Anonymous newsletter, *The Grapevine*, in 1962. Mowrer was impressed at the time with the axiom among members of AA that every alcoholic is a "liar" and that he cannot get sober until he gets honest. While Mowrer recognizes the role heredity plays in causing mental illness, he feels that the stress created by deception can play an enormous part in triggering otherwise inert physiological troubles. In his paper for *The Grapevine*, Mowrer quotes Sir Walter Scott, who says in "Lochinvar," "Oh what a tangled web we weave, when first we practice to deceive." It is the stress caused by becoming tangled in this web of deception that Mowrer believes is responsible for much of the mental anguish that people suffer. It is not just the deception of others that Mowrer cites too; it is also self-deception. Few psychologists have contributed more to the advancement of psychology, and particularly the psychology of language and thought, than Mowrer. His work has been both imaginative and practical, as well as very often being candid and outspoken in its direction.

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Münsterberg, Hugo

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Basic Biographical Information

Münsterberg, chiefly known for his pioneering work in applied psychology, especially industrial psychology, and as one who successfully argued for the utility of psychology, after his arrival in the United States, was born on June 1, 1863, in Danzig Germany and died on December 16, 1916, of a cerebral hemorrhage while presenting a lecture on introductory psychology at Radcliffe College. In 1882, he began his university studies at Leipzig and planned on studying medicine. During his first year, he studied with the biochemist Karl Friedrich Wilhelm Ludwig (1816–1895) and the anatomists Karl George Friedrich Rudolf Leuckart (1822–1898) and Wilhelm His, Sr. (1831–1904) from whom he gained a mechanistic approach to natural science.

During his second year, Münsterberg began attending the lectures of Wilhelm Wundt (1832–1920) who a few years earlier founded what is often considered the

first true psychological laboratory and secured a position as a research assistant. However, Wundt was not pleased with his conclusion that “‘will’ is not represented in consciousness” and assigned him other work (Hothersall 2004, p. 156). Still, he was able to complete his dissertation, “The Doctrine of Natural Adaptation,” a critical study of the biological doctrine of natural adaptation that was neither an experimental study nor a study based on Wundtian methods of introspection, and was awarded his doctorate in 1885. In 1887, based on his study of the visual perception of space, the university at Heidelberg awarded him an M.D.

In 1887, Münsterberg secured a position as a *Privatdozent* (a private lecturer who received no salary from the university but received fees from students who attended his lectures) at the University of Freiberg. There in his own house he established what is considered to be the second psychological laboratory in Germany. In 1888, he returned to the work on will and voluntary activities that had earlier earned him a new assignment from Wundt and in 1899 published *Die Willenshandlung* (translated as *Voluntary Action*), a work critical of Wundt. Wundt attacked the work. However, William James (1842–1910), impressed by it and by Münsterberg’s experimental work, made arrangements to meet Münsterberg in 1899 at the First International Congress of Psychology in Paris. The quality of the studies that issued from Münsterberg’s home-based laboratory earned him a promotion to assistant professor at Freiberg. He then received a salary from the university and was able to move his laboratory to the university in 1891.

Major Accomplishments/Contributions

In 1892, James offered Münsterberg a 3-year appointment to take charge of Harvard’s psychological laboratory. He accepted the offer and by 1899 was chair of Harvard’s Philosophy Department. Except for a 1-year return to Freiberg after 2 years at Harvard and a year as a representative of the Harvard-Berlin-Exchange-a-Professor Program in 1910–1911, he remained at Harvard until his death. Under his direction the Harvard laboratory was recognized as one of the most important psychological laboratories in the nation. However, by 1908, when he began to publish a great variety of articles on applied subjects, including articles

in the popular media (for example, *Harper's*, *The Atlantic Monthly*, and the *New York Times*), it was clear that he was more interested in applied psychology than in laboratory work and left the laboratory duties to his assistant, Herbert Sidney Langfeld (1879–1958), who arrived at Harvard in 1910.

For Münsterberg the psychological expert, armed with the techniques of the new science of the mind, was to be the surrogate for the displaced or absent monarchy. Individuals could not be trusted either to know their own minds or to perceive reality objectively. The psychologist was to do that for individuals and assign them to their proper stations. In that way social order and social efficiency would be maintained and promoted. He held that applied psychology promised to be beneficial to society and set out to prove his claim by showing how psychology had practical principles for education, industry, law, and medicine. Mental illness was among his many applied interests. Believing that mental illness had a physiological basis, he began to offer treatment to patients in his laboratory in Germany and pursued that work after arriving at Harvard. He claimed to have had success with patients who suffered from a wide variety of problems, ranging from various addictions to sexual disorders. He described his methods and how he achieved his successes in *Psychotherapy* (1909).

In 1908, he showed how psychology could be applied to law in *On the Witness Stand* in which he argued social conditions were largely responsible for criminal activity. For educators, he published *Psychology and the Teacher* in 1910. In 1913, he published *Psychology and Industrial Efficiency*, the first such book on industrial psychology in which he advised employers on how to select appropriate workers and on the methods that could be employed to improve their efficiency and productivity. In 1914, he published *Psychology: General and Applied*, the first textbook on applied psychology and *Psychology and Social Sanity*.

Münsterberg was a productive scientist, having published over 30 books, over 60 papers, and numerous magazine articles, and was widely recognized for this work and contributions. A charter member of the American Psychological Association, he was elected its president in 1898. He served as a vice president of the 1900 International Psychological Congress in Paris and as a vice president and an organizer of the International

Congress of Arts and Sciences for the 1904 World's Fair in St. Louis. He was elected to the presidency of the American Psychological Association in 1907. However, his decision to act as a self-appointed ambassador of Kaiser Wilhelm's Germany cost him dearly. All the while he was away from *der Vaterland* he tried to serve it, endlessly trying to promote German *Kultur* and German *Wissenschaft* in the United States. He failed to win the Americans to the German cause of *Kultur*, and a popular press that did not appreciate his defense of Germany policies on the eve of World War I attached the ignominious sobriquet "Prof Monsterwork" to him. His efforts to win the approbation of the authorities in *der Vaterland* have overshadowed his scientific accomplishments.

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Murphy, Gardner

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Basic Biographical Information

Born: 8 July 1895; Died: 18 March 1979.

Murphy came from a literary and socially progressive family in New England which had deep roots in the local transcendental tradition. He began his university career at Yale and took an M.A. at Harvard in 1917 and the Ph.D. at Columbia in 1923. He taught at Columbia until 1940. He then moved to New York University and taught there until 1952, when he became director of research for the Menninger Clinic in Topeka, Kansas, a post he held until 1968. He then moved back east and taught for a few years at George Washington University until his health failed.

Major Accomplishments/ Contributions

Murphy was one of psychology's great syncretizers. He exemplified the idea that nothing in the world is unconnected and his primary aim was to envision the future. Beginning with his editorship of *An Outline of Abnormal Psychology* in 1929 (Murphy 1929a), he authored or coauthored books distinguished by their lucid style and wide scope. Among these were *Historical Introduction to Modern Psychology* (Murphy 1929b), *Experimental Social Psychology: An Interpretation of Research Upon the Socialization of the Individual* (Murphy et al. 1937), and *Personality, A Biosocial Approach to Origins and Structure* (Murphy 1947), each of which was widely read and used as a textbook. Murphy's approach to history blended classical sources with modern developments: it went into three editions over the next 43 years. His synthesizing approach can be seen in the way he constructed his *Personality*. There, Murphy chose a case study, the life of William James, to begin the book, and then wove together theories of canalization of response synthesized from E. B. Holt, Troland's theories of hedonism, Milton Erickson's theories of hypnosis, and many others in successive chapters. Recent commentary places Murphy in the tradition of a dual-aspect psychology (Barta 1999) stemming from Spencer and James: Murphy also gave much attention to an interactionist interpretation of heredity and environment. However, most of what Murphy wanted from and for psychology transcended the boundaries set by standard biopsychological research. He had some short experience in mainstream laboratory research as a doctoral student with ► Wells, Frederic Lyman in the early 1920s, but after that his career was driven by two passions, the first to understand how peace and disarmament might be achieved, and the second, his intense and lasting commitment to psychical research. Murphy's experiences in the First World War led him to develop a practical pacifism that resulted in theoretical consideration of conflict (Guthrie and Murphy 1938) and also to an appointment with UNESCO to study conflict in the field in India in 1950. Murphy was one of the primary forces in the development of cross-cultural psychology with books such as *Asian Psychology* (Murphy and Murphy 1968) written, as were many of his works, in collaboration with his wife, Lois Barclay Murphy. Murphy

cannot be truly estimated until it is seen how deeply his commitment to parapsychological research informed his thought. He was one of the few mainstream psychologists (he was President of the APA in 1944) to overtly identify with psychic research: He was associated with it throughout his career, from the time he assisted with Leonard Troland's (► Troland, Leonard T.) researches at Harvard in 1917. Murphy was supported by the Hodgson funds from 1922 to 1925 and he worked under MacDougall at Harvard in close connection with the Boston Society for Psychic Research. In 1925, illness and a disagreement within the psychic research community caused Murphy to retreat from psychic research to writing generalist books, but he returned as research director for the reconstituted American Psychical Research Society in 1941. Murphy believed that psychical research was necessary in order to continue to search for dimensions beyond conventional reality (Murphy 1967). Murphy's lasting effect on psychology was to bring many diverse voices together in the field: he argued successfully for including the phrase "human welfare" into the APA mission in 1945. He was a major contributor to the development of humanistic psychology's program in the 1950s and his *Human Potentialities* (Murphy, 1958) as well as his article *The Psychology of 1975* (Murphy 1963) capture his vision of psychology's future in a dynamically changing world. Commenting on the 'space race' in 1961, Murphy observed that we have always been in space, and we are only beginning to understand the implications of that (Murphy 1961).

See Also

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Murray, Henry A.

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Basic Biographical Information/Major Accomplishments

American psychologist. Born in New York City, May 13, 1893. Studied at Harvard University, Cambridge, Massachusetts, B.A. 1915; Columbia University College of Physicians and Surgeons, M.D. 1919; Cambridge University, Ph.D. in biochemistry, 1927. Served in the Office of Strategic Services, 1942–1946: Lieutenant Colonel. Married Josephine Rantoul in 1916, one daughter; married Caroline C. Fish in 1969. Surgical Intern, Presbyterian Hospital, New York, 1924–1926; did research work in embryology at the Rockefeller Institute for Medical Research, New York, 1926–1927; Instructor, 1927–1929. Assistant Professor, 1929–1937. Associate Professor, 1937–1948. Professor of Clinical Psychology, 1948–1962, and since 1962 Professor Emeritus. Harvard University (after 1929, Director of the Psychological Clinic). Recipient: Distinguished Science Contribution Award. American Psychological Association, 1961. Honorary doctorate: Lawrence College, Appleton, Wisconsin, 1964; University of Louvain, Belgium, 1966. Member, American Academy of Arts and Sciences. Address: 22 Francis Avenue, Cambridge, Massachusetts 02138, USA.

The focus of Henry A. Murray's work has been the study of human personality for which he has coined the word "personology," defining it as "the branch of

psychology which principally concerns itself with the study of human lives and the factors that influence their course." The ultimate aim of the personologist is threefold: to construct a theory of personality, to devise suitable techniques for studying its more important attributes, and to discover its basic facts through careful and extensive studies of actual human lives. Since personology is the science of men, Murray considers it the most inclusive field of psychology, other branches being essentially special areas within it.

Murray has always been an advocate of interdisciplinary personality studies accepting a wide range of approaches as useful in personology. Biological, historical, cultural, social, and evolutionary concepts, as well as those in all areas of psychology, are important to personality as Murray sees it. He is concerned with interpersonal, intrapersonal, and impersonal psychological forces, and, while recognizing the value of subjective material, he does not neglect objective observation. He has formulated a number of special evaluation techniques to study both conscious and unconscious psychological processes. Among the most well known of these are the Thematic Apperception Test, a projective technique through which data can be analyzed to permit inferences about the dominant psychological forces affecting the subject's thought and behavior. This is done through the intermediary device of heroes or central figures in the TAT pictures, about which the subject is asked to make up stories. The ways he handles the issues he projects into the pictures are assumed to indicate his own characteristic problem-solving approaches, and the endings he envisions are assumed to embody the endings he desires for his own conflicts.

Murray defines personality as "the hypothetical structure of the mind, the consistent establishments and processes of which are manifested over and over again. . . in the internal and external proceedings which constitute a person's life." In speaking of personality, Murray uses a number of terms. The term "proceedings" refers to the units of time during which the person attends to either the internal or external circumstances of his life. Serials, a series of proceedings, are related to each other but separate in time and permit the pursuit of long-range goals. Murray sees the person as continually planning schedules for achieving these goals by setting up serial programs, sequences of subgoals, which serve as steps along the

way. All of these processes constantly arise, shift, and give way to others as circumstances change, and personality changes with them. He sees the person as constantly under pressure by conflicting internal and external demands so that throughout his life he must give up things as well as take for himself.

Murray's views on personality contain a strong Freudian Emphasis, stressing the role of the past as the seed of the present. At the same time, however, he does not neglect either present or future states and their influence on personality. Murray uses Freudian concepts to describe the stages of childhood. The id, as he conceives it, remains the source of energy and the reservoir of unacceptable impulses as it was for Freud. However, Murray also sees the id as containing positive and constructive impulses. The ego is not merely a repressor and inhibitor for him; it has energies of its own which direct id drives toward a suitable expression. The superego, although still the internal regulator of behavior derived from early experiences, can be significantly changed later by peer-group and other influences, including those associated with literary, historical, and mythological characters with whom the person identifies. Murray's concept of the ego ideal, which is associated with the superego, consists of the various self-images representing the person at his very best, helping him to maintain goal-directed living.

Murray also identifies certain temporal sequences in childhood that represent their Freudian counterparts, although they are a bit more widely interpreted: to the oral, anal, and phallic stages. Murray introduces two further stages, the claustral and the urethral. The claustral involved the tranquil state of prenatal existence, while the urethral, falling between the oral and anal stages, involves the pleasurable sensations associated with urethral erotism. In Murray's view, these can naturally lead to complexes of their own, the claustral producing a passive, dependent personality with prominent withdrawal tendencies, and the urethral complex producing an overly ambitious, strongly narcissistic adult with a prominent concern for achieving immortality and a strong attachment to fire. The urethral complex is also known as the Icarus complex. The extremely detailed case history called "An American Icarus" is one of Murray's best-known works. Murray has also developed a theory of motivation, one of the main concepts of which is that of "need," which he

regards as a force in the brain which can be aroused by either internal or external stimulation. Once stimulated, it produces continued activity until it is reduced or satisfied. Murray has worked out a number of classifications of needs in a continuing effort at greater precision. In one such system, he distinguishes between activity and effect needs, activity needs being directed toward activity for its own sake and effect needs being directed toward some goal. Another of his classifications involves mental, viscerogenic, and sociorelational needs. These arise respectively from the character of the human mind, from properties of physiological tissues, and from man's inherent social nature. He also adds creative needs that promote novel and productive activities, as opposed to negative needs, which induce avoidance of the undesirable. Another distinction he makes is between proactive needs, which arise from within the person, and reactive needs, those induced by environment. This emphasis on proactive needs removes man from being merely acted on and gives him some control of his destiny.

Although he has insisted that he has never made more than a beginning in the work which he set out to do, Henry Murray's contribution to personality study has been described in a book of essays published in his honor as "a unique and inexhaustible house of treasures."

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Myers, Charles S.

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Basic Biography

Charles Samuel Myers was born in London on March 13, 1873, just before Wundt established his lab and as the industrial revolution was transforming work. Myers' work was multifaceted, reflecting the interaction of anthropology, experimental psychology, and applied psychology. As a scientific psychologist with an enduring commitment to the "human factor" in work, Myers made his mark (Myers 1920).

Myers was the firstborn son of a successful businessman, Wolf Myers, making him aware of workplace issues from the start. His mother, Esther Eugenie Moses, an avid supporter of the arts, influenced him to become an accomplished violinist (Bartlett 1948).

Myers attended college at the City of London and Cambridge University. Although he worked toward a medical degree at St. Bartholomew's Hospital from 1895 to 1898, he would not become a physician (Obituary 1946). At 25, Myers had his first of two transformative experiences, the first taking him from medicine to experimental psychology and the second from the lab to pioneering work in industrial psychology.

Major Accomplishments and Contributions

In 1898, Myers joined Alfred C. Haddon, William MacDougall, W.H.R. Rivers, and others on the Cambridge Anthropological Expedition to Torres Straits and Sarawak (Bartlett 1948). He went to study psychophysical responses of indigenous peoples, but culture that caught his attention. He became interested in what would now be called cross-cultural psychology.

Myers assumed that "primitive" or indigenous people would perform differently because they differed from him geographically, socially, and physically. But, his study of music, color, and taste perception revealed differences best understood in terms of language or cultural practice (Pear 1947). Myers' curiosity

compelled him to continue his study of cultural differences in language and perception after expedition, eventually passing on his fascination with culture and cognition to students such as F. C. Bartlett.

Myers completed his medical thesis in 1901, but, by 1903, was assisting W.H.R. Rivers as University Demonstrator in Experimental Psychology at Cambridge. He also became a lecturer on Psychology for Kings College London (Obituary 1946).

By 1909, Myers became the first full-time lecturer in Experimental Psychology at Cambridge and was soon directing a new Psychology Lab (Obituary 1946). In that same year, he published *Textbook of Experimental Psychology* (1911), the first English survey text. These accomplishments completed his transition from medicine to psychology.

For Myers, psychology was the study of experience, versus behavior (Pear 1947). His research topics ranged from synesthesia (1914) to the role of handedness in letter reversal (Fildes and Myers 1921), but his primary interest was in the psychology of music (cf. Myers and Valentine 1914). Myers inspired a generation to think about research questions relating to individual differences, cognition, culture, and applied psychology; many, such as Bartlett, R. H. Thouless, and C. W. Valentine, became important British psychologists (Bartlett 1948).

During World War I, Myers volunteered for the Royal Army Medical Corp in France (Obituary 1946). Witnessing the physical and psychological costs of war strongly motivated Myers to apply scientific psychology to the relief of soldiers and in support of England's war effort.

In Myers' war diary (1940), *Shell Shock in France 1914–18*, he coined the term "Shell Shock" and described its symptoms. Neurological damage from proximity to explosions was the presumed cause; however, Myers noticed the symptoms in soldiers who had not been near exploding shells and reasoned that the disorder must be psychological. Myers recommended immediate psychotherapy, administered away from the battlefield, that focused on restoring memory, a sense of safety, and self-esteem.

Myers was one of the first to join the War Office's Advisory Committee on Personnel Selection (Obituary 1946). He developed a test battery for identifying effective "hydrophonists," evaluating perceptual acuity,

the ability to follow complicated directions, and memory for pitch, rhythm, and sound quality.

In 1917, Myers returned to England to coordinate the training of medical officers for their psychological work with returning soldiers.

Given his transformative war experience, Myers directed his energy toward the psychology of work (Bartlett 1948). He asserted that the psychological dimension of work was the most fundamental to efficiency (Myers 1920). Myers inspired H. J. Welch, businessman, to join him in founding the nonprofit National Institute of Industrial Psychology (NIIP) in 1921. It became a research, resource, and training center for the application of scientific knowledge to occupational life (Welch and Myers 1932).

Myers left academia in 1922 to devote his time to the NIIP and study the “human factor.” Myers examined various types of fatigue, conducted time and motion studies, and worked to improve workspace design (cf. Myers 1919). To match workers with jobs, Myers developed tests for individual differences in, for example, reaction time, auditory discrimination, visual acuity, signal detection, figure memory, and manual dexterity (Welch and Myers 1932). Myers work anticipated current interest in components of cognitive processing and, for example, learning disabilities (Welch and Myers 1932).

Myers (1920) was a strong advocate of vocational guidance programs and studied the effect of training, promotion, and incentives on productivity. His goal was to help young people make better work choices and teach managers to be more equitable and effective.

Myers’ intellectual curiosity and rigor were recognized early; they served his profession well (Bartlett 1948). In addition to winning scholarships and honors, he was named the Arnold Gerstenberg Student at Cambridge for his promise in natural science and philosophy. In 1915, Myers was one of the first psychologists to be elected Fellow of the Royal Society (Obituary 1946). In 1933, he gave the prestigious Bradshaw Lecture on *A Psychological Regard of Medical Education* (Pear 1947).

Myers, along with W. H. R. Rivers and others, established the *British Journal of Psychology* in 1904. He served as Associate Editor for 3 years and was Editor from 1913 to 1923 (Pear 1947). In 1924, he became first president of the British Psychological

Society, the preeminent society for professional psychologists in the UK (Bartlett 1948). Under the auspices of the NIIP, he founded and edited *Occupational Psychology*. Myers presided over the Seventh International Congress of Psychology at Oxford in 1923 (Pear 1947).

Myers’ clear writing style and editorial work widened his impact and solidified his legacy (Pear 1947). *Shell Shock in France 1914–18* (1940) is valuable both as a first person account of war and a detailed description of shell shock. His survey text of experimental psychology (1911) went into multiple editions, proof of its staying power. Myers repeatedly published in *Lancet*, arguing for the psychological origin and treatment of “war neuroses.” Seeing great promise in industrial psychology, he wrote four well-received books, including *Mind and Work* (Myers 1920).

The National Institute of Industrial Psychology turned 25 just before Charles S. Myers passed away at 73 on October 13, 1946 (Obituary 1946). In the *British Journal of Psychology*, Pear (1947) observed, “psychology in Britain owes to none more than it owes to C. S. Myers.” In fact, Myers’ impact was global; his motivation and methods formed the bedrock for modern industrial/organizational psychology.

See Also

- ▶ [Anthropology and Psychology, Case of W. H. R. Rivers](#)
- ▶ [Bartlett, F. C.](#)

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N

Neisser, Ulric

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Basic Biographical Information

Ulric Neisser was born on December 8, 1928, in Kiel, Germany, and his family moved to the USA when he was 4 years old. Once in the USA, Neisser's father, a professor of economics, took teaching positions at The University of Pennsylvania and the New School for Social Research. Thus, Neisser grew up in the suburbs of Philadelphia and New York City.

Neisser attended Harvard University as an undergraduate and conducted his senior thesis in George Miller's laboratory. After receiving his Bachelor's degree in 1950, Neisser went to Swarthmore to study Gestalt psychology and received his Master's degree at Swarthmore. After receiving his Master's degree, he studied briefly at MIT before returning to Harvard and receiving his Ph.D. in 1956, under the direction of S.S. Stevens. Neisser's first teaching position was at Brandies University. He would later teach at both Emory University and Cornell University. He is currently a Professor Emeritus at Cornell.

Major Contributions/ Accomplishments

Ulric Neisser has made an impressive and lasting contribution to the field of psychology. He was named the 32nd most influential psychologist in history, based on a study published in the *Review of Psychology*. There is no doubt that his contributions place him among the most influential psychologists of all time, particularly in helping develop the emerging subfield of cognitive psychology within the broader domain of psychology. During the first half of the last century, American

psychology was decidedly behavioristic in approach and there was little interest or tolerance in looking inside the behaviorist's view of the mind and mental processes, the so-called black box. Neisser paved the way for the development of the cognitive revolution in psychology.

In 1967, Neisser published the first real book attempting to integrate the newly emerging cognitive literature. This book, simply titled *Cognitive Psychology*, is generally considered the first real textbook for studying cognition, with chapters on The Cognitive Approach, Iconic Storage and Verbal Coding, Pattern Recognition, Focal Attention and Figural Synthesis, Words as Visual Patterns, Visual Memory, Speech Perception, Echoic Memory and Auditory Attention, Active Verbal Memory, Sentences, and the closing chapter, A Cognitive Approach to Memory and Thought, in a final section on higher mental processes. In this important work, Neisser also produced what has been a very insightful definition of cognition, referring to "all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered and used" (p. 4). His definition still appropriately reflects the emphasis on the organism as an active processor of information and our increasing understanding of the role of constructive and reconstructive processes in interpreting the world around us. Indeed, he indicated that his approach was "more closely related to that of Bartlett . . . than to any other contemporary psychologist" (p. 10) and that Bartlett's influence on his thinking would "become obvious in later chapters" (p. 8). Bartlett's influence on Neisser would only seem to become more pronounced throughout Neisser's career.

Following the publication *Cognitive Psychology*, Neisser wrote *Cognition and Reality* in 1976. In his second book, Neisser openly discussed his dissatisfaction with the typical laboratory research and lack of ecological validity that had often come to characterize the "new" cognitive approach. He became quite

influential in helping develop an interest in everyday memory and the study of cognition in the real world. Many of his articles, books, and edited books following the publication of *Cognition and Reality* involved the issues of ecological validity and remembering in natural contexts (e.g., *Memory Observed: Remembering in Natural Consequences*).

Neisser has also had a long-standing interest in the nature of “intelligence” tests and their significance in society. He has written about these topics in works such as *The Rising Curve: Long-Term gains in IQ and Related Measures* and headed a task force that wrote a consensus statement on the state of intelligence research for the American Psychological Association surrounding controversial claims involving IQ at the time. He also chaired a conference at Emory focusing on changes in intelligence test scores. Neisser has won numerous awards for his work over the years including the Emory University Scholar/Teacher Award, and has been both a Guggenheim and Sloan Fellow.

See Also

- ▶ [Bartlett, F. C.](#)
- ▶ [Loftus, Elizabeth](#)

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New School for Social Research, History of Psychology at

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Basic History of the Department

Max Wertheimer, a seminal contributor to the theory of Gestalt Psychology, was listening to a radio broadcast

in 1933 in which Adolph Hitler, the newly appointed chancellor of Germany, was speaking. After a few minutes of the speech, Wertheimer abruptly turned the radio off and brought his family together. He announced that they would leave Germany that day. The Wertheimers moved to Marienbad, Czechoslovakia, where they were contacted by Alvin Johnson, Director of the New School. Thus began a journey from Frankfurt, Germany, to New York City. Wertheimer became one of the original faculty in what was called the University in Exile (Rutkoff and Scott 1986).

To understand the University in Exile one must understand the context in which it was founded. In brief, in 1917, the President of Columbia University announced to the faculty that they were expected to support the war policies of the US Congress and the President of the United States. Those who opposed the government policies would be dismissed from Columbia. Two faculty members, James McKeen Cattell, Professor and founder of the Psychology Laboratory at Columbia, and Henry W. L. Dana, Assistant Professor of comparative literature, were soon terminated because they publically opposed the US entry into World War I. Noted historian and political scientist Charles A. Beard and distinguished historian James Harvey Robinson resigned from Columbia as well and joined with Alvin Johnson, economist and humanitarian, and philosopher John Dewey, economist Wesley Mitchell, Thorstein Veblen, a sociologist said to be “the last man who knew everything” (Henle 1979), and a group of liberal philanthropists to discuss the need for a new educational institution that was “honestly free.” The New School opened for the Spring term of 1919. According to its catalog, the standard of all work in the school will be “post graduate” in character, although an academic degree will not be required for admission. Students were presumed to be pursuing their education for its own sake. No degrees were to be granted by the New School.

The first course in psychology was offered in 1919, followed in 1921–1922 by a series of lectures on mental hygiene by distinguished psychologists Morton Prince, Adolph Meyer, and William Alanson White. The following year, John B. Watson came to the New School and gave courses in behavioral psychology. He brought such leading scholars as Sandor Ferenczi, E.B. Holt,

John Dewey, W.G. Cannon, and Alfred Adler to lecture in a Modern Viewpoints in Psychology course (Henle 1979). The New School became the focal location for the early teaching of psychoanalysis and the evolving psychodynamic theories of personality with Karen Horney, Ernst Kris, and Eric Fromm teaching in addition to Ferenczi and Adler.

Hitler rose to power in January of 1933. The Nazis were intent upon destroying the German University system, and distinguished university professors, Jewish scholars in particular, were at risk. Alvin Johnson saw the opportunity to rescue scholars and to provide a world-renowned graduate faculty for the New School. He raised money to bring faculty to New York. The University in Exile was born with ten German scholars. The faculty adopted a constitution in 1935, and the catalog stated that the Master of Social Science (MSSc) and Doctorate of Social Science (DSSc) could be earned with the Graduate Faculty. The first masters degree was awarded in 1936 and the first doctorate in 1937.

Among the original members of the Graduate Faculty was Wertheimer. He taught philosophy and psychology courses. In 1938, Kurt Koffka offered a seminar. Wolfgang Köhler commuted from Swarthmore to offer courses for the Graduate Faculty. Solomon Asch was appointed to the faculty and Mary Henle joined the department in 1946. Not long thereafter, Asch took a position at Swarthmore, Tamara Dembo who had been a student of Kurt Lewin, Irvin Rock, and Ulrich Sonneman joined the department for short periods. The department essentially remained as a two- or three-member department using visiting faculty to provide much of the course offerings. Notable names of faculty during this period were Hans Wallach, Kurt Goldstein, Rudolf Arnheim, William Sheldon, and Köhler. The department appears to have hit a nadir in 1953–1954 when the New School Catalog only listed 16 courses offered by the faculty.

The department grew in the late 1950s and early 1960s. Joseph Greenbaum joined the faculty in 1958. The 1964–1965 Catalog listed Nathan Brody, Arthur Gladstone, Howard Gruber, Mary Henle, Robert Terwilliger, John van Laer, and Bernard Weitzman as tenure/tenure track faculty. Rudolph Arnheim, Molly Harrower, Goldie Ruth Kaback, Ausma Rabe, Michael Studdert-Kennedy were listed as visiting faculty. Some 52 courses were listed in the Catalog offerings, although

it appears that only 41 were actually offered. In any case, this menu of courses was greatly expanded from what was available during the 1953–1954 term.

By the late 1960s, Leon Festinger had joined the faculty. By then, Festinger's research had shifted from social psychology (e.g., cognitive dissonance theory) to visual perception (e.g., efference theory), and he headed a semiautonomous program in consortial arrangement with Columbia University and New York University. Stanley Coren joined Festinger in this effort in 1969. In addition, the Department was offering a Ph.D. in Personality and Social Psychology and one in Experimental Psychology.

The 1970s saw Nathan Kogan (individual differences in cognition) in the role of Department Chair, and Sarnoff A. Mednick (schizophrenia), Elizabeth F. Loftus (cognitive psychology generally and memory and eyewitness identification more specifically), and Arien Mack (perception) had joined the faculty. Visiting faculty included Louise Erlenmeyer-Kimling (behavior genetics), Serge Moscovici (minority group influence), Michael Lewis (cognitive developmental psychology), and Donald Rock (regression and multivariate statistical methods).

The department changed considerably in the 1980s with the addition of a full-fledged clinical psychology program. Arien Mack took the department Chair. The department gave degrees in four fields: Clinical, Developmental, Experimental, and Personality/Social Psychology. Jerome Bruner joined the faculty. Mary Henle retired and was appointed as Professor Emerita by 1983.

The number of full-time faculty who were tenured or on the tenure track remains relatively stable ranging from 15 to 19 since the early 1980s until today. With the notable exceptions of Professors Henle, Kogan, Terwilliger, and Weitzman, the turnover among faculty has been consistent. It now awards the Ph.D. in Cognitive, Social, and Developmental Psychology and in Clinical Psychology. The number of graduates from clinical is about four times those in CSD per year (see New School for Social Research Catalog, various).

Significance

The Psychology Department played its part in the original mission of the University in Exile. It provided a home for German and other European scholars to

continue their work and escape the Nazis through the University in Exile. The founding psychologist, Max Wertheimer, who along with Koffka, Köhler, and others, provided the explication of Gestalt principles in the fundamental domains of experimental psychology: thinking, perception, memory, and the like. Other like-minded thinkers, such as Asch (social psychology) and Arnheim (psychology of art) and the students of these important historical figures were all connected with the University in Exile/Graduate Faculty of the New School for Social Research. Mary Henle, who studied with Koffka and Köhler, made lasting contributions by translating the original works of the founders from German to English and kept the Gestalt School alive in her courses.

As Gestalt principles became accepted fundamental components at the core of experimental psychology and with the passing of the founders and their students, the focus of the courses offered by the department aligned with the offerings of other major departments throughout the United States. It has been the home for periods of time to many others outside of the founding Gestalt tradition. Some have come for a relatively short period and then moved on to distinguished careers elsewhere. Examples would be Elizabeth Loftus and Stanley Coren. Others (e.g., Nathan Brody) rose through the academic ranks at the New School and then moved to other institutions where they completed their careers. On the other hand, many made important contributions to psychology before joining the Graduate Faculty. Examples would be Jerome Bruner, Leon Festinger, and Molly Harrower.

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Noble, Daniel

TORY HOFF

Psychologist, Toronto, ON, Canada

Basic Biographical Information

Born on January 14, 1810, in Preston, England, of Catholic parentage, Daniel Noble received medical training at Guy's Hospital, London. He became a member of the Royal College of Surgeons, and in 1834 moved to Manchester to become a physician at the Clifton Hall Retreat for the insane. Eventually he also became a lecturer in psychological medicine at the nearby Chatham School of Medicine, and was elected a Fellow of the Royal College of Physicians in 1867. Regarding personal life, in 1840 Noble married Frances Mary Louisa Ward, of Dublin, and they fostered eight children. He died on January 12, 1885.

Major Contributions

Noble began his career heavily influenced by Franz Josef Gall, whose theory became known as phrenology, and Noble remained always appreciative of him. In the late 1830s, he became a president of the Manchester Phrenological Society, and he wrote a few articles in the *Phrenological Journal*. His book, *The Brain and Its Physiology* (1846), is likely the last articulate case for the phrenological system written in the English language to receive respectful discussion from colleagues within the established British medical community. Throughout this book, Noble juxtaposed “mechanical” structure and “organic” structure in a manner that reflected his vitalistic physiology. A “mechanical” structure, Noble conceived, is a “mere” physical object of the kind first identified by Galileo, Descartes, and Newton, and is thus available to the scientific investigation of the observable. The skull qualifies as this kind of object (Noble 1839).

By contrast, Noble believed that “organic” structures, especially the cerebral organs of humans, are hidden, as they having an “intimate quality” that is not entirely open to public observation. To a great extent Noble retained Gall's belief that the cerebral organs are each incarnations of specific internal essences known as the faculties of the mind (Gall 1935, vol. 2, p. 30),

and therefore cannot be directly observed as discreet objects (Noble 1846, p. 237). Unlike all other “organic” structures, they operate as the nonmechanical instruments of these faculties. Noble followed Gall when he imagined that the cerebral organs have a hidden, “sympathetic” kind of communication, an “association of function” among themselves (Noble 1846, pp. 19f, 80, 270).

Noble held to Gall’s theory of expression whereby these internal faculties via their powerful organs reveal themselves in behavior but also influence the shape of that adjacent “mere” structure, the skull. As incarnations of the faculties, the cerebral organs themselves act as *quasi-psychological forces*, ones which obtain expression at the exterior skull as well as through behavior.

Noble later wrote that an anonymous review of considerable length, which appeared in the esteemed *British and Foreign Medical Review* a few months later, precipitated his rejection of phrenology as a cohesive system of thought (Noble 1858, p. 33, note). It had been written by his colleague and friend, William Carpenter (1813–1885). Carpenter (1846) was already becoming a spokesperson for the new British psychophysiology with its dualistic juxtaposition of physical body and human consciousness.

Among other things, Noble took seriously Carpenter’s legitimate points that phrenologists failed to take into consideration the actual convolutions of the brain and had little to say about brain mass *not* located adjacent to the skull. When realizing that the parts of the brain are not hidden in principle but are more observable than previously thought, Noble became disillusioned with the vitalistic concepts of orthodox phrenology and its related methods. He concluded that no scientific method could be found for determining the “quality” of the cerebral organs. A reading of Noble’s subsequent two books, *Elements of Psychological Medicine* (1853, 2nd edition, 1855) and *The Human Mind* (1858), indicates that he became committed to the belief that the size of nervous tissue is the primary means for determining the power of a mental function.

Noble also came to accept Carpenter’s argument that the physiognomical tradition was not relevant to a scientific theory of brain function. The phrenological concept of expression from the internal to the external

was no longer a central part of the medical thought of Noble. He did, however, retain the belief that the shape of the skull is reflective of general endowment regarding the intellectual, moral, and instinctual modes of consciousness (Noble 1858, pp. 25, 85).

Although Noble distanced himself from phrenology, more so the system of Johann Gaspar Spurzheim than the theories of Gall, the pursuit of the relation between brain and mental processes remained his passion. By the 1850s, this endeavor occurred within a more dualistic “physiological psychology” in which the operations of brain structures *correlate* with mental processes. Likewise, Noble abandoned the phrenological search for a set of psychological categories for understanding individual differences, and instead focused on states or modes of consciousness (Noble 1855, p. 65). He described a set of brain–mind correspondences similar to what Carpenter posited.

Noble contributed to ongoing discussion regarding the nature, causes, classification, and treatment of insanity. He remained skeptical about the ability of brain anatomy to provide knowledge about the physical and moral causes of insanity. His classification was consistent with the common distinctions made in his day between mania, monomanias, and moral insanity. He emphasized that many cases of insanity are likely due to some kind of disordered sympathetic communication between unknown parts of the brain. Sober about the limits of the medical means of treatment including bloodletting and physical restraint, he was a proponent of the moral management of insanity in that he was aware of various ways that “striking derangement of the functions of the nervous system can be produced by impressions purely mental” (1855, p. 305). He held to the common opinion that “deprivation of personal liberty as secured in a lunatic institution constitutes a positively curative agency” (1855, p. 343). But he also took the novel position that the afflicted person in detention not only needs a “relation-like regard” from the physicians but in short-term cases also a family-appointed person who periodically visits.

Daniel Noble was a prominent medical theorist of brain–mind relations and psychopathology in a transitional era when scientists were beginning to understand localization of brain function and to reformulate notions about insanity. More specifically, his ideas exemplified the way that a liberalized phrenological

perspective influenced psychiatry and social reform in the middle of the nineteenth century. Although he never attained the eminence of a few of his colleagues, he was a strong supporting member of a community that advanced our knowledge about the human mind and brain.

See Also

► [Gall, Franz Josef](#)

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Nutting, Perley G.

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Basic Biographical Information

Born: August 22, 1873; Died: August 7, 1949.

Nutting is a good example of an individual who created practical and enduring bridges between physical science and sensory and perceptual psychology in the early twentieth century. Born at Randolph, Wisconsin, he attended Carleton College in Minnesota and then Stanford (BA 1897) and the University of California (BA 1899). He then moved to Cornell where, after a year at Göttingen, he obtained the Ph. D. in physics in 1903 under Edward Nichol. From 1903 through 1912 he progressed from assistant to associate physicist at the US Bureau of Standards in Washington, DC.

Major Accomplishments/Contributions

His earliest physical work, at California, involved the photographic photometry of ultraviolet reflection from various metallic and nonmetallic surfaces. While at the Bureau of Standards he published on gas spectra, spectrophotometry, and colorimetry, and also on psychophysical questions including Fechner's Law (Nutting 1908) and human spectral sensitivity. Interested as a spectrophotometric specialist in the differential visibility of light at different wavelengths, he extended the work of Langley and Koenig and synthesized a "visibility function" relating energy flux and visual effectiveness which led to the establishment of the lumen, a fundamental quantitative term in both vision science and illuminating engineering. By 1910 Nutting moved toward applications, publishing in 1912 *Outlines of Applied Optics* (Nutting 1912), and in 1913 he moved to the Eastman Kodak Company in Rochester, NY, where he was the director of the research laboratories through 1916. While there he convened a group of professionals representing both scientific and commercial interests in optics, which became the American Optical Society, of which he was, in 1916–1917, the first president (Kingslake et al. 1966). He then went to Westinghouse where he was director of the research laboratory until 1921 and a consulting engineer until 1924. During this period he published several technical and theoretical articles in the new *Journal of the American Optical Society* and also wrote lucidly on practical social questions such as scientific education and highway safety (Nutting 1923). He then returned to government service with the US Geological Survey and concluded his career studying the physical properties of minerals and clays.

See Also

► [Troland, Leonard T.](#)

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O

O'Connell, Daniel C.

SABINE KOWAL

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Basic Biographical Information

Daniel C. O'Connell was born on May 20, 1928, in Sand Springs, Oklahoma. He received an undergraduate classics degree in 1951, a master's level degree in philosophy (Ph.L.) in 1952, a master's degree in psychology (A.M.) in 1953, and a master's level degree in theology (S. T. L.) in 1960, all from Saint Louis University. He earned his Ph.D. in experimental psychology at the University of Illinois (Urbana) in 1963 with a dissertation on verbal operant conditioning. Two NSF postdoctoral fellowships (1963–1964 and 1965–1966) allowed him to pursue his research interest in experimental psycholinguistics at the Harvard Center for Cognitive Studies. There he began to develop his critical engagement of mainstream psycholinguistics – and specifically to the then current fad of Chomsky's transformational grammar – which over the years eventuated in his own approach to the psychology of language use. During the 1968–1969 academic year, a Humboldt Fellowship allowed him to work with Professor Hans Hörmann at the Free University in Berlin. Hörmann's genuinely psychological approach to the study of language use remained a fundamental guideline for him in his own subsequent language research. And throughout the ensuing years, the Humboldt Foundation remained his major source of occasional support, especially through two major grants in the 1990s with Sabine Kowal as transatlantic partner in Germany.

Due to his education as a Roman Catholic priest in the Jesuit Order, with its emphasis on history, theology, and philosophy, O'Connell developed, from the very beginning of his academic career in psychology, an

interest in language, a respect for the historical roots of scientific ideas, and a critical attitude toward psychology in general and psycholinguistics in particular. In the course of more than 50 years of research on language use from a psychological perspective, this orientation led him over time to four basic shifts in his research: from Anglo-American to European psychology, from experimental to field research, from monolog to dialog, and from written to spoken language use. Along with these developments went his increasing preoccupation with a variety of verbal and nonverbal phenomena characteristic of spontaneous dialogical discourse.

Major Accomplishments/Contributions

All through his scientific career, O'Connell has made it one of his main concerns to fight publicly, in his teaching and his public lecturing as well as in his publications, against the zeitgeist, the mainstream, and an a-historical approach to research in psychology; this clearly has made him an outsider in the field of psychology. In 1957, he began with a critical rejection of O. Hobart Mowrer's notion of mental illness as human sinfulness, continued in 1958 with a critical analysis of Gordon Allport's idiographic use of personal documents, added in 1962 an article rejecting Charles E. Osgood's theory of meaning, followed by a critical replication of an experiment by William Verplanck on verbal operant conditioning (Dulany and O'Connell 1963), broadened the scope of his critical approach in his O'Connell 1988 book *Critical Essays on Language Use and Psychology*, and finally crystallized a theory of spontaneous spoken discourse in his recent critique of mainstream psycholinguistics from its historical beginnings to the present day in his 2008 book (co-authored with Sabine Kowal) *Communicating with One Another: Toward a Psychology of Spontaneous Spoken Discourse*.

His methodological developments in the study of spontaneous spoken discourse in dialog led O'Connell stepwise to the inclusion of physically measured pauses and hesitation phenomena, and to the analysis of interjections, personal pronouns, laughter, turn-taking, and applause in his empirical research. The field approach to the study of language concentrated his attention on corpora of public speeches and interviews, mostly of politicians, as well as on corpora of artistic performances of actors reading literature or playing their roles in films and plays. This field approach also resulted in critical analyses of the methodologies involved in the transcription of language data (O'Connell and Kowal 2009). For summaries of this empirical research, see O'Connell and Kowal (2008).

In many of his publications, O'Connell's concern about historical landmarks in psychology, often forgotten in mainstream research, is evident. This concern has gone along with a basic interest in the European roots of modern psychology (e.g., Wilhelm Wundt, Karl Bühler) and his persistent attempt to acknowledge the contributions of contemporary European colleagues engaged in language research (e.g., Carl Friedrich Graumann, Hans Hörmann, Per Linell, and Ragnar Rommetveit). His work with Sabine Kowal on the recent history of mainstream psycholinguistics as a monologically (rather than dialogically) oriented discipline is an example of this orientation (O'Connell and Kowal 2003).

With her too, he has concentrated on explicating concepts which they both consider necessary bases for a psychological (rather than linguistic or sociological) theory of spontaneous spoken discourse – concepts which at the same time are usually neglected in modern psychology as a general discipline as well as in mainstream psycholinguistics: *intersubjectivity*, *perspectivity*, *open-endedness*, and *verbal integrity*. None of the four concepts are empirical insofar as they logically precede empirical engagement of data. Intersubjectivity, as a prerequisite, focuses on the mutual and reciprocal consciousness of one another on the part of interlocutors before they even begin to speak or listen to one another; failing this prerequisite, spontaneous spoken discourse ceases or fails to commence. Perspectivity asserts that every utterance necessarily carries with it a perspective of the speakers and listeners involved in the discourse: Both have their own reasons, intentions,

and goals that are always relevant in research on language use. Open-endedness emphasizes the fact that spontaneous spoken discourse exists in an open, creative, and learning setting. It always moves forward in real time, and the direction and pace of this movement are essentially unpredictable. Finally, verbal integrity takes into account that an adequate analysis and understanding of spontaneous spoken discourse from a psychological point of view is impossible without regard for the moral responsibility of both speakers and listeners. And although American mainstream psycholinguistics has largely ignored these concepts, they have a rich history in the European tradition. This theoretical re-orientation has also required methodological shifts regarding measurement, transcription, and field observation. And in a much broader sense, it has inevitably involved an expansion to interdisciplinary cooperation with other social sciences (e.g., anthropology and sociology) and an openness to research traditions in other native languages.

In summary, O'Connell's professional career has extended from behaviorism through cognitivism and beyond. His involvement in the history of psychology has been twofold: By both penchant and discipline, he has returned in his research to the nineteenth-century sources of a psychology of language use; and due to this lifelong engagement, his work has spanned from the mid-twentieth to the twenty-first century – as commentator, contributor, and critic.

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Ogden, R. M.

JOHN G. BENJAFIELD

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Basic Biographical Information

Robert Morris Ogden (1877–1959) was born in Binghamton, New York, and received his primary and secondary education there. As an undergraduate at Cornell, Ogden was primarily interested in “construction and design” (Dallenbach 1959, p. 472), an intimation of his subsequent interest in aesthetics. However he subsequently shifted to psychology, and graduated in 1901 with a major in that subject and a minor in aesthetics. He remained passionately interested in aesthetics throughout his career. Titchener arranged for him to study with Oswald Külpe at Würzburg, where he received his Ph.D. in 1903. Ogden served at the universities of Missouri, Tennessee, and Kansas, before returning to Cornell in 1916, where he became Professor and Chair of Education in 1916 and Dean of Arts and Sciences from 1923 to 1945.

Major Accomplishments/Contributions

Ogden demonstrated a breadth of interest that is remarkable in a psychologist of his time or of any time. He published dozens of articles and reviews in areas as diverse as aesthetics, education, hearing, Gestalt psychology, imagery, intelligence, learning, and philosophy. He also produced a textbook of psychology, as well as books on hearing, education, and a translation of Kurt Koffka’s *The Growth of the Mind*. However, in some ways his crowning achievement was his book on the *Psychology of Art* (Ogden 1938).

Ever since his undergraduate days, Ogden had been as interested in aesthetics as in any other discipline including psychology. He routinely taught the subject, and his book was an interdisciplinary effort, dealing as much with art history as with psychology. The chapters not only dealt with topics that are the staples of the

psychology of art, such as music, color, and design, but also covered topics that were and still are seldom adequately dealt with in psychology, including poetry, sculpture, architecture, and dance. Ogden was particularly intrigued by the aesthetic properties of the *golden section*, a proportion that has intrigued many psychologists ever since Fechner’s pioneering work in aesthetics.

Ogden did not describe many experiments in his accounts of the various aspects of art. Rather he relied on what would now be called ecologically valid demonstrations of aesthetic phenomena. He presented the reader with examples of real music and actual poems, as well as photographs and drawings of famous art objects, and attempted to show how they achieved their aesthetic effects. Although not wedded to a single approach, Ogden (1938, p. 190) made extensive use of Gestalt principles in order to show that we find art objects beautiful when we can perceive how their parts “find their just positions as partial patterns of the whole.”

Reflecting on his experiences with his teacher Külpe, Ogden (1951, p. 6) described him as an “impressive and lovable character” and regarded Külpe as a prime source of “inspiration and knowledge” (Ogden 1938, p. vii). Dallenbach (1959) observed that, like Külpe, Ogden was also held in high esteem by his peers.

- ▶ His place in the history of psychology would doubtless have been higher had he been more aggressive and self-assertive, but that would have put him out of character and he would not have been held so high in the hearts of his students and his fellow men. The choice between these alternatives was not hard for him to make. (Dallenbach 1959, p. 477)

See Also

- ▶ [Titchener, Edward Bradford](#)

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Osgood, Charles

ROBERT W. RIEBER

Fordham University, New York, NY, USA

Basic Biographical Information/Major Accomplishments

American psychologist. Born in Somerville, Massachusetts, November 20, 1916. Studied at Dartmouth College, Hanover, New Hampshire, B.A. 1939; Yale University, New Haven, Connecticut, Ph.D. 1945. Married Cynthia Thornton in 1939; two children. Research Associate, Yale University, 1945–1946; Assistant Professor of Psychology, University of Connecticut, Storrs, 1946–1949; Associate Professor, 1949–1952, and since 1952 Professor of Psychology and Communications. University of Illinois, Urbana (Director of the Institute of Communications Research. 1957–1965; since 1965, Director of the Center for Advanced Study). Fellow, Institute for Advanced Study in the Behavioral Sciences, Stanford, California, 1958. Visiting Professor. University of Hawaii, Honolulu, 1964–1965. President, American Psychological Association, 1962–1963. Recipient: Guggenheim Fellowship, 1955; Distinguished Science Contribution Award. American Psychological Association, 1961; Kurt Lewin Award. Society for the Psychological Study of Social Issues, 1971. Honorary doctorate: Dartmouth College, 1962. Member, National Academy of Sciences and the American Academy of Arts and Sciences. Address: 304 East Mumford Drive, Urbana, Illinois 61801, USA.

Charles E. Osgood has, during his life, developed three major “themes” in psychology. The unifying strain in these themes has been the idea of “meaning.” The tentative title of Osgood’s autobiography. *Focus on Meaning: In individual Humans, Across Human Cultures, and for Survival of the Human Species* gives a good overview of the areas in which he has made a major effort.

The first theme Osgood engaged was a behavioral theory of meaning. Osgood disagreed with the Hullian two-stage behaviorism and formulated his own theory of three-stage behaviorism which postulated an extra

integration level to account for more complex levels of behavioral organization. By simply changing one component at the integration level, entirely new “meanings” could be recognized by the organism. In order to analyze this theory, Osgood developed the “semantic differential technique” for measuring meaning. Subjects are asked to rate a number of concepts on several different scales, indicating the intensity of meaning. According to Osgood: “all three major factor analyses yielded nearly identical evidence for three massive factors easily identifiable as Evaluation (good, nice, beautiful, honest, etc.), Potency (strong, big, thick, tough, etc.) and Activity (active, quick, excitable, hot, etc.)” Thus Osgood has developed a method to evaluate and compare the meanings of various words. This work was published in 1957 in *The Measurement of Meaning*.

Osgood’s second theme is in reality an extension of the first. In order to evaluate more fully his theory of meaning (also now extending into the field of psycholinguistics), Osgood believed it was necessary to use his semantic differential technique (SD) to evaluate meaning in other cultures. Using teenage males and many colleagues in the cultures to be studied, he generated a list of qualifier types, and the subjects rated 100 nouns against 50 scales. Analysis of this led to the selection of 620 concepts for the development of an Atlas of Affective Meaning. These concepts were then rated (again using teenage males) against the SD and evaluation potency activity (EPA) structure. An analysis was also made of familiarity meaningfulness polarization and cultural instability. Osgood is also developing a “semantic interaction technique” (SI) in order to evaluate more exactly the usage and meaning of certain words. The aim of these methods of meaning and evaluation is the formulation of an Abstract Performance Grammar (APG) which would differentiate the way in which the mind innately expresses meaning from the “competence grammar” which is the structure of a language. Data has been collected for the Atlas of Affective Meaning from 30 different language culture groups with the hope that it will provide insight into the “dynamics of human societies.” A final “theme” of Osgood’s work has been in the area of “meaning and survival of the human species.” His interest in this area was stimulated by the McCarthy era and the

development of the atomic bomb. He has studied psychological factors in human relations and developed the GRIT (Graduated and Reciprocated Initiatives in Tension-reduction) strategy with regard to disarmament. The book *An Alternative to War or Surrender* (1962) gives an explanation of Osgood's GRIT strategy. Osgood believes that: "the gap between word and thing increases with the remoteness of things from immediate experience. that the words of international politics are typically analogic, that the power of words lies in the way they abstract from reality . . . and that we are being led by old men using antiquated semantic maps to guide us through the wonderland of the twentieth century." Osgood has propounded this theory at many levels, to scientists and members of the government, in an effort to promote de-escalation of the military. Osgood, in addition to his work in psychology, has also made many contributions to the field of psycholinguistics. In connection with this Osgood, in an address entitled "A Dinosaur Caper" given at the New York Academy of Sciences, spoke of the nature of scientific revolutions and their relation to modern psycholinguistics. In his book *The Structure of Scientific Revolutions*, Thomas Kuhn argued that a scientific revolution occurs when anomalies or "counterinstances" accumulate that resist attempts at explanation in terms of the prevailing paradigm of "normal science." Does this description of paradigm clash fit the recent or current circumstances in psycholinguistics? Osgood does not believe it does. Although he acknowledges the revolutionary impact of Noam Chomsky's work on the field of psycholinguistics, he questions whether we are witnessing in psycholinguistics a true Kuhnian "crisis" or merely a pendulum swing between visible paradigms. As Osgood sees it, the effect of Chomsky's contributions upon psycholinguistics fails to meet the criteria that distinguish a true scientific revolution because: (1) There has been no attempt to incorporate solutions to problems handled successfully by the old paradigm. (2) The old paradigm has not been shown to be insufficient in *principle*. (3) There has been no new paradigm to shift *to* – *in* the sense of a well-motivated, internally coherent alternative theory of language performance. There has been a shift *away from* behaviorism in any form, but in the absence of any alternative

paradigm this would be better termed "revulsion" than "revolution." At any rate, having ruled out the probability of an imminent revolution in psycholinguistics, Osgood concludes "A Dinosaur Caper" by venturing a few predictions concerning the future of psycholinguistic theory and research as we approach the year 2000: (1) There will be a complete shift away from emphasis on Competence to emphasis on Performance. (2) As part of this shift, there will be an increasing avoidance of dealing with sentences-in-isolation (whether in linguistic or psychological methodologies) and increasing dependence upon sentence-in-context (in discourse, in ordinary conversation, and so on). (3) Semantics will be moving into the foreground as syntax moves, reciprocally, into the background. (4) As already hinted, logical, rationalist models of language will be shown to be inappropriate for ordinary speakers and will be superseded by more gutsy, dynamic psychological models. (5) There will be a shift from ethno-linguo-centrism toward what might be called anthropolinguo-centrism.

Charles E. Osgood has made many varied contributions both to psychology (and psycholinguistics) and to the effort for world peace. In his own words, the old dinosaur is now "trying to drive a balanced three-theme wagon into the 1980s."

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P

Pace University, History of Psychology at

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Basic History of the Department

This is a brief history of the emergence of psychology at Pace University during the twentieth century and its subsequent development into one of Pace University's leading academic departments. Two distinct time periods can readily be delineated in considering this history.

Pace University began when two brothers, Homer St. Clair Pace and Charles Ashford Pace, in 1906, formed the partnership of Pace & Pace to help prepare candidates for the difficult New York State CPA examination. They rented an office and one classroom in Horace Greeley's Tribune Building, on Publishers Row, at 154 Nassau Street. There they taught accounting principles that were necessary to become a CPA (Weigold 1991).

In the early part of the century, Pace Institute was seen as a professional school that offered scientific instruction in Accountancy and Business Administration. With increased enrollment, the Institute leased two entire floors and part of a third floor in the Transportation Building at 225 Broadway. There it started to organize itself into six schools: Accountancy Practice; Accountancy and Business Administration; Marketing, Advertising and Selling; Secretarial Practice; Shorthand Reporting; and Credit Science. Within the school of Marketing, Advertising and Selling (in *General Bulletin 1933–1934*) personality development first appears in course titles: specifically, Business Speaking and Personality Development, Selling Technic[sic] and Personality Development – Part I and Part II, and Executive

Technic[sic] and Personality Development. Thus, before there were direct courses in the field of psychology, the psychology of personality was incorporated in business-related courses.

The first two psychology courses appeared in the *Pace Institute General Bulletin 1934–1935*, listed under the School of Marketing, Advertising, and Selling: specifically, Psychology, Part I (Elementary) and Psychology, Part II (Applied). The first course was to develop “on the part of the student an understanding of mental reactions to appeals made to human emotions, to reason, to will, to desire, to habit, to imagination, to vanity, and the like.” While, the second course applies concepts from Part I to developing “a practical working tool in the solution of problems encountered in advertising and selling that are the result of the human element as contrasted with mere mechanical and technical difficulties.” The person who taught these courses is found in the Bulletin under Faculty (name, degree, courses): “J. Stephen Bloore, M. A. . . English, Public Speaking, Psychology.”

In 1935, Pace Institute received its first charter from the New York State Education Department, and as such began operating as a not-for-profit educational institution. In 1948, Pace Institute became a college and its name was Pace College. In the new *Pace College General Bulletin 1948–1949*, George W. Fraser (Rutgers) is listed as the Psychology Chairman.

Since few records survived George Fraser's tenure, little is known of his role as Psychology Chairman. There was no space devoted just to the Psychology Department at that time. Faculty shared a large room in the Transportation Building. Considering that there were other faculty teaching Psychology at time, he was, in addition, to teaching, administratively responsible for all Psychology courses and faculty.

Mention of a Psychology Major appears in the *Pace College General Bulletin 1950–1951*. Course requirements listed included: Principles of Psychology I-II,

Test and Measurements, Child Psychology, Applied Psychology, Industrial Psychology, Social Psychology, Abnormal Psychology, Human Relations, and Mental Hygiene. The Psychology faculty listed were George W. Fraser (Litt.B., Ph.D.), Associate Professor of Psychology, Psychology Chairman; Robert H. DeJorio (B.B.S.) Psychology; Paul Echandia (B.S., M.S., M.A.), Assistant Professor of English, Speech, Psychology; Seymour Levy (B.S.S.) lecturer in Psychology; and Joseph P. Searing, Jr. (B.A.) Psychology. It was at this time that the Psychology Chairman, George W. Fraser, resigned from his position at Pace College. Administrative responsibilities were then taken over by the Social Science Department. This ended the first period of Psychology at Pace University.

In 1951, Pace College purchased the New York Times Building at 41 Park Row. In the spring of 1959, students and faculty began using all 16 floors of the building. This space was not sufficient, and in the early 1960s Pace College bought 150 Nassau Street (Weigold 1991).

In 1962 Dr. Thomas J. McShane (Fordham) was designated chairman of a newly formed Department of Education and Psychology. He had served as an adjunct faculty member from 1953 to 1958. His background included work with the FBI, from 1941 to 1961, as a polygraphist. Under his leadership, the Psychology major became a B.A. degree program in 1963 and produced its first three graduates in 1966: Jerrold Norman Stevens, Allen David Warmbrand, and Edward Jerome Zarow. At this point in time the School of Education was established, the Psychology Department remained under the School of Arts and Sciences, and had its faculty offices located on the ninth floor at 150 Nassau Street.

The *Pace College General Bulletin 1963–1965* gives a glimpse of Psychology as it started in the 1960s. The courses offered were: Principles of Psychology, Abnormal Psychology, Psychology of Business and Industry, Psychology of Personal Adjustment, Child Psychology, Psychology of Adolescence, Advertising Psychology (2 points), and Psychology of Learning I and II (2 points each). The faculty who taught them were Thomas J. McShane (Ph.D., Fordham), Professor of Education and Psychology, Chairman, Education and Psychology; Paul Echandia (M.S.Ed, Fordham, M.A., Columbia), Associate Professor of Psychology; Melvin

B. Swartz (Ph.D., NYU), Associate Professor of Psychology. Adjunct faculty were Raymond F. Levee (Ph.D., Fordham), Adjunct Assistant Professor of Psychology and Robert C. Oliver (M.A., NYU), Adjunct Assistant Professor of Psychology.

In 1969, a chapter of Psi Chi, the National Honor Society in Psychology was established. Faculty advisors for the society have been Drs. Carmine Casella (start date: February 1969); Thomas McShane (start date: July 1981), Janice Jackson (start date: April 1982), and Mercedes McCormick and Florence Denmark (start date: April 2008).

Specialized Psychology Laboratories were created on the 13th floor of 41 Park Row to meet the needs of the nascent department. The Experimental Laboratory was based on the Fordham University model (Dr. Frances Delahanty (Fordham) personal communication, January 31, 2002). The laboratory consisted of five rooms and 12 cubicles. In addition, a “Rat” Laboratory was created from an unused animal laboratory in the elevator room on the 17th floor (Dr. John J. Mitchell (Catholic U) personal communication, May 11, 2010). In order to analyze data, there was a calculator laboratory, using Merchant calculators, located on the 11th floor at 41 Park Row.

A Psychology Newsletter, *Psych Eye*, was created and first published in November 1972. Dr. Paul Echandia (NYU) was the editor. Upon Dr. Echandia’s retirement in 2005, Dr. Richard Velayo (University of Michigan) assumed the helm. The latest issue was Volume 21, no 2.

In 1972, a 60-credit M.S.Ed. degree featuring state certification as a school psychologist became part of the curriculum. This program was initiated September 1973, the year Pace College became Pace University, and graduated its first students in June 1975.

In 1979, Pace University became the first university in New York State to get approval to offer the Doctor of Psychology (Psy.D.) degree. This new degree was implemented during Dr. Thomas McShane’s tenure as Department Chairman and represented the hard work and dedication of the full-time faculty: Dr. L. Bart (St. John’s), Dr. C. Casella (Michigan State U), Dr. P. Echandia, Dr. J. Herman (NYU), Dr. J. Jackson (Fordham), Dr. J. Mitchell (Catholic U), Mr. R. Oliver, Dr. M. Swartz, and Dr. I Wentworth-Rohr (NYU). The first two Doctoral Projects were completed in 1982

under the direction of Dr. John J. Mitchell and Dr. Jack Herman: Diane W. Bauman and Daniel B. Dunn

In the early 1980s, the 13th floor was renovated to create office space for psychology faculty and staff. This is the final move of the department at the end of the twentieth century: from the 9th floor at 150 Nassau Street to the 13th floor at 41 Park Row.

The Psychological Service Center (Clinic) was established in 1984 on the first floor at 41 Park Row. It was later dedicated to Thomas J. McShane and renamed The Thomas J. McShane Center for Psychological Services. In 2002 it was moved to the fifth floor at 156 William Street.

In 1988, Florence Denmark (University of Pennsylvania) became the first Robert Scott Pace Professor and Chair of the Psychology Department. She is best known for her research on women's leadership and leadership styles and the interplay between status and gender. She has been active in APA leadership for more than 30 years. She served as president of APA, ICP, EPA, and NYSPA. It was under her leadership that the Psy.D. program received its first accreditation status from the American Psychological Association.

In 2001, Dr. Herbert Krauss (Northwestern University) became Chair of the New York City Psychology Department. Just as his role as Chair was beginning, the nearby World Trade Center was attacked on September 11, 2001. He led the department through December of 2009.

Today, the New York City Psychology Department is part of Dyson College of Arts & Sciences. The department has 13 full-time faculty, 2 part-time faculty, 4 full-time staff, and adjuncts who support 2 undergraduate programs: Psychology and Applied Psychology/Human Relations, and 4 graduate programs: Master of Arts (M.A.) in Psychology, the Master of Science in Education (M.S.Ed.) in School Psychology, the Master of Science in Education (M.S.Ed.) in Bilingual School Psychology, and Doctor of Psychology (Psy.D.) in School-Clinical Child Psychology. In addition, the department offers a BA/MA degree in Psychology.

Significance

On March 1979, Pace University became the first university in New York State to offer a Doctor of Psychology degree (Psy.D.; Peterson 1992). On November 4, 1988 American Psychological Association (APA) gave

full accreditation to the Psy.D. with a specialization in School-Community Psychology (APA 1989). In 2000, 12 years later, the specialization was changed to a combined School-Clinical Child Psychology program and it too was fully accredited by APA as a Combined Professional-Scientific Psychology Program (APA 2000).

See Also

- ▶ [Denmark, Florence L.](#)
- ▶ [Fordham University, History of Psychology at](#)

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Pace, Edward

JOHN D. HOGAN

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P

Basic Biographical Information

Born: July 3, 1861; Died: April 23, 1938.

Edward A. Pace was an American theologian and philosopher who studied with Wilhelm Wundt at Leipzig and returned to the USA to establish a psychology laboratory at the Catholic University of America, the first at any Catholic university in the country. A Catholic priest, Pace was also a member of the American Psychological Association in its first year of existence. Although active as a researcher early in his career, he is best remembered for opening doors to the study of psychology by fellow Catholics and for the work of his students, notably Thomas Verner Moore, who was also a Catholic priest.

Pace was born in Starke, Florida on July 3, 1861. He studied at the Propaganda University in Rome from

which he received a bachelor's degree in sacred theology (1883). He was ordained a priest in Rome in 1885, and the following year he received a doctorate in sacred theology, also from Propaganda University. On his return to the USA, he became the pastor of a church in St. Augustine, Florida.

Pace did not remain as a pastor for long. In 1888, he was invited to occupy a chair in philosophy at the recently founded Catholic University of America in Washington, DC. While studying in Rome, he had impressed his superiors with his quick and agile mind and they remembered him when the new position became available. As preparation for assuming his new position, he planned to spend 3 years in additional studies at the University of Louvain and in Paris. However, while in Paris, he happened to pick up a book by Wundt and was so impressed, he decided he would have to study in Leipzig as well. He entered the program at Leipzig in 1889 and graduated with a doctorate in philosophy in 1891. His thesis was on the evolutionary theory of Herbert Spencer. Pace died on April 23, 1938 (Misiak and Staudt 1954).

Major Accomplishments/ Contributions

Pace introduced a wide array of psychology-related courses to Catholic University, from traditional laboratory courses to courses in abnormal psychology. At the time, these courses were viewed as part of the philosophy curriculum by the administration. Eventually, however, a separate department of psychology was created. In addition to his work at Catholic University, Pace was active in research. He was one of only 13 Americans to publish articles in *Philosophische Studien*, the journal begun by Wilhelm Wundt. In addition to his doctoral dissertation, Pace published two articles on the fluctuation of attention there. Other publications included research on pain perception and binocular vision (Boring 1929).

Pace was an ardent supporter of the value of professional meetings. At the very first meeting of the American Psychological Association in 1892, he presented a paper on "tactile estimates of thickness." Much of his research underscored his belief in the close connection between psychology and physiology. He also made an important contribution by defending the new scientific psychology against attack by other

Catholics, frequently writing articles for Catholic publications. In fact, his greatest contribution may have been to promote psychology and interpret it for his fellow Catholics (Gillespie 2001).

Despite his love for psychology, Pace was active in several other areas. In 1893, he was a cofounder of the American Philosophical Association, and later became an editor of the 15-volume *Catholic Encyclopedia*. He also became increasingly drawn to education. In addition, his administrative duties took him further away from psychology. He received many honors during his lifetime. In 1914, he received a papal award from Pope Pius X, and in 1920, he was elevated to the rank of Right Reverend Monsignor. A testimonial dinner was held in his honor in 1931, and the presentations were bound into a book to honor him (Ryan 1932).

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Pagès, Robert

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Basic Biographical Information/ Major Accomplishments

Robert Pagès was a long-standing pillar of the intellectual fabric of social psychology at Sorbonne University. He published dozens of books and monographs and over 670 scientific papers. He was affiliated with the Trotskyite movement and holding egalitarian, anarchist realist ideas which cost him violent reactions from colleagues and state officials. Pagès was the father of French social psychology. He promoted social psychology and his influence around the world was

significantly outstanding. He devoted a large space of his time to education and mentoring students from Africa, South America, and Asia. He believed that education could raise consciousness and overcome social, political, and economical problems that faced developed and developing societies. He was the first to apply experimental methods systematically to the study of group processes, social relationships, and power. His extensive contributions in form of theory and research marked and shaped the major avenues in which French social psychology was to head in later decades. Pagès was both a distinguished creative methodologist and innovative theorist. He was heavily influenced by Marx's writings which affected him throughout his career as researcher, instructor, and mentor. His career was interrupted by World War II during which he was commissioned as a liaison officer. He was a revolutionary leader; during the war he got to know progressive thinkers. He was the founding father of the Laboratory of Social Psychology in the Faculty of Social Sciences at Sorbonne University which he directed from 1952 until his retirement in 1986. Pagès was given the title of professor of social psychology, taught the first courses ever offered in psychology, and headed the laboratory after Danielle Lagache. Pagès' experimental work first appeared in 1950 in *Bulletin de Psychologie*. Social psychology provided a useful set of concepts for research and teaching. In his seminars which I attended for 9 years, he stimulated discussions with such conceptions as *emprise* (power/control), group processes, social influence, higher mental functions, and macro-social factors.

From scratch, he gradually organized his laboratory based on the following ideas: (1) a rich library and strong documentation services; (2) teamwork and collaboration between researchers; (3) toward an appropriate social psychology grounded within the cultural historical social context of French society; (4) autonomy of social psychology from North American hegemony; (5) the laboratory was the only one of its specialty in France; and (6) the laboratory attracted the most brilliant scholars in the field of social psychology. He elaborated a well-defined theory in social psychology known as "*Theorie d'emprise* or *Power/control theory*" in which he articulated the biological, psychological, and sociological in a unified whole. He developed new concepts such as noeuds (humans) characterized by

strong external connections, quasi-noeuds (animals) characterized by strong internal connections, innoeuds (materials or organics), anoeuds (technical or practical), and enoeuds (ideological or religious). He stated that emprise relations can be possible only between noeuds (humans), causal relations between innoeuds (materials or organics). His theory is rich, complex, and promising; due to limited space it is very difficult to do justice to Pagès' intellectual achievements. His theory did not make its way to American mainstream psychology, but it has been well received in Spain, Italy, North Africa, Greece, Switzerland, Canada, Africa, Brazil, and United Kingdom.

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Paranjpe, Anand

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Biographical Information

Birthdate: 1936;

Birthplace: Chiplun, Maharashtra, India.

Prof. Paranjpe is a leading expert on Indian philosophy and psychology. His journey into the area of

psychology began in 1955 after studying physics and cosmology. He also studied philosophy which was taught as Western philosophy. After graduating, he joined an Indian nationalist volunteer organization and spent a year away living in small villages, spending time with people of the lowest socioeconomic strata. The plight of the poor witnessed by living amongst them was a moving experience that deepened the spirit of nationalism.

Paranjpe met Eric Erickson on a visit to India and was subsequently invited to a postdoc at Harvard under him. There he met Gordon Allport and Stanley Milgram.

Paranjpe next took a position at Simon Fraser University. At first, he conducted research on intergroup conflict. Then his interests turned to elucidating Indian philosophy and psychology. He studied Yoga as psychology. He also sought to compare and bridge Indian and Western psychological constructs. In 1998, he published *Self and Identity in Western Psychology and Indian Thought*.

Major Accomplishments

Paranjpe was quite critical of positivism in psychology, especially as practiced by the faculty at Simon Fraser. He joined forces with theoretical psychologists who emphasized philosophical issues and non-positivistic psychology. He was also unhappy with the positivism that dominated cross-cultural psychology (and continues to do so).

Paranjpe rejects reducing culture to a variable because it obscures the living diversity of culture. In addition, he criticized positivist methodology for using superficial behavioral measures that do not capture the reality of psychological activity. Nor can personality be reduced to a dependent variable.

Paranjpe followed Prof. David Bakan's writings to look at ideas in their historical and sociocultural context. He is writing prolifically about the psychological constructs that are embodied in Indian philosophy. He compares these to Western psychological concepts.

He is currently Professor Emeritus, Psychology and Humanities, at Simon Fraser University, Canada.

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Parapsychology

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Introduction

The evolution of theory in parapsychology is inextricably bound up with a complex history of ideas in philosophy, psychology, physical science, and social science. That history has developed through several distinguishable phases. Although it may rightly be said that parapsychology entered its scientific phase in the latter half of the nineteenth century, it will be necessary to say something about the prescientific developments relating to the phenomena investigated. To prepare for that discussion, it will be useful to examine the terminologies that have arisen in the evolution of parapsychological thought.

Definitions

Parapsychology may be defined as the scientific study of paranormal phenomena. The elements of this definition require some elaboration.

Psychical Research and Parapsychology

Parapsychology entered into its fully scientific phase with the founding of the Society for Psychical Research in Britain in 1882. In this phase the investigation of paranormal psychic was commonly called "psychical research," and in some quarters that term has been preferred to the present day. In the beginning, psychical research was defined as the systematic investigation of "an important body of remarkable phenomena of

human experience, which are *prima facie* inexplicable on any generally recognised hypothesis, and which, if incontestably established, would be of the highest possible value” (Society for Psychological Research 1882, p. 3).

Paranormal Phenomena

The term “parapsychology” was coined by Max Dessoir (1867–1947) in 1889. The terms “parapsychology” and “psychical research” indicate connections with the field of psychology, yet many of the phenomena studied could fittingly be categorized as physical or physiological. For that reason philosopher C. J. Ducasse coined the adjective “paranormal” to describe a data domain embracing all inexplicable phenomena. He defined a paranormal phenomenon as: “Any occurrence whose cause is neither that from which it ordinarily results, nor any other yet known to natural science as capable of causing it” (Ducasse 1951, p. 2).

Presumably, had Ducasse’s new term been fully accepted, this entry would read “Paranormology” rather than “Parapsychology.” Although that word was never adopted, reference to “paranormal” phenomena has become commonplace, so that C.D. Broad would some years later define “psychical research” as “the scientific investigation of ostensibly paranormal phenomena” (Broad 1962, p. 3), and this has become the accepted definition of “parapsychology.”

By Ducasse’s definition, a “paranormal” phenomenon was one not brought about by ordinary causes, but by a cause not yet known to the natural sciences. That definition has been altered and refined since 1951, and probably the best version is that of philosopher Stephen Braude, consisting of three elements: (1) the phenomenon cannot be explained in terms of current scientific theory, (2) it cannot be given a scientific explanation without major revisions elsewhere in scientific theory, and (3) it contradicts our usual expectations of the kinds of things that can happen to the objects involved (Braude 2002, p. 211). The present discussion is about the theories that have been devised to explain paranormal phenomena defined in these terms, and uses the term “parapsychology” to refer to the systematic study of those phenomena.

Problems with the term “parapsychology” as descriptive of the whole field of paranormal

phenomena have long been recognized. For that reason some researchers employ the word “parapsychology” to designate the investigation of paranormal phenomena that require some kind of psychological explanation, and “paraphysics” for phenomena that require a physical explanation.

Experimental investigation of paranormal phenomena brought about the introduction of the terms “extrasensory perception” (ESP) to designate telepathy, clairvoyance, and precognition, and “psychokinesis” (PK) to denote influence of physical objects produced by the mind. The more neutral term “psi” was coined by Bertold Wiesner and first used by Robert Thouless (Thouless 1942) to refer to both extrasensory perception and psychokinesis, and remains in common use today.

Range of Paranormal Phenomena

In the treatment that follows, a wide range of phenomena will be discussed, but for now it will be sufficient to say that today the data are said to include telepathy, clairvoyance, precognition and retrocognition, psychokinesis, and the effects of the mind on living systems. In addition, mystical experiences, survival of consciousness or the personality after death, and reincarnation are often discussed as related issues, along with out-of-body and near-death experiences.

Over the decades those who write and research in the field have rejected certain types of phenomena as serious candidates for parapsychological research. Some are considered too complex, making it almost impossible to discover what in the experience might be a paranormal effect capable of being extracted and studied as such. Others are judged not to be well enough attested to, to warrant investigation; thus, phenomena ranging from purported cases of human combustion to experiences of purported alien abduction tend to be excluded from consideration. (For more on the classification of paranormal phenomena, see Carr 2008, pp. 16–20).

As a science, parapsychology is both observational and experimental. As an observational science, parapsychology functions as natural history: it observes, collects, makes judgments about authenticity, collates and compares ostensibly paranormal phenomena, and then forms hypotheses and devises theories to explain these data. As an experimental science, it uses

information acquired from the natural history of the phenomena to construct experiments to test hypotheses proposed to explain the data. It is required of parapsychological theories that they not only conform to the paranormal data provided, but also not contradict the data and well-established theories of other data domains – particularly those of psychology, neuroscience, and physics.

Historical Background

The history of theories of parapsychology is long and complex. However, to understand parapsychological theories it is essential to know something about that history, at least in its broad outlines.

Proto-Parapsychology

As mentioned, scientific parapsychology had its beginning in the nineteenth century with the founding of the Society for Psychical Research in England. Before that time, however, there were significant attempts to come to terms with paranormal phenomena by devising explanations that were based on natural factors rather than the usual religious or theological ones. These early attempts make up what might be called proto-parapsychology.

The earliest attempts to explain paranormal phenomena as facts of nature occurred in the sixteenth and seventeenth centuries. There were three men in particular who made the point that paranormal phenomena must not be considered the province of theology or theologically oriented philosophy, but be subject to investigation by the methods of the newly emerging scientific paradigm. These three, Francis Bacon (1561–1626), Henry More (1614–1687), and Joseph Glanvil (1636–1680), insisted that the data of science should not be limited, but embrace all natural phenomena, including the unusual.

In the eighteenth century, the development of a healing theory called “animal magnetism” by Franz Anton Mesmer (1734–1815) had as one of its offshoots a variety of phenomena with paranormal aspects. Mesmer claimed that animal magnetic passes (sweeping movements of the hands over the body) induced physical healing in the ill. Other paranormal phenomena were in large part made possible by the discovery of “magnetic sleep” or “magnetic somnambulism” (later terms were “artificial somnambulism” and “hypnotic

somnambulism”) by Mesmer’s pupil, the Marquis de Puységur (1751–1825). Some people, when placed in this state through application of the passes, would show indications of clairvoyant knowledge, both about the nature of their own illnesses and those of others with whom they were placed in “rapport.” In addition, there were reports that magnetic somnambulism could be induced at a distance, that magnetizer and somnambulist sometimes experienced inexplicable communication of sensations or of thoughts, that a magnetic somnambulist could mentally travel to another location and describe what was occurring there (travelling clairvoyance), and that somnambulists could communicate with spirits of the dead. In the early nineteenth century, experiments were conducted to attempt to verify the genuineness of the phenomena, and a large literature dealing with these experiments came into being (Dingwall 1967; Crabtree 1988, 1993).

The nineteenth century movements called “Spiritism” in France and “Spiritualism” in the United States and England were largely fuelled by the experiences of individuals who, in the state of magnetic sleep, claimed to communicate with departed spirits and have other paranormal experiences. Some spiritualists, often in a state of somnambulist trance, had a particular knack for apparently contacting spirits in the other world and producing unusual phenomena, such as table levitations and materializations; these individuals were called “mediums.” In 1852, American Spiritualism gave birth to a new, ostensibly psychokinetic, phenomenon called “table turning” or “table tipping,” by means of which, it was believed, spirits of the dead could communicate with the living. Among those mediums who claimed to have messages from the dead, conveyed through trance speaking or automatic writing, a few were closely studied over lengthy periods of time; probably the most striking of these was the Boston housewife, Leonora Piper (1859–1950), discovered by William James. As the somnambulist state, which was often the platform for paranormal manifestations, became more thoroughly investigated, and as Spiritualism spread throughout the world, a variety of paranormal phenomena were reported in large numbers, and by the 1870s some called for a more unified and systematic study of these manifestations (Crabtree 1993).

Psychical Research

At the same time in England there came into being an academically based group associated with Cambridge University, who were concerned about what they considered the failure of traditional Christianity to come to terms with issues raised by paranormal phenomena, and especially the question of survival of bodily death. Science had weakened religion, not so much by direct attack as by creating an atmosphere of honest doubt that called the basic tenets of the Christianity into question (Gauld 1967, p. 45). In this tumultuous climate, a small group of friends at Cambridge came together to try to work out these issues in a different way from that manifested in the then current clashes between religious believers and proponents of materialism. Three leaders emerged from this group: Henry Sidgwick (1838–1900), Frederic Myers (1843–1901), and Edmund Gurney (1847–1888) (see Gauld 1967).

During the same period, a group of spiritualists in England began experiments on phenomena such as thought-transference and the exercise of the influence of will at a distance. This group had difficulty attracting outside support and approached the Cambridge group with the idea of forming a society to carry out psychical research. The Cambridge group was reluctant, but Myers and Gurney eventually agreed to be involved if the new society would be presided over by Sidgwick. The spiritualists agreed. Sidgwick accepted the invitation to be president and in February 1882 the Society for Psychical Research was launched. In the early phases, the spiritualist faction was in the majority, but as time went on, the agenda for the Society was increasingly influenced by the Cambridge group; some spiritualists became disillusioned with the project, and in 1886 and 1887 many resigned from the Society. Over the first few years of the SPR, Myers and Gurney emerged as the guiding lights of the enterprise and its most prolific researchers and writers. With the untimely death of Gurney in 1888, Myers's influence became central to the group.

The disillusionment of many of the spiritualist faction is not difficult to understand. The ideas of the Cambridge group dominated the vision and expressed aims of the Society, and the spiritualists' hope of using psychical research to gain adherents to spiritistic beliefs were thwarted. The intentions of the Society were stated in these terms:

1. An examination of the nature and extent of any influence that may be exerted by one mind upon another, apart from any generally recognized mode of perception.
2. The study of hypnotism, and the forms of so-called mesmeric trance, with its alleged insensibility to pain; clairvoyance and other allied phenomena.
3. A critical revision of Reichenbach's researches with certain organizations called "sensitive," and an inquiry whether such organizations possess any power of perception beyond a highly exalted sensibility of the recognized sensory organs.
4. A careful investigation of any reports, resting on strong testimony, regarding apparitions at the moment of death, or otherwise, or regarding disturbances in houses reputed to be haunted.
5. An inquiry into the various physical phenomena commonly called Spiritualistic, with an attempt to discover their causes and general laws.
6. The collection and collating of existing materials bearing on the history of these subjects.
 - ▶ The aim of the Society will be to approach these various problems without prejudice or prepossession of any kind, and in the same spirit of exact and unimpassioned inquiry which has enabled Science to solve so many problems, once not less obscure nor less hotly debated... To prevent misconception, it is here expressly stated that Membership of this Society does not imply the acceptance of any particular explanation of the phenomena investigated, nor any belief as to the operation, in the physical world, of forces other than those recognised by Physical Science. (Society for Psychical Research 1882, pp. 3–5)

The aim of the SPR's scientific exploration of the paranormal was formulated in terms of finding a "*tertium quid*" (a third something) that underlies both phenomena that have already received an adequate scientific explanation and paranormal phenomena. The concept of a *tertium quid* (proposed by Gurney and developed by Myers) presumes that *all* phenomena are natural and subject to scientific inquiry and theorizing, and that neither religious nor materialistic explanations of paranormal phenomena are adequate. This initial formulation of scientific intention remains

foundational for approaches to theory-making in parapsychology.

One of the first projects for the newly formed Society was the establishment of reliable criteria for collection of reports on spontaneous paranormal experiences. A significant outcome was the publication of *Phantasms of the Living* (1886), one of the most influential works of the early decades of the Society. Another project was the design of carefully devised experiments relating to ostensibly paranormal experiences to determine whether the phenomena in question were real, and if so, the nature of their operation. The “collation of existing materials,” mentioned above, enabled, among other things, the critical examination of previous investigations of paranormal phenomena. Work on these projects has continued in the years since the Society’s foundation; it has published some 60 volumes of its *Proceedings* and more than 70 volumes of its *Journal*, together containing more than 50,000 pages of research and critical evaluations relating to paranormal phenomena.

Frederic Myers

Myers was considered by his contemporaries to be a psychologist of great capacity and ingenuity. In attempting to transcend the conundrum of human duality bequeathed by Descartes, Myers insisted that we must look to a deeply empirical and scientific psychology for a solution. To do that, he said, we must expand the scope of the data of psychology to include those experiences that occur within the sphere that remains largely outside our conscious or ordinary awareness. He began exploring that region before Janet, who gave us the term “subconscious,” and Freud, who preferred “unconscious,” had begun their pioneering work. Myers initiated his investigations in the early 1880s and by the early 1890s had decided to subsume the phenomena he was identifying under the term “subliminal.” Myers’s “subliminal consciousness” included a much broader spectrum of human experience than the systems of Freud and Janet, and his treatment of the subliminal regions of human personality gave an opportunity to expand at one and the same time both the psychological and parapsychological dimensions of the psyche (Emily Kelly 2007, pp. 59–68).

The subliminal of Myers was that aspect of the human psyche that included all that is normally out

of reach of our direct knowledge. Within the subliminal were to be found not only the “disintegrations of consciousness” that were the main concerns of Janet and Freud, but also the manifestations of sleep, the phenomena of hypnotism, the uprushes of creative genius, and the “supernormal” faculties of the psyche, which included telepathy (a word coined by Myers), clairvoyance, and precognition. For Myers, the subliminal self was also the source of what he called sensory and motor automatism, spontaneous manifestations within normal consciousness of activities originating in the subliminal.

The “subliminal consciousness” or “subliminal self” of Myers was so named because the dynamic region he was describing was below the threshold (“limen”) of consciousness. The subliminal self had as its counterpart the “supraliminal self,” that aspect of the psyche that operates above the threshold of consciousness, engaging with all that is normally directly available to us. The supraliminal consciousness is our normal, everyday self, dealing with the “mundane” concerns of daily life.

Myers believed that this hidden environment, the subliminal, must be fundamentally continuous with, and interrelated to, the one that is directly available to the supraliminal. This indicates that all of its phenomena and processes are legitimate objects of scientific investigation. This novel vision was the basis for the inclusion of psychical research among the sciences. The coexistence and profound continuity of the subliminal with the supraliminal was axiomatic with Myers, and the basis for his call for a scientific, empirically based psychology of the total human being. It was also the foundation for the scientific study of the paranormal.

Myers’s development of a vision of a broad scientific psychology based on his model of the subliminal self was laid out in a series of articles in the *Proceedings* of the Society for Psychical Research published over the course of 4 years (Emily Kelly 2007, p. 61n). The overall exposition of Myers’s vision was published posthumously in a two volume treatise *Human Personality and Its Survival of Bodily Death* (Myers 1903). This work had a profound effect on the course of the subsequent development of parapsychological theory.

Myers died in 1901, and the SPR published a number of tributes to the man and his work in its *Proceedings* (Society for Psychical Research 1901).

Among those who contributed was American philosopher and psychologist William James. James was a close friend of Myers (he was present at his death) and had long been active in psychical research (James 1986). In writing about Myers's contributions to psychical research, he emphasized the importance of his doctrine of *continuity*:

- ▶ One cannot help admiring the great originality with which Myers wove such an extraordinarily detached and discontinuous series of phenomena together. Unconscious cerebration, dreams, hypnotism, hysteria, inspirations of genius, the willing game, planchette, crystal-gazing, hallucinatory voices, apparitions of the dying, medium-trances, demoniacal possession, clairvoyance, thought-transference, even ghosts and other facts more doubtful – these things form a chaos at first sight most discouraging. No wonder that scientists can think of no other principle of unity among them than their common appeal to men's perverse propensity to superstition. Yet Myers has actually made a system of them, stringing them continuously upon a perfectly legitimate objective hypothesis. (James 1901, p. 18)

For Myers, there is only one reality, not two: there are not natural and supernatural, as the theologians would have it, nor mind and matter, as the followers of Descartes believed. All reality is one, all reality is interrelated, and there are no unbridgeable gaps between its elements. For that reason, Myers insisted, psychical research was, and had to be, a science, exactly like all other sciences, and its data and methods were in essence the same as those of all other sciences, adding one more scientific data domain to the many that already existed. Through Myers's work this has become the bedrock theoretical position of the majority of psychical researchers and parapsychologists to the present time.

Laboratory Phase

Although experimentation was a part of psychical research from its earliest days in the 1880s, with simple, relatively easy to evaluate tests, such as card guessing and telepathic communication, and although Charles Richet had developed an early form of probability calculation in connection with mental suggestion (Richet 1884), the experimental dimension of parapsychology received its true initiation with the laboratory work of Joseph Banks Rhine (1895–1980). By the time

Rhine had begun his experiments in the 1930s, the statistical apparatus needed to evaluate his data had greatly improved from its beginnings with Richet. According to Beloff (1993, p. 127), Rhine's work had three main objectives: (1) to introduce into the study of the paranormal an experimental program based on a sound methodology, (2) to gain academic status and scientific recognition for parapsychology, and (3) to show, if possible, that psychic ability was not the preserve of exceptional subjects, but a widespread phenomenon.

Rhine established his program at Duke University in Durham, North Carolina in 1930. The object was to study ESP, a term coined earlier by Rudolph Tischner, denoting the acquisition of information not obtained through the physical senses and not inferred through experience, and, later, psychokinesis (PK). His best known work involved the guessing of "Zener cards" (designed with a variety of special symbols) invented by a fellow member of the Duke faculty, Karl Zener, and attempts to influence the fall of dice. Careful records of successes and failures in guessing were kept and subjected to statistical analysis. The results over time showed significant above-chance success, and were offered as evidence for the existence of ESP and PK. Rhine wrote of his findings and their significance, in journal articles and books that became classics in the field (Rhine 1934, 1937, 1947, 1953).

Although the three objectives Rhine set for himself were not fully realized, and although many in the field of parapsychology found the laboratory approach too restrictive to give a real sense of the richness of the phenomena, Rhine's pioneering work was influential and important to subsequent developments in parapsychology.

Rhine's wife and laboratory partner, Louisa, took up collecting spontaneous cases, a project she believed had value in its own right. She made the point that "instead of isolated and concrete suggestions for experiment, the continued study of the [spontaneous] material permitted a more fundamental concept of the psi process than I could have anticipated" (Rhine 1970, p. 150.). Examination of spontaneous cases complemented the experimental approach, which tended to stress the separation of categories of paranormal phenomena (telepathy, clairvoyance, etc.), by allowing the phenomena to be examined in their contextual richness.

Skepticism

Skepticism is part of every healthy scientific process. Accuracy of observation may be questioned, sources of artifact and error detected, cogency of hypotheses put to the test, and adequacy of theories critically evaluated. Such skepticism has always been evident in parapsychology, voiced both from within and without the field. But another kind of skepticism has existed throughout the history of parapsychology. It is a skepticism based on an assumption or presupposition about paranormal phenomena in parapsychological research. That assumption might be stated: paranormal phenomena are contrary to both common sense and scientific findings (taking current scientific positions as final) and therefore not worthy of serious consideration. In some cases this skeptical attitude is based explicitly on a metaphysical position that holds such phenomena are in principle impossible. It is this presupposition, stated or implicit, that has been the outlook of a number of commentators who consider themselves skeptics about the paranormal and see themselves guardians of orthodoxy.

William James, who was always prepared to engage in dialogue with those who held seriously considered doubts about psychical research, expressed dismay at how far unthinking prejudice could take even some who called themselves men of science. His disgust was barely concealed when he described this example:

- ▶ Why do so few “scientists” even look at the evidence for telepathy, so called? Because they think, as a leading biologist, now dead, once said to me, that even if such a thing were true, scientists ought to band together to keep it suppressed and concealed. It would undo the uniformity of Nature and all sorts of other things without which scientists cannot carry on their pursuits. (James 1899, p. 10)

Here the issues of continuity and uniformity once again come to the fore. Parapsychologists hold, as presumably all scientists do, that reality *is* one, uniform, continuous, and totally interrelated. They believe that there can be no place for prejudgment of the issues. What needs to be discussed and placed under critical scrutiny is the validity of the data, on the one hand, and the cogency of the theories on the other. Analyses and criticisms of these kinds are vital to progress in the field, while a priori dismissal obstructs legitimate inquiry and promotes an antiscientific position.

Many parapsychological investigators contend that the existence of paranormal phenomena has been conclusively established, and that the chief task of parapsychology now is to look into the nature of psi phenomena and the conditions that promote or inhibit their production. Skeptics say that, on the contrary, the phenomena have not been established conclusively, and that all purported paranormal phenomena can be explained away. Skeptical commentators on parapsychology have tended to concentrate on the issue of data validity. The most frequently mentioned reasons for having doubts about the reliability of the data involve the possibility of: fraud, poor observation, selective reporting, memory distortion, defective experimental design, statistical flaws, and sensory leakage. It is not possible to enter into a discussion of the disputes that have occurred over the past century and a half, but for further information the following skeptical writings can be consulted: Alcock 1981; Hansel 1980; Hyman 1985; Kurtz 1985; Leahey and Leahey 1983; Zusne and Jones 1982.

Key Issues

In the evolution of parapsychological theories, two kinds of issues emerge: those relating to the handling of data and those that concern the theory-making process itself.

Data Issues

Over the past century, five major data domains have been distilled out of the mass of reported paranormal phenomena: telepathy, clairvoyance, precognition and retrocognition, psychokinesis, and the effect of the mind on living systems. The “big five” lend themselves fairly well to scientific inquiry and experimental testing in that they seem to have reasonably well marked boundaries. Recent investigators of the psi point out that the phenomena cannot be neatly divided into strongly distinct categories, and, this being the case, it is important to work out a theory of the paranormal that transcends this rigid classification and allows for the complexity of the data as it actually occurs.

In this connection, Robert Morris (Morris 1986) has published a description of a model for parapsychological experimentation that avoids the problematic strict categorization of the modalities of psi, and treats all paranormal events as instances of a single

configuration. His model describes what occurs when an investigator interprets a set of events indicating psi. The psychic or psi subject has as target some external situation or event from which he or she is separated by a barrier that both prevents the subject from receiving any information from the target, and the target from being influenced by the subject, through any ordinary means. The analysis of the event is then made in terms of the conditions in which the barrier is breached and psi occurs. This model, focussing investigation on how information is mediated in either direction between the environment and the individual, applies to the modalities ordinarily categorized as ESP and PK, and at the same time can be used in regard to both case reports of spontaneous experiences and experimental data.

Theory Issues

Rex Stanford points out that theories perform several functions: provide explanations by which facts can be deduced from laws; produce predictions of as yet undiscovered observations; encourage new incisive experimentation; make explicit unrecognized assumptions; clarify what is known and not known in a particular area of research. Specifically in regard to parapsychology, he states that real theory building should lead to the development of central concepts about psi functioning that subsume prior observations and suggest new ones. It is Stanford's belief that parapsychology is at present in the process of developing a conceptual framework for its research (Stanford 1977, pp. 823–825).

In the past 100 years many parapsychological theories have been proposed to explain all or some psi phenomena. Myers's theory of the subliminal self provided a broad basis for considering paranormal phenomena on a continuum with normal phenomena and subject to the same kind of scientific investigation. Myers, William James, and Henri Bergson presented theories of the relation of mind to brain, summarized as the "filter" or "transmission" theory, by which the mind is not generated by the brain, but limited and focussed by it in order to reduce what would otherwise be an overwhelming cacophony of perceptions, to a filtered input that would allow the individual to live and act effectively in the world (Edward Kelly 2007, pp. 603–639). This is still regarded as a viable explanation, especially given what modern neuroscience has

revealed about the tiny trickle of information available to consciousness awareness.

In the 1970s, Stanford developed what he calls the PMIR (psi-mediated instrumental response) model for extrasensory events. The model posits that in the presence of a particular need, an organism uses ESP as well as sensory means to scan its environment for objects and events relevant to that need, and for information crucially related to such objects or events. Where sensory information is about need, relevant objects or events, a disposition toward psi-mediated instrumental response occurs. Here psi happens because it is needed. This mobilization of psi occurs below the level of conscious awareness (Stanford 1977). Also, C. T. K. Chari produced a thorough-going analysis of psi theories, models, and paradigms (Chari 1977). He pointed out the daunting challenges inherent in any attempt to construct a psi theory that is broad enough to embrace all the phenomena usually classified as paranormal: "Any full-dress explanation in parapsychology seems to need the whole gamut of the social, psychological, biological, and physical sciences" (p. 805). He points out that there is a large gap between methodology and theory in parapsychology. Theories that lack a methodological schema for verification remain metaphysical constructs. On the other hand, experimental work carried out on a sound methodological basis may produce many interesting correlations but lead to no compelling theory that indicates why those correlations exist. Chari talks about a crying need in parapsychology for a meta-theory setting out the criteria and the limits for theories about psi phenomena and the universe, and admits that the development of such a meta-theory is "a stupendous task for which few parapsychologists or even teams of parapsychologists are equipped" (p. 810). This remains true today.

Theories since Myers, particularly those of the last half of the twentieth century, fall into several categories. Electromagnetic theories of psi explain both ESP and PK in terms of the operation of some type of electromagnetic radiation. Other theories posit new forms of undiscovered energy or new types of particles conceived specifically for the purpose of explaining psi interactions, most of which have proved completely untestable. For a comprehensive review of psi theories consult Carr (2008, pp. 23–35) and Stokes (1987, 1997, 2007).

A Meta-theory

Theories give explanations for data encountered in particular areas of observation. For practical reasons and from our evolutionary and social constitution, we delineate objects of experience and areas of investigation that isolate certain combinations of perceptual input. These areas of investigation are carved out from the plenum of experience, and we can call these areas “data domains.” Each of the sciences deals with its own data domain, and general theories meant to account for the data within that domain might be called domain theories. The science may also generate less general theories within its domain, dealing with limited aspects of the data.

Because the reality investigated by science, referred to as nature, is characterized by uniformity and continuity, domain theories must not only be consistent with the data of their domains of origin, they also must not contradict established findings of other domains, and parapsychology, as the scientific investigation of the domain of paranormal phenomena is subject to the same rules of compatibility.

Survival of Death and Reincarnation

Given the necessarily broad nature of a parapsychological meta-theory, it may well be called upon to explain data relating to human survival of death and reincarnation. Some parapsychologists believe that the accumulated evidence of survival is convincing (see Kelly et al. 2007) and that the evidence for reincarnation is even more impressive (see Stevenson 1966, 1975–1983, 1997). If indeed arguments for the reality of survival and reincarnation are compelling, it would seem that any general parapsychological theory would have to provide the means for understanding how the constitution of a human being, and the nature of identity and continuity in human personality, would make survival following separation from the physical body possible. Such a theory would have to have the backing of a philosophical framework that deals adequately with the mind-body problem and the question of the ultimate constituents of reality. The making of such a meta-theory is a daunting task indeed.

Future Directions

Although a parapsychological meta-theory has not yet been developed, certain scientific and philosophical

directions are emerging that may contribute to its eventual creation.

Because the mind is involved in paranormal phenomena, a general theory must address the mind-body problem and talk about issues that are normally considered the province of ontology and epistemology. In this regard it should be noted that among philosophers of mind, the issue of panpsychism has recently been moving into greater prominence. Panpsychism (or panexperientialism) is a theory that posits mind as a constituent element in the makeup of all reality. This approach does not necessarily imply the action of an omnipresent God, but often takes the form of the involvement of mind at a fundamental level in the original formation of the universe. If mind is basic to the very existence of all things, then the mind-body problem, which posits the complete separation of mind and matter, can be solved. Two important recent discussions of this issue are those by David Skrbina (2005) and Galen Strawson (2006).

Another philosophic position makes use of “process philosophy” to construct a framework that is compatible with the existence of paranormal phenomena in general. Prominent philosophers, whose ideas are considered to have contributed to the development of process philosophy, are Charles Sanders Peirce, William James, and Henri Bergson. The philosopher who developed the concept of process philosophy as a system is Alfred North Whitehead. Process philosophy holds that the basic realities are not substances, but passing experiences that arise out of the past and create the future. This involves the notion that everything in some way has experience, and at each present moment takes part in the creation of the next moment to come. This means that every existing thing is involved in the evolution of our universe. An essential element of process philosophy is that our perceptual knowledge of the world beyond ourselves is not dependent solely on sense experience, but involves another way of being in touch with and experiencing our environment. It should be clear that this philosophic approach has many elements that are friendly to the existence of the paranormal (see Griffin et al. 1993 and Griffin 1997). Eric Weiss has recently used Whitehead’s formulation of process philosophy, in combination with the ideas of the Indian philosopher Sri Aurobindo, to develop a model of reality that is not only compatible with,

but in some way requires the existence of, paranormal phenomena, panexperientialism, and survival of death (see Weiss, www.ericweiss.com/the-long-trajectory).

Another stream of input into a possible meta-theory flows from theoretical physics, both from quantum mechanics and from multidimensional speculations.

Mathematician and cosmologist Bernard Carr has developed a hyperdimensional theory that attempts to show that higher dimensions are fundamentally associated with mind. He believes this model bridges the gap between mind and matter and makes sense of paranormal phenomena. In his model, the material world becomes mind-like and the mental world becomes matter-like. This allows for the unification, in a higher dimension, of objects and percepts that seem to be totally separate. Carr states that his view allows for the possibility of nonphysical perceptions of the world (Carr 2008).

On another front, theoretical physicist Henry Stapp of Lawrence Berkeley National Laboratory, who studied under both Wolfgang Pauli and Werner Heisenberg, has developed an understanding of quantum mechanics that is an elaboration of the Copenhagen interpretation, as it was modified by the work of John von Neumann. This view sees the reduction or “collapse” of events in the physical world as involving consciousness in an essential way, so that the world is inherently psychophysical. The part played by consciousness is the making of a choice of an experimental question or probing action, a choice not determined by any known law or rule, and as such considered a “free choice.” This solves the problem that had plagued classical physics since the time of Newton: the fact that in a world completely explainable in physicalistic deterministic terms, a causally closed world, there is no possible role for consciousness and freedom. It creates the vision of a world no longer dynamically closed, but open to the meaningful participation of the mind (Stapp 2007). Of interest to the parapsychological theoretician is the fact that, in contrast to classical physics, Stapp’s version of Copenhagen quantum mechanics, while not proving the existence of paranormal phenomena, at least makes room for the possibility of not only psi events, but even such things as human survival of death and reincarnation. This opens the door for new avenues of parapsychological research and creates serious difficulties for fundamentalist skeptics.

Dean Radin, research scientist at the Institute of Noetic Studies, emphasizes another significant aspect of quantum theory: “One of the most surprising discoveries of modern physics is that objects aren’t as separate as they may seem. When you drill down into the core of even the most solid-looking material, separateness dissolves” (Radin 2006, p. 1). For a long time quantum theorists believed that this “entanglement” was fleeting, and operative only on the microscopic level of reality, but, says Radin, scientists are now finding that these entanglements “scale up” into our macroscopic world. He states that reality is woven from strange “holistic” threads, and “Tug on a dangling loose end from this fabric of reality and the whole cloth twitches, instantly through all space and time” (p. 3). Radin makes the case that paranormal phenomena turn out to be not bizarre at all, but the kinds of things one would expect in an entangled universe, and that what is today the study of parapsychology will tomorrow be just part of the science curriculum: “History shows that as the scientific frontiers continue to expand, the supernatural evolves into paranormal, and then into normal. During the transitional periods there is much gnashing of teeth. But with determination and courage, progress is relentless” (Radin 2006, p. 296).

Prospects for Theory Development

Today parapsychology is increasingly characterized by a “grounded” approach to theory-making. “Grounded theory” is a method for generating theories which, although first formulated in sociological research, can be applied to every science. It is an inductive approach that keeps the researcher going back and forth between data collection and categorization and producing theoretical constructs that embrace the evolving mass of data. The purpose is to stay close to the empirical data and yet allow theory and inspirational thinking an early place in the process (see Glaser and Strauss 1967).

There are several current projects that apply this approach to parapsychological theory-making. Dean Radin, investigates paranormal phenomena in this spirit. His research involves both experimental work and the statistical analysis of paranormal data, collected from the beginnings of psychical research to the present time. He writes about the importance of “meta-analysis” for psi research: “For psi experiments, we can

ask questions not only about how an individual performed, or how a group of individuals performed in a given experiment, but how people perform *in general* across many experiments” (Radin 2009, p. 49). This is accomplished through a method of statistical analysis, wherein the units of analysis are the results of independent studies, rather than the responses of individual subjects. This approach provides a significant insight into the reality of the paranormal as it has been observed over many decades of research. Radin’s experimental, theoretical, and statistical work has done a great deal to establish IONS as one of the most important centers of psi research and theorizing about psi at the present time.

Another research project that aims to advance parapsychological theory-making is a combined undertaking of the Division of Perceptual Studies (DOPS) in the Department of Psychiatry and Neurobehavioral Sciences at the University of Virginia, and the Cedar Creek Institute (CCI), also located in Charlottesville, Virginia. Under the direction of Edward Kelly, the Cedar Creek Institute undertakes psychophysiological studies of subjects using state-of-the-art neuroimaging techniques. These techniques are applied to advanced meditators, out-of-body subjects, trance mediums, hypnotic virtuosos, and high-level psi subjects. At the same time the Institute undertakes the collection and systematic analysis of all forms of evidence relating to human survival of death. The CCI has a close working association with DOPS, founded by Ian Stevenson in 1968, which has accumulated a large store of data relating to reincarnation, near-death experiences, and other phenomena occurring around the dying process. DOPS continues a 40-year project of data collection and analysis, offering insights into the nature of these phenomena and the constitution of the human psyche.

Another project with relevance to theory-making in parapsychology is the Seminar on Human Survival of Death sponsored by the Esalen Centre for Theory and Research. Originally formed in 1998 by Michael Murphy, the Seminar brings together experts from a broad spectrum of disciplines to investigate phenomena relating to the possibility of survival of death. The expertise of the seminar’s members includes: psychology, neuroscience, quantum mechanics and astrophysics, philosophy, anthropology, studies of Eastern and Western esoteric traditions, comparative religion, and

parapsychology. One of the principal aims of the Seminar is the development of a scientific meta-theory of paranormal phenomena, which will take into account the “rogue” phenomena of parapsychology, be compatible with findings of all the relevant sciences, and cast light on the possibility of survival of death and reincarnation.

Conclusion

The development of theory in parapsychology has had a long, complex history. The majority of parapsychologists believe that the validity of the phenomena has been well established by the mass of data that have accumulated since the foundation of the SPR, and there is now a push to theory development and to process-oriented empirical research. Currently, the gathering of new experimental and spontaneous case data tends to be oriented to the development of theories that are adequate to the broadest spectrum of data, and to the exploration of the implications of that data to related issues of survival of death and reincarnation. This task is conceived as both benefiting from and contributing to recent developments in the other sciences, particularly psychology, neuroscience, and physics.

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Parrish, C. S.

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Basic Biographical Information

Parrish (1853–1918) who preferred, Celeste, was born in Pittsylvania County, Virginia Thomas (2006). She died in Clayton, Georgia, where her grave monument bears the epitaph, “Georgia’s Greatest Woman,” an honor bestowed upon her by the State Superintendent

of Georgia's public schools. Orphaned at age 10, by age 15 and largely self-taught, it became necessary for her to teach in a rural Virginia school to support herself and her siblings. In 1893, after years of considerable sacrifice, hard work, and further education, Parrish was offered the chair in mathematics at Randolph-Macon Woman's College (R-MWC) in Lynchburg, Virginia (R-MWC began admitting males in 2007 and was renamed Randolph College). Being responsible also for philosophy, pedagogy, and psychology, Parrish volunteered to learn psychology. Working around her obligations at R-MWC, she earned a bachelor's degree (Ph.B.) in psychology at Cornell University in 1896. Her supervisor was the well-known experimental psychologist, E. B. Titchener (Parrish 1925).

Major Accomplishments/ Contributions

Modeled on Titchener's laboratory, Parrish established the psychological research laboratory at R-MWC in 1894, which is widely recognized to have been the first such laboratory in southern USA. In 1901, she was appointed Director of the "Practice School" and Chair of Psychology and Pedagogy at the Georgia State Normal School in Athens, Georgia ("normal schools" specialized in teaching post-secondary students to become teachers). In 1902, Parrish obtained funds from the philanthropist, George Foster Peabody, to establish a first-rate psychological research laboratory and to build a practice school building at the Normal School. Parrish also taught child psychology during summers at the University of Georgia (Athens, GA), and circumstantial evidence suggests she was instrumental in establishing the first psychological research laboratory there in 1902.

Following her Ph.B. degree, Parrish spent three summers at the University of Chicago studying with John Dewey. She became a tireless advocate for progressive educational reform based on Dewey's pedagogical theories. Her advocacy was multiplied when her Normal School students began to teach, and Parrish obtained even wider results after she became a State School Supervisor (1911) responsible for the public schools in Georgia's 48 northernmost counties. In 1914, she evaluated the Atlanta Public School System,

and the Board of Education enthusiastically adopted the progressive recommendations in her 33-page report.

Parrish's passion for implementing progressive education in Georgia also had deleterious effects on her career. She was a strong advocate for equal educational and employment opportunity, especially in education, for women. However, her advocacy of education for Negroes, despite how necessarily muted it had to be in the south in the early 1900s, was far less well received. Early in her tenure at the Georgia State Normal School, a bitter and enduring conflict arose between Parrish and the school's president, E. C. Branson, initially due to her refusal to behave subserviently toward him and to her insistence that she was his academic peer. Branson declared very early that one of them would have to go, but that the separation was delayed until 1911 (Montgomery 2008).

An early crisis for Parrish arose at the Normal School when in a class discussion about what interests whites should have in the Negroes, a student asked Parrish for her views about teaching them. Parrish replied that she had been glad to teach Negro teachers in their normal schools and would do so again. When the student replied that she would never teach Negroes, Parrish told her that if that was true, then she should get out of teaching. The student complained inaccurately to her politically influential father, and efforts were made in 1902 and in 1903 to have Parrish fired. She was exonerated on both occasions, but in 1911 Branson succeeded in getting the Board of Trustees to dismiss Parrish.

Parrish still had considerable influence and, as noted earlier, was appointed to be a State Supervisor responsible for public schools in Georgia's 48 northern counties. At that time she relocated her residency to Clayton, Georgia, where she remained until her death.

Parrish's theoretical contributions were best expressed as an innovative founder and advocate. Founding the first psychological laboratory in the south (and two others) contributed to psychology's development as a science. Equally important were her advocacies for Dewey's ideas for progressive education, women's rights, and for equal educational opportunities for Negroes.

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Paterson, Donald G.

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Basic Biographical Information

Born: January 18, 1892; Died: October 4, 1961.

Donald Paterson, child of deaf parents, developed his interest in psychology in the context of applying it for individual and social improvement. While an undergraduate, he was influenced by Frank Parsons, an early proponent of vocational guidance, and then came into contact with two of the most realistic and practical psychologists in America when he went to Ohio State University for his graduate work, A. P. Weiss and ▶ [Pintner, Rudolf](#). Paterson formed a close working relationship with Pintner, and they published several papers and a well-regarded set of tests to measure intelligence nonverbally, the Pintner–Paterson Scale of Performance Tests (Pintner and Paterson 1917). In connection with his work with Paterson, Pintner developed a career interest in issues connected with education of the deaf. At this point, Paterson went to Kansas to begin an academic career, and began working with Walter S. Hunter. Paterson’s observations about the unknown reliability of the measurement of maze performance led Hunter to propose that Paterson should carry out doctoral studies in this area, but marriage and the First World War intervened and that project was not done. In fact, Paterson never obtained a Ph.D. and was awarded an honorary LL.D. by The Ohio State University only in 1952. After the war, he spent

2 years with the Scott Corporation and then was invited to Minnesota by Richard Elliot in 1921, remaining there for the rest of his career.

Major Accomplishments/Contributions

Paterson became one of the leading applied psychologists in the USA: His main contributions were to the development of systems of vocational guidance and employment statistics. He is often considered to be the originator of modern vocational guidance within universities: Several of his graduate students became prominent in the testing field. He also continued his interests in testing and measurement. His contribution to the 1928 Sigma Xi symposium at Minnesota, in collaboration with several other specialists on the measurement of physical growth, was a model of skeptical psychometric analysis, demolishing the alleged relation between physique and intellect (Paterson 1930). He also coauthored, with Elliott (▶ [Elliott, Richard M.](#)) and several other Minnesota colleagues, the Minnesota Mechanical Ability Tests (Paterson et al. 1930). Also in 1930, he began a long collaboration with his new colleague Miles A. Tinker on the legibility of type, which resulted in a well-respected manual for typographers and other print communicators (Paterson and Tinker 1940). Paterson was a productive teacher and sponsored, according to several sources, 88 doctoral dissertations and over 300 master’s theses at the University of Minnesota. He was Secretary of the American Psychological Association for several years and held many offices and editorships in the area of applied psychology: He was a charter member of the American Board of Professional Psychology in 1947. Paterson’s service extended outward into the surrounding community: He was a founding member of the ACLU in Minneapolis and active in his neighborhood association, and even provided vocational guidance to neighbors’ children when necessary (Fraser 1992). Paterson’s career has become a focus of interest both in industrial/organizational psychology (Erheim, Zickar and Yankelevich 2007) and in the history of psychology (Baker 2006) because of its many connections to important infrastructural relations between applied psychology and the surrounding society.

See Also

- ▶ Elliott, Richard M.
- ▶ Pintner, Rudolf

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manifestation of human nature. Following World War II, the impact of the threat of nuclear war and conflict resolution emerged as central concerns. Subsequently, since the end of the post-Cold War period, the study of forms of violence, both individual and institutional, has taken center stage. In the twenty-first century, peace psychology has become a highly contextualized, global discipline as theorists across countries, cultures, and genders have become active contributors to the study of war and peace and to the promotion of social justice.

Historical Background

Peace psychology has been defined as the study of mental processes that produce and prevent violence, as well as facilitates nonviolence. Peace psychology is also interested in healing the effects of violence and promoting human rights (MacNair 2003). Peace psychology pursues theories and practices that promote social justice via the study of direct and structural forms of violence (Christie et al. 2001). While social psychology and political psychology share some common contents, peace psychology as a discipline differentiates itself by placing greater emphasis on understanding how broad institutions such as governmental structures, economies and cultures, and their influences shape constructive approaches to conflict management (Deutsch 1973).

The early philosophical origins of perspectives on war and peace have been traced back to Pythagoras in 570 BC, whose teachings emphasized the universality and equality of humans and opposed violence and war (Rudmin 1991). The first modern peace psychologist has been identified as William James. This philosopher-psychologist was well known for his views on war and peace, publicly expressing his opposition to imperialism and military passion. In “The Moral Equivalent of War,” James addressed the psychological, political, and economic functions of war, asserting that an alternative to war was possible and that war was not a necessary consequence of human nature (Deutsch 1995).

The question of the inevitability of war was the central issue in the exchange of letters between Albert Einstein and Sigmund Freud in 1932. Following the failure of the League of Nations, and at the request of the Institute for Intellectual Cooperation, Einstein, a noted pacifist, proposed a dialogue with Freud on

Peace Psychology, History of

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Introduction

The history of the contributions of psychology to the study of war and peace includes both early, philosophical origins, as well as modern and postmodern social science perspectives. Psychology’s fundamental search for understanding human behavior, motivation, and meaning has generated research on a variety of topics that inform our understandings of violence and nonviolence.

Early peace psychologists viewed human nature in terms of drives and impulses that are innate and shaped by the environment with aggression having both the potential for destructive as well as constructive outcomes. Given this conceptual framework, a key question that followed was whether war was an inevitable

the question of “Why War?” Freud’s response largely supported the idea of inevitability, referencing his concept of the “death instinct” as a part of human nature difficult, though possible, to overcome (Isaacson 2007).

Following World War II, psychologists also became advocates for peace. A noteworthy document, “The Psychologists’ Manifesto: Human Nature and the Peace: A Statement by Psychologists,” held the signatures of its creators (e.g., Gordon Allport, E.R. Hilgard, Otto Klineberg, and Edward Tolman) as well as the signatures of 4,000 other American psychologists (reprinted in Jacobs 1989, and in Murphy 1945). The manifesto affirms the position of these psychologists on the prevention of war and the promotion of peace and human rights.

Throughout the second half of the twentieth century, as psychology was growing in relevance as a social science and as a profession, peace psychology also transitioned into a more coherent and cohesive area of inquiry. This transition included a shift from individual theorists working independently to the emergence of peace psychology as a field. Following World War II and during the Cold War period, psychological research began to address the behavioral dimensions of the threat of nuclear war (Russell 1961). Psychologists contributed to knowledge regarding the impact of the risks of nuclear annihilation, strategies for deterrence of this threat, and processes of conflict resolution on individuals and societies.

American peace psychologists evolved from an aligned relationship with the military in the USA that facilitated nationalist Cold War goals amid the superpower standoff, to promoting peace and conflict resolution through the study of a wider set of national security issues. Initially, psychologists investigated the question of how the population might anticipate and adjust to the threat of nuclear confrontation. Subsequently, the voices of psychologists became increasingly independent of the political aims of a nation and focused more broadly on studying systems that contribute to war and other forms of violence worldwide. The scope of concerns, then, for the field of peace psychology, developed from an exclusive study of dyadic super power relations between the USA and the Soviet Union into a multidimensional study of all structures of societies that threaten the security of individuals, communities, and nations (Christie et al. 2001).

The interests of peace psychologists became progressively more organized via publications and conferences. Sentinel events in this new emerging field were the publication of *Psychology and the Prevention of Nuclear War* (White 1986) and the recognition of the study of peace psychology by the American Psychological Association that established the Division of Peace Psychology (Division 48) in 1990 (Wessells 1996). These developments followed from research published in the *Journal of Social Issues* and the *Journal of Conflict Resolution* that transitioned from Cold War concerns with the risk of war to a focus on conflict resolution and the promotion of peace. Clearly, the field of peace psychology initially coalesced around visions for promoting a more secure world in terms of reducing frigid super power relations.

By shifting from this twentieth century, exclusive focus on the prevention of nuclear war, peace psychology forged a new vision as a more multifaceted, globally inclusive field that addressed issues of violence and conflict resolution that affect individuals and nations worldwide. While nuclear war and tensions between nations remain a significant global threat, peace psychologists recognized that there has been a trend away from wars between nations to intrastate conflicts and asymmetrical war, including terrorism. One manifestation has been the changing structure of and the increase in the number of United Nations peacekeeping operations since the end of the Cold War (Langholtz 1998). Though the first U.N. peacekeeping mission began in Palestine in 1948, the Department of Peacekeeping Operations (DPKO) at the United Nations was not established until 1992. Sixty-three peacekeeping operations have been conducted, the majority since the end of the Cold War.

The successes and failures of U.N. peacekeeping missions led to the recognition that peacekeeping without supportive diplomacy, clear rules of engagement, and the follow-up building of societal infrastructure rendered fragile peace agreements vulnerable. Peacekeeping is now viewed as having three interrelated components: peacemaking, peacekeeping, and peacebuilding. Peacemaking involves utilizing the principles of negotiation and conflict resolution to facilitate quiet diplomacy in order to ameliorate the early stages of rising tensions; peacekeeping stabilizes conflict zones implementing peace agreements, reducing the suffering of affected populations and limiting the

potential for conflicts to spread across entire regions; peacebuilding follows conflicts and addresses the structural components of society that have provoked conflict and may undermine a peaceful future, for example, providing medical care, policing, and holding democratic elections (Rubin 2010). Psychologists representing a number of professional affiliations have achieved consultative status at the U.N. as nongovernmental organizations (NGOs) and apply psychological science to the behavioral dimensions of a range of global human rights issues (Takooshian and Shahinian 2008). The reconceptualization of the field of peace psychology, then, appears to be in concert with these changing threats to human security in the world at the turn of the twenty-first century.

Twenty-First Century Perspectives

A conceptual underpinning of twenty-first century peace psychology has been the distinction between the meaning and significance of different types of violence: direct and structural violence (Christie 1997). Direct violence kills or harms individuals and tends to occur episodically; structural violence refers to social inequality in the form of institutional structures that also harm individuals by depriving them of the basic necessities fundamental to human security (Galtung 1969, 1996). Scholarship on the theme of social justice as it relates to human security and practices that promote peacemaking and peacebuilding by embedding programs that address social inequalities into societal structures have been central to the new peace psychology agenda (Wessells 1998).

The field of peace psychology, then, has moved from a somewhat disparate group of peace psychologists in need of defining a cohesive field of inquiry to an established discipline now in the process of broadening the scope of theoretical inquiry and application. While violence and conflict resolution between nations continues to receive attention, the psychological dimensions of violence that are direct and/or structural that involve individuals, groups, and nation states are now the subject of scholarship in the field. Both traditional topics of war and conflict resolution and novel subjects such as intergroup violence, institutional forms of discrimination and oppression, intimate partner violence, gender violence, social injustice, and globalization have become subjects of inquiry (Christie 2011).

Peace psychologists have also become concerned with criticisms of the hegemony of American or westernized psychology and the significance of listening to the voices around the world often marginalized or absent from the psychological literature. Increasingly, contextualizing peace psychology culturally and historically is appearing in scholarly publications. Processes of truth and reconciliation have been prominent in the recent histories of apartheid South Africa (Goboda-Madikizela 2003) and in the revelations regarding the “Lost Generations” of Aboriginal children in Australia (Bretherton *in press*). In sub-Saharan Africa, issues related to ethnic conflict, intrastate rivalry for resources and power, gender violence, and the forced soldiering of children have received attention (Wessells 2007). Asian peace psychologists are concerned with South Asian nuclear tensions between India and Pakistan, in the East between North and South Korea (Leung 2003), as well as the cultural and religious orientations of Asians, their differences from the West, and their influence on peacemaking processes. A history of colonialism and liberation from authoritarian regimes is another key theme (Montiel 2003). These are just a few examples of the perspectives of psychologists across cultures regarding studies of their own histories and societies that now inform contemporary theory building and conceptual formation.

The roles of women in the history of peace movements worldwide and feminist scholarship on a range of issues related to forms of violence have also been identified as important contributors to understanding how exclusivity of perspectives limits knowledge (McKay 1996). Finally, there is also recognition that the field is diminished when indigenous psychologies are not articulated. For example, the conversation about topics such as conflict resolution is compromised when the wisdom that traditional, collectivist cultural practice might contribute is lost (Wessells and Montiero 2000). Societies and individuals under stress are not without their own resources to address dangers to the peaceful resolution of crises. Peace psychologists promote the integration of the resourcefulness of local populations to developing strategic responses to challenges to their societies.

Future Directions

As the field of peace psychology broadens, what are the implications for the future? It would appear that

increasingly multidimensional models of complex systems will need to characterize how peace psychologists will address the challenges of peace and violence in the world. Such models will represent the interconnectedness of systems and histories as they emerge. For example, with human security redefined as comprised not only of physical safety, but the human right to health and well-being as well, issues such as globalization, climate change, gender equality, and the information revolution will require the attention of peace psychologists, as these issues are highly interrelated and their outcomes are likely to potentiate either conflict or conflict resolution. Just as the industrial revolution resulted in inequities between those that have and have not in the past, access to information technology and the impact of global markets today will either add to or ameliorate social inequality and the conditions that promote violence. Climate change and environmental degradation already threaten the existence of island nations and the way of life of millions in the developing world. Addressing these issues on the United Nations' human rights agenda today embodies the commitment of peace psychologists to the study of and advocacy for social justice. Therefore, twenty-first century scholars and practitioners of peace psychology, across social and cultural contexts, will be contributing to understanding and engaging these threats to human security and well-being worldwide.

See Also

- ▶ Allport, G. W.
- ▶ Social Psychology
- ▶ Tolman, E. C.
- ▶ Women and Feminism, History of

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Pêcheux, Michel

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Basic Biographical Information/ Major Accomplishments

Michael Pêcheux was a French Marxist social psychologist, psycholinguist, and philosopher. He developed a formal, potentially automatic instrument, which he called *Automatic Discourse Analysis*. He studied at *École Normale Supérieure*, where Louis Althusser and Georges Canguilhem were among his teachers. He was an active member of the left Communist movements. At his tragic death in 1983, at the age of 45 years, he was professor and researcher in the Laboratory of Experimental Social Psychology at Sorbonne University Paris 7 as well as research director at the National Center for Scientific Research. He published many papers and books in the field of social psychology, psycholinguistics, language, philosophy, and the history of human and social sciences.

Pêcheux conceived the constitution of psychology as a result of theoretical rather than empirical breakthroughs, a view he shared with Gaston Bachelard. In a series of articles, he developed the conceptual foundations for a dialectical materialist social psychology. Much of the concepts used in his theoretical framework have been recast, of course, in the light of insights drawn from the works of Marx, Engels, Lenin, Gramsci, and Lukacs and most importantly, in my view, of Soviet psychologists and linguists such as Vygotsky, Bakhtin, and Volovsinov among others. It was Pêcheux who brought to the fore power and ideology concepts in the discourse field. The makeup of language is conditioned by social forces such as social classes, gender, race, ethnicity, etc. Language for Pêcheux is an expression of the ideology of the hegemonic class domination.

Pêcheux summarized his project stating that: "All my work finds its definition here, in this linking of

the question of the *constitution of meaning* to that of the *constitution of the subject*, a linking which is not marginal (for example the special case of the ideological 'rituals' of reading and writing), but located inside the 'central thesis' itself, in the figure of *interpellation*" (1982, p. 105). Pêcheux had elaborated systematically a theory of the materiality of language or a materialist theory of language.

Pêcheux's research framework is of continuing relevance to experimental social psychology, psycholinguistics, possessing as it does much potential for analyzing concrete instances of human higher mental functions, rule-governed behavior, language, disidentification, ideology, and discursive speech analysis.

Pêcheux developed two theses to illustrate the connections between language and ideological formations. In the first he stated that "*words, expressions, propositions, etc., change their meaning according to the [ideological] positions held by those who use them, which signifies that they find their meaning by reference to those positions; that is, by reference to the ideological formations in which those positions are inscribed*" (1982, p. 111). The second thesis Pêcheux stated that "*every discursive formation, by the transparency of the meaning constituted in it, conceals its dependence on the 'complex whole in dominance' of discursive formations, itself imbricates with the complex of ideological formations*" (1982, p. 113).

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Perception

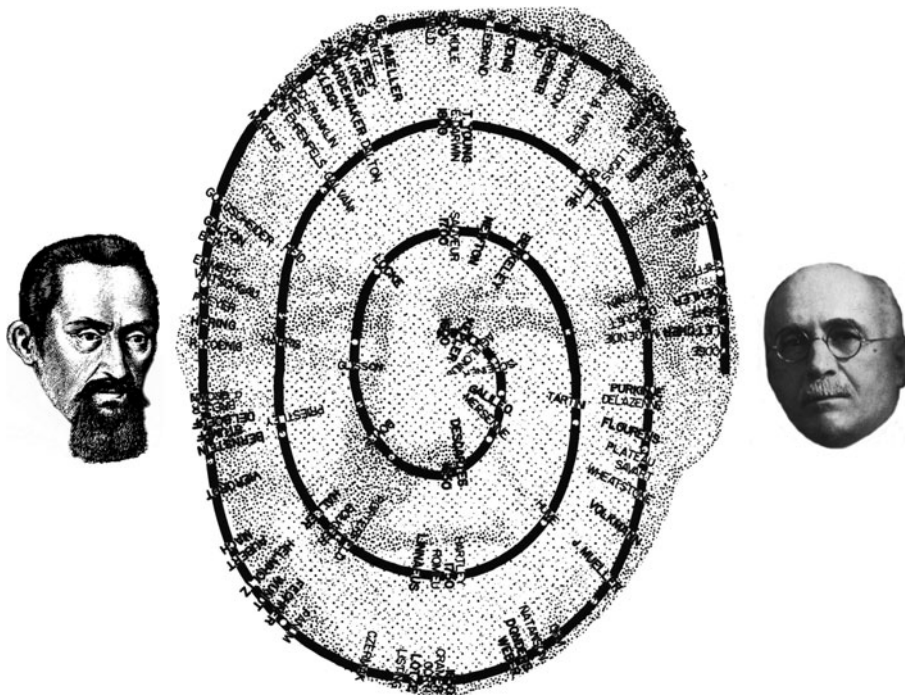
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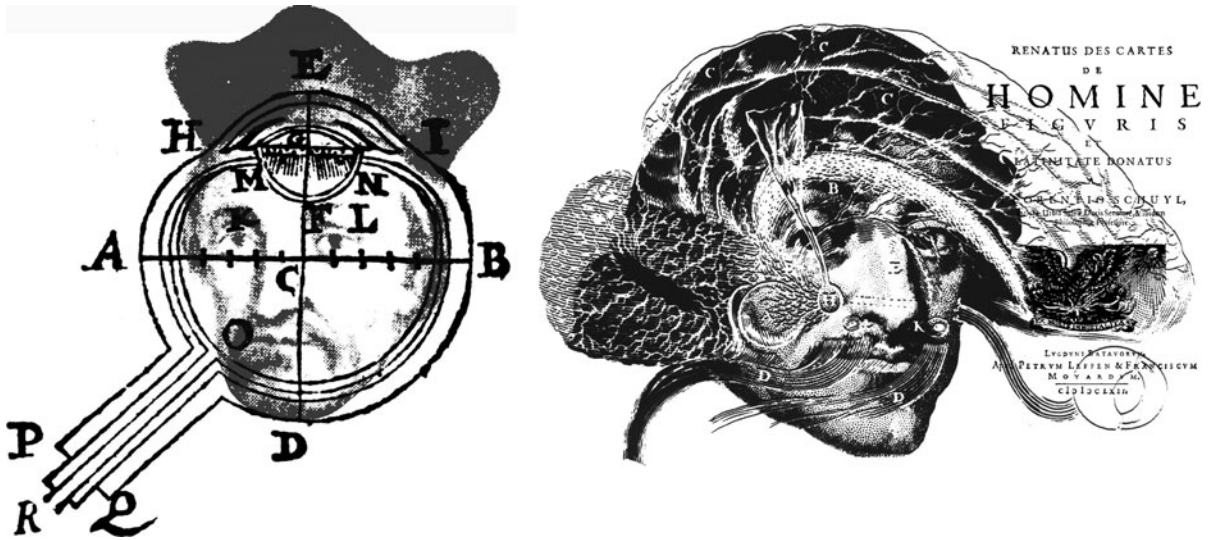
Introduction

In his spiral of the history of sensation and perception, Edwin Boring (1889–1968; 1942) commenced with Johannes Kepler (1571–1630) and concluded with Raymond Dodge (1871–1942); they are all shown in Fig. 1. Another implicit feature of Boring's spiral is that one sense – vision – dominated all the others. Accordingly, it is little surprise that his book was dedicated to Hermann Ludwig Ferdinand von Helmholtz (1821–1874) – a towering figure in the history of vision. A preoccupation with the sense of sight was evident throughout the period surveyed by Boring and it remains so to this day.

Boring was aware that establishing an origin for the study of the senses was problematical since the history of perception is as long as that of description itself. Nonetheless, commencing with Kepler could be justified on several grounds, as he was instrumental in initiating a revolution in the study of vision. Kepler proposed that the eye operated like an optical instrument in which an image is focused on the retina. He also conducted experiments with a water-filled glass globe in order to examine the clarity of images passing through it and projected onto screens at different distances, thereby introducing the issue of accommodation (although that term was not then used in this context). Others, like Christoph Scheiner (1573–1650) and René Descartes (1596–1650), shown in Fig. 2, forged a closer union between the optics and anatomy of the eye, and interpretations of vision took a totally different path thereafter. While the interpretations changed, the phenomena that were scrutinized did not. It is to these that



Perception. Fig. 1 *The spiral of the senses.* The diagram of the spiral is from the inside cover of Boring's book and his portrait is dimly discernable within it. Boring's spiral of history commences with Kepler (*left*) and concludes with Dodge (*right*) (Illustration © Nicholas Wade)



Perception. Fig. 2 *Left: Scheiner's eye.* Scheiner was an astronomer who is enclosed in his accurate diagram from 1619 of the gross anatomy of the mammalian eye; he also observed the inverted and reversed retinal image on the exposed retina of an ox's eye. *Right: Descartes' brain.* Descartes continued Scheiner's integration of optics and anatomy and not only repeated the experiment with an ox's eye, but also illustrated it. He is represented in the engraving of the brain taken from *De Homine*, the title page of which is also shown (Illustration © Nicholas Wade)

we will first turn and to the general problem of what constitutes perception.

What we call “perception” is an experience that results from stimulation of the senses. It can be examined by verbal description and by psychophysical experiment, or it can be related to the processes in the nervous system that accompany the experience. Historically, the only records of action of the senses were provided by behavior but now a wide range of indirect physiological measures can augment them. In humans, the range of behaviors is broad and includes describing the experiences initiated by sensory stimulation and the links it might have with previous stimulations (Wade 2005). We refer to these as observations and we associate them with verbal descriptions. Records of observation precede records of their verbal descriptions; that is, the products of art precede those of writing. Relatively little is known about the origins of visual art: examples of marks made on tools and cave walls have been dated to tens of thousands of years ago, but we do not know when such activities began. Writing had its origins around 5,000 years ago. Verbal descriptions of observations were refined by Greek philosophers, who also introduced theories to account for the characteristics of perception (Symons and Calvo 2009).

Aristotle (ca. 384–322 BC) provided descriptions of numerous natural phenomena amongst which were those following stimulation of the senses (Ross 1931). He can be thought of as setting in train the observational tradition: perceptual experience is confined to naturally occurring events and interpreted within the theory of the day. The adoption of experimental methods to record observations developed somewhat later. An early example can be found in the work of Claudius Ptolemy (ca. 100–170) on optics (Smith 1996), but it was more widely adopted after the investigations of Isaac Newton (1642–1727; 1704) on color phenomena.

Classification of the Senses

Aristotle described the five senses of sight, hearing, smell, taste, and touch, and they are rooted in our culture despite clear evidence of the inadequacy of the ancient classification. The prominence of eyes, ears, nose, and tongue on the head, and the specific experiences associated with them, has acted in the past, as well as in the present, to fix these four senses. Touch was problematical because its sensitivity is not localized to a particular sense organ, and the experiences derived from the skin are diverse. Pain was missing altogether.

Pain and touch both presented problems for classifying the senses, although the ways they were treated differed radically. Touch was taken as the exemplar of all senses whereas pain was given less prominence; it was not included in the list of Aristotle's "common sensibles" which were defined by properties of the stimulus rather than of sensation. For Aristotle, no obvious stimulus could be assigned to pain, other than over-stimulation or damage to the other senses, and so it was placed in opposition to pleasure rather than associated with sense. Neither touch nor pain could be localized in a particular sense organ. Aristotle confronted the particular problems in the context of touch but not of pain. The other encumbrance to advance was ignorance of both the anatomy and physiology of the senses, let alone of the brain. Indeed, for Aristotle, sensation was housed in the heart, although he was later taken to task for this by Galen (ca. 130–200) who argued that all the senses have connections with the brain.

The sources of evidence available to Aristotle for distinguishing between the senses were phenomenology and gross anatomy. The situation was radically revised in the nineteenth century, with developments in physics, anatomy, and physiology. New techniques for stimulating and recording from the senses and for tracing nerve pathways to the brain changed the ways in which the senses could be classified. The criteria that emerged from the new techniques are the quality of the experience, the nature of the stimulus, the gross and microanatomy of the receptor system, and the pathways to and representation on the cortex. The psychological dimension is the oldest of these, and yet less attention has been paid to behavioral evidence for distinguishing and adding to the senses than to that derived from anatomy and physiology.

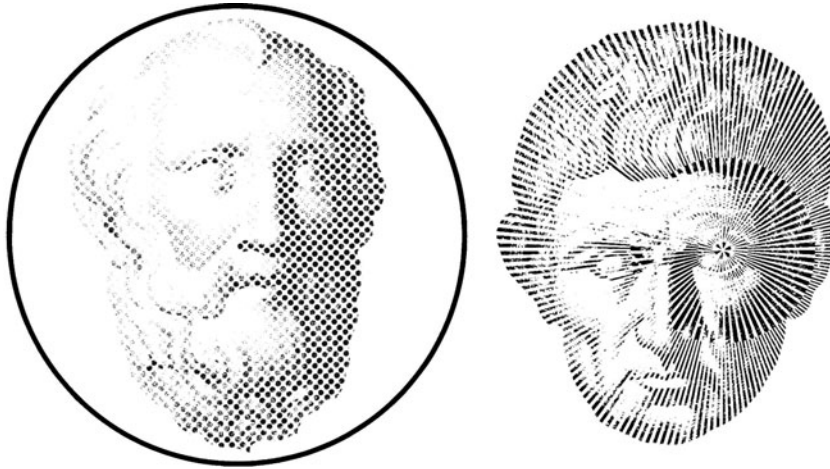
Thus, the senses were at the center of many of the dramatic departures in nineteenth century psychology, and the experimental advances in turn influenced theories of perception (Gordon 2004; Wade 1998). The color mixing experiments by Thomas Young (1773–1829) found that all colors could be produced by appropriately compounding three primaries. He suggested that the eye was selectively sensitive to each and James Clerk Maxwell (1831–1879) provided experimental support for this trichromatic theory. In the domain of motion, Michael Faraday (1791–1867) suggested how successive images presented in close

temporal sequence could result in the perception of movement and Joseph Plateau (1801–1883) devised a contrivance for synthesizing visual motion. Spatial vision also yielded to the power of this experimental approach: Charles Wheatstone (1802–1875) demonstrated that depth could be synthesized from two slightly disparate images presented to separate eyes, dissociating depth perception from its object base. In the 1830s, Ernst Heinrich Weber (1795–1878) demonstrated that the nuances of sensory discrimination could be measured, by applying what became called psychophysical methods; these were extended to demonstrate lawful relationships between stimulus intensity and sensory magnitude by Gustav Fechner (1801–1887; 1860). By mid-nineteenth century, the study of perception had moved from the natural environment into the laboratory.

Early Theories of Perception

Philosophy has played a central role in the study of perception because the senses and their functions have been of focal importance to philosophy. Most of the basic ideas were initially expounded by Greek thinkers, and they have been elaborated upon by more modern philosophers. Moreover, it was essentially the unusual aspects of visual experience that elicited most early interest (Wade 2005). Of these, three were of particular significance and they influenced theories of light as well as sight. The first concerned the experience of light following pressure or a blow to the eye and the second related to the visibility of a reflected image in the eye. The idea of light being emitted from the eye was founded on the first of these, and the notion of an image being carried back to the eye was the source of the second. A third feature of sight, which distinguished it from the other senses, was that the experience could be terminated by closing the eyelids during daytime.

Plato (427–347 BC, Fig. 3) distrusted the senses because the evidence they furnished about external objects could change; moreover, the objects themselves could change, as in the process of growth. Accordingly, he believed that the world of appearances was one of illusion, as opposed to the world of thought in which ideal forms existed. The forms reflected the universal qualities of objects rather than the particular features which can be sensed. The abstract forms could be



Perception. Fig. 3 *Left: Ideal form*; Plato argued for ideal forms in the mind and these were accessible by rational thought rather than by observation. *Right: Received wisdom*. Aristotle on the other hand embraced observation and added enormously to the range of phenomena that could be studied. In the context of perception, he argued for light being received by the eye rather than emitted from it (Illustration © Nicholas Wade)

investigated by reasoning rather than observation, and this resulted in a preference for rational rather than empirical enquiry. Plato's position demonstrates the influence that language has had on philosophical thought: particular members of a category that are given a single name (e.g., horse) do not reflect their universal characteristics. These ideal forms are permanent and inaccessible to perception because the senses are concerned with particulars rather than universals. Plato distinguished between the body and the soul: the body was part of the material world whereas the soul was immaterial. He likened the rational soul to a charioteer steering the competing horses of emotion and appetite; the rational soul was considered to be morally superior to the others and should guide their actions. These distinctions were to have considerable significance because they later permeated both philosophy and Christian theology. Mind–body dualism was at the heart of Descartes's philosophy as well as a constant current in Christian theology. The latter also placed great emphasis on the moral superiority of reason over irrational feelings and passions.

Aristotle (Fig. 3) adopted more naturalistic explanations of phenomena which did not denigrate the senses. He criticized Plato's theory of ideal forms arguing that the features that distinguish a horse, say, do not have an existence independently of horses; these

distinctive features could best be studied by examining actual horses rather than their ideal forms. Therefore Aristotle preferred an empirical approach to a rational one. He is often considered to be the first psychologist because of his emphasis on observation and because he tried to order phenomena in a systematic manner.

Rationalism

The contrast between the philosophies of Plato and Aristotle can be thought of as that between rationalism and empiricism, and both approaches have been applied to the analysis of perception. The differences between them were brought into sharper focus after the scientific Renaissance in the seventeenth century, when a wider range of perceptual phenomena was scrutinized. Descartes applied mechanistic interpretations to bodily processes while maintaining that the mind was immaterial, thus retaining the Platonic distinction between body and soul. Communion between mind and body was achieved via structures in the brain, particularly the unpaired pineal body (the pear-shaped structure labeled H in Fig. 2).

Descartes's mechanistic approach to the senses clarified many issues in perception, but he had the thorny problem of accounting for the interaction of the rational mind with the mechanistic body. This was a task attempted later by Immanuel Kant (1724–1804).

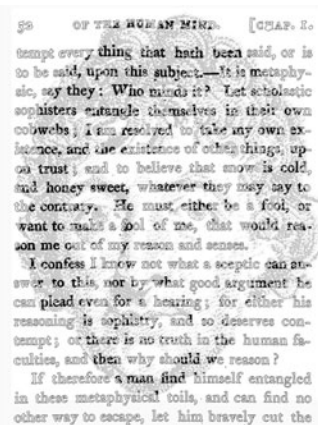
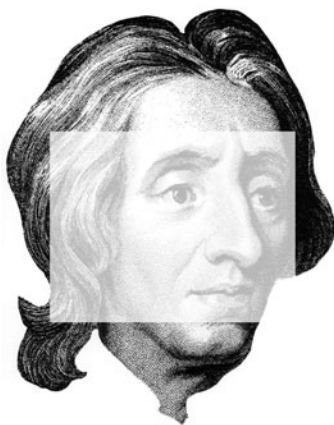
Kant did not deny that all knowledge begins with experience, but he did not believe that it all arises out of experience either. He considered that certain aspects of knowledge were innate, most particularly the ideas of space and time. That is, Kant suggested that the individual is born with the ability to organize experience in both space and time. Perception is then an active organizing rather than a passive receptive process. Kant's influence on Continental philosophy was vast, but it also had numerous repercussions in related disciplines like physiology and psychology. The distinction between innate and learned processes in perception became enshrined in nativist and empiricist philosophies, respectively. The nativists believed that we are born with the ability to perceive space, whereas the empiricists argued that we have no such knowledge of the world at birth, but we need to learn to see the spatial attributes like size, shape, and distance. For Kant our conscious, phenomenal world is a cognitive construction. He made a distinction between the world of things and that of appearances, and was pessimistic about whether the latter (and hence psychology) was open to scientific enquiry. That is, he did not consider that the inner world was open to precise measurement, and therefore its study could not be classified as a science.

Empiricism

Modern empiricist philosophy was expounded by John Locke (1632–1704; Fig. 4) at the end of the seventeenth

century. For Locke the mental element is the idea, which is based upon sensory experience. Ideas could be simple (like whiteness) or compound (like snow), and compound ideas are made up from associations between simple ones, by a process like “mental chemistry.” Similar associative links can account for our ability to generalize across stimuli: for instance, to form a general idea of a triangle from many different specific instances. Thus, Locke was an empiricist and an associationist: knowledge derives from the senses and we learn to perceive the objects in the world by association.

Locke charted the course for empiricism, but many of the details were provided by later philosophers, two of whom will be mentioned briefly here. George Berkeley (1685–1753; Fig. 4) argued that we learn to perceive the dimensions of space by associating muscular sensations with those of vision. In order to perceive distance visually, we learn the relationship between the visual stimulation and the states of the muscles controlling the eyes. The muscular and touch systems were considered to provide direct and undistorted spatial information that could be used to teach vision the dimensions of space. Berkeley (1709) refined the empiricist philosophy of Locke by arguing that appearances are all: to be is to be perceived – *esse est percipi*. That is, the matter from which materialism is constructed is itself open to question. If all we have are our perceptions, how can we prove the existence of



Perception. Fig. 4 Left: *Tabula rasa*; a portrait of Locke with a blank sheet covering his senses. Center: *Berkeley's Esse*, in which Berkeley's face exists if it can be perceived. Right: *Common sense philosopher*; Reid is partially hidden in his text emphasizing his belief in the reality provided by the senses (Illustration © Nicholas Wade)

an external world? A problem with this position is that if perceptions are transitory so is existence. Does an object cease to exist when the eyes are closed? Berkeley sought to salvage this slide into solipsism (that nothing other than one's own ideas exists) by arguing that God alone perceived an external reality. Despite this idealist stance, Berkeley made important steps toward understanding how we perceive space, and how the different spatial senses are integrated.

Thomas Reid (1710–1796; Fig. 4) reacted to Berkeley's idealism by arguing that the evidence of external reality is provided by the common activities of the senses and is supported by common sense intuition. Reid founded the Scottish common sense school of philosophy, whose ideas were to be influential in the development of psychology in America in the nineteenth century. The school was opposed to associationism, particularly when it was couched in physiological language. Reid also proposed a faculty psychology; faculties were innate properties of the mind which exerted control over habits, or behavior. His descriptive psychology could be studied by reflection on mental activity, by an analysis of the use of language, and by observations of behavior. He provided a bridge between the extreme rationalists and empiricists. His belief in the power of reason was tempered by a desire to accumulate evidence empirically. Reid is perhaps best remembered because of the clear distinction he made between sensation and perception. Thus, redness and roundness may be sensations produced by an apple, but its perception includes an appreciation of the object itself. Perceptions also involve projective aspects that are not present in sensations: the apple is perceived as being out there, but the sensations can be internal. Reid's distinction has had far-reaching consequences, and it has persisted to the present; it has pervaded our language and it even defines the categories of our enquiries.

Empiricist philosophy was initially confined to Britain, but its widest influence has probably been through its adoption beyond Britain's shores – particularly by Helmholtz in Germany and John Watson (1878–1936) in America. Boring (1942) remarked that Helmholtz carried the torch for philosophical empiricism in a hostile Kantian climate, as did his erstwhile assistant Wilhelm Wundt (1832–1920). However, their brands of empiricism were quite

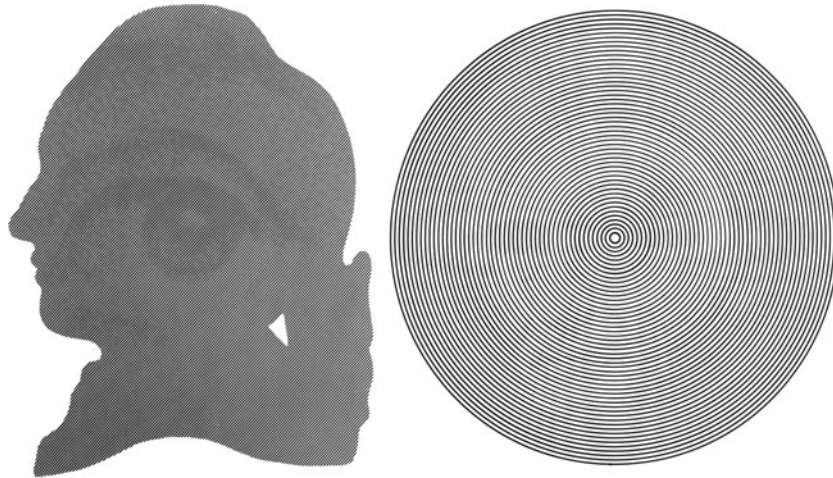
different. Helmholtz developed the notion of unconscious inference to account for characteristics of color and space perception, and the concept is still active in some theories. Wundt (1874) was more ambitious and applied empiricist and associationist ideas to account for consciousness itself. His ideas were carried to America by the likes of Edward Titchener (1867–1927), whose structuralist theory was not widely followed and opposed by the theories of both Gestalt and behaviorism.

Nineteenth Century Influences

Discussions of space and time continued to be grist to the philosophers' mill throughout the nineteenth century, but they were afforded instrumental and experimental assistance that extended their scope. It can be argued that the evolution of psychology as an independent discipline was in a large part a consequence of addressing philosophical questions concerning the perception of space and time by recourse to experiment rather than exposition.

Phenomenology

Perceptual experience has always been described in words, when possible, but this has not been the only way of assessing it. Language reflects the nuances that can be applied to the richness of perception, and it has been considered by some, like Johann Goethe (1749–1832; Fig. 5), to be the most appropriate vehicle for conveying experience. Goethe (1810/1970), in line with many Romantic philosophers, rejected the experimental approach to the study of nature because it was too constrained. In its place he proposed the astute and intuitive observation of natural phenomena, setting in train the method of phenomenology. This is best seen in his 1810 book *Zur Farbenlehre*, which contrasted his observational approach to color with what he considered to be the physicalism of Newton. The purity of white light was taken to be fundamental and indivisible, rather than white being a mixture of different colored lights. Goethe chose to observe and describe instead of experiment on color vision. He distinguished between what he called physiological colors (the experience of color) and physical colors produced by optical refraction. Goethe's theory of color was never taken seriously by the scientific community, but his observations have rarely been challenged. He described many



Perception. Fig. 5 Left: *Romantic eye*; a silhouette of Goethe encompassing his observant eye. Right: *Sehen in subjektiver Hinsicht*; Purkinje's features are dimly discernible within the pattern of concentric circles, the distortions of which he described (Illustration © Nicholas Wade)

phenomena like positive and negative color afterimages, irradiation, color shadows, and color blindness, in addition to contrast effects – both in the chromatic and achromatic domains.

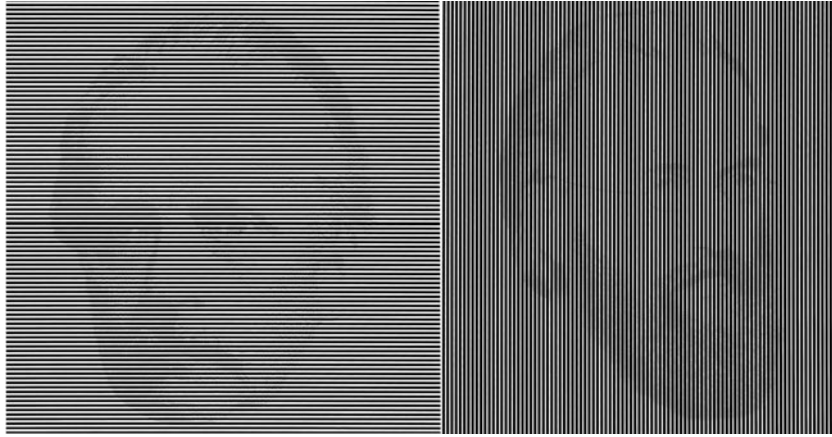
Phenomenology was given a more methodological twist by Jan Purkinje (1787–1869; Fig. 5), whose interests in vision were stimulated by reading Goethe's analysis of color. Purkinje was encouraged in his researches by Goethe because of his use of the phenomenological description. As a medical student Purkinje investigated subjective visual phenomena in part because he did not have access to any physiological apparatus, but also because he believed that visual illusions revealed visual truths. Most of his experimental research in both physiology and histology was conducted in Germany, but at the age of 63 he was called to the chair of physiology in Prague. He was followed in that chair by Ewald Hering (1834–1918; Fig. 6), who also embraced phenomenology.

Nativism Versus Empiricism

The contributions made by Helmholtz (Fig. 6) to visual science are legion, but his most lasting impact was his theory of perception (Cahan 1993; Helmholtz 2000). For Helmholtz, the brain only had indirect access to the external world, via the senses, and it could only process messages in the language of nerve impulses. This realization made any equation of the retinal image with

perception unnecessary, and it removed a problem that had frequently been raised earlier, and was to return later: if the image on the retina is inverted and left–right reversed, why is our perception not so? Helmholtz argued that this only created a problem if there was a picture in the retina that required further perception. If all that is available are nerve impulses then the brain can analyze them and make the appropriate inferences independently of the orientation of stimulation with respect to the retina.

Helmholtz acknowledged that little he wrote on theories of vision was novel, but he marshaled the arguments over a wider range of phenomena than others had done before. By adopting a starkly empiricist interpretation of perception, and by contrasting it so sharply with nativism, he reopened a debate that has reverberated throughout perception ever since. The debate was personified in the conflict between Helmholtz and Hering, and the main battle-grounds were color vision and stereoscopic depth perception (Turner 1994). Hering was a physiologist whose psychology was in the tradition of Goethe. He represented the phenomenological and nativist position in studying perception. Like Goethe, Hering stressed the subjective dimension of color, and he based his opponent-process theory on color appearances rather than on mixing lights of different wavelengths after the manner of Helmholtz. He also examined simultaneous and successive color



Perception. Fig. 6 *Visual opposites.* Helmholtz (*left*) and Hering (*right*) presented opposing interpretations of a range of phenomena, from color perception to binocular vision. Helmholtz also described the differences in the apparent sizes of squares comprised of vertical and horizontal lines (Illustration © Nicholas Wade)

contrast phenomena. Together, these led him to propose a theory of color vision based on three oppositional pairs: red-green, blue-yellow, and white-black. He speculated that there are three retinal pigments that are either built up or broken down by light to yield the six elements.

The psychology of the senses led Helmholtz into the metaphysical domain he had assiduously avoided in his physical and physiological endeavors. The philosophical problems remain a matter of constant revision and reanalysis, but many of the issues concerned with the senses that were debated in Helmholtz's day became the topics of experimental enquiry in the then new discipline of psychology.

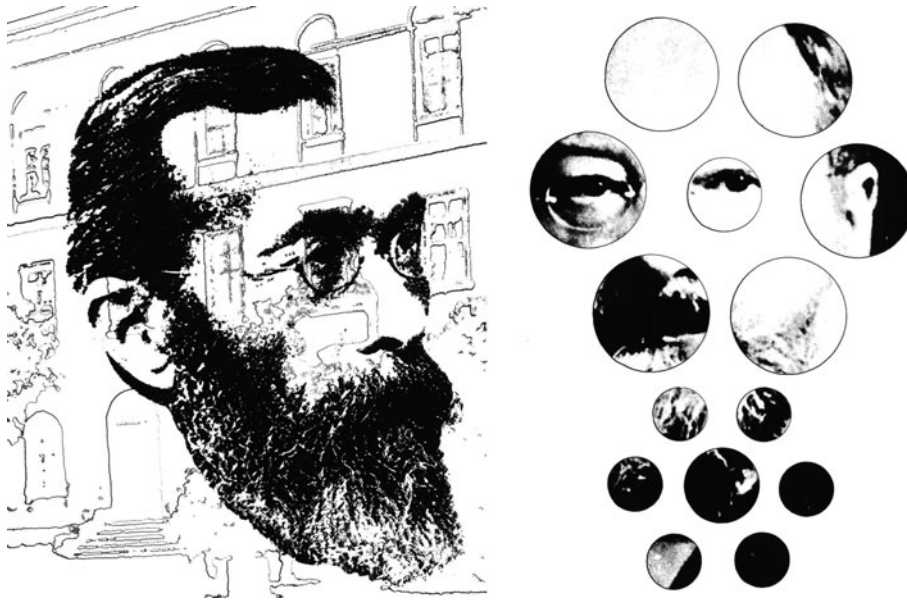
Wundt and Structuralism

Psychology, as an independent discipline, is considered to have been founded in 1879, when Wundt (Fig. 7) opened his Psychological Institute at Leipzig University. Prior to this, psychology was allied principally to philosophy, although perception was often the province of sensory physiologists (Müller 2003). Wundt saw the task of his new institute as that of studying conscious experience. What distinguished his approach from the many earlier ones addressing the same issues were the methods employed. Psychology came of age when it developed its own methodology: the problems of consciousness and perception were examined in novel ways using novel instruments, and psychology

became an experimental discipline rather than just an observational one (James 1890). Perception has followed the theoretical fashions of psychology generally, ebbing and flowing as the subjective dimension waned and waxed in importance.

Wundt rejected phenomenology and introduced a technique that is now called analytic introspection – the controlled analysis of mental events. He distinguished between the mediated experience available to the physical sciences and the immediate experience investigated by psychology. His use of introspection to study the latter resulted in the proposal that sensations and feelings were the elements of consciousness. Sensations could be combined to yield perceptions, but for these to influence behavior they required attention: the voluntary control of attention to focus on aspects of perception was termed *apperception*. It was the active role played by attention that could rearrange perceptions to form a creative synthesis. Wundt was an empiricist and an associationist interested in the universal aspects of conscious experience; the application of psychology to real-world issues held little appeal for him.

Observers had to undergo extensive training before they were considered to be skilled at analytic introspection. By using this method, Wundt believed that he could determine the elements from which perceptions and thoughts were constructed and he was greatly influenced by Locke's ideas about mental chemistry. Wundt was trying to isolate the basic elements and to



Perception. Fig. 7 Left: *The Institution of Psychology*. Wundt is shown framed by the building that housed the original Institut für experimentelle Psychologie in Leipzig. Right: *Structuralist*. Titchener can be seen in circles that constitute his eponymous contrast illusion: the two central circles are the same physical size but the lower one appears larger (Illustration © Nicholas Wade)

determine the rules for their combination into more complex perceptions and thought, and this approach was later called structuralism. The basic elements were taken to be the sensory attributes (like quality and extension), and these could be combined to make the molecules of perception; the combination was achieved by a process of association. Perception represented a synthesis or building up of the sensory attributes via learning by association, whereas the method analyzed or broke down complex perceptions into their component sensory attributes.

Wundt attracted many graduate students from the USA, where psychology was forging a strong foothold. One of his students, Titchener (Fig. 7), was from Britain but carried Wundt's method and theory to America. Titchener employed introspection to uncover the structures of human consciousness, thereby giving structuralism its name. The elements of consciousness were said to be sensations, images, and affections. These elements could be isolated by a method of introspection that excluded the use of object names, because describing the meaning of objects introduced "stimulus error." Most of his experimental work was directed at the analysis of sensations, which had the attributes of

quality, duration, intensity, extensity, and clearness. Ideas and emotions derived from associations of images and affections, respectively.

Twentieth Century Developments

The advances in the experimental psychology of perception throughout the nineteenth century were driven by the invention of novel instruments that could be used within the laboratory. That is, the study of perception moved from the natural environment into the laboratory where the well-tried methods of physics could be applied to the examination of perception. However, toward the end of the twentieth century, the armory of instruments was replaced by a single device—the computer. The implications of this technological revolution were enormous but they did not play a part in the theories that were formulated in response to the impact of Wundt at the beginning of the century.

Gestalt Psychology

By the early twentieth century, there was widespread disaffection with Wundt's method and its attendant theory, and alternatives were sought. Two major reactions that appeared in the second decade were Gestalt

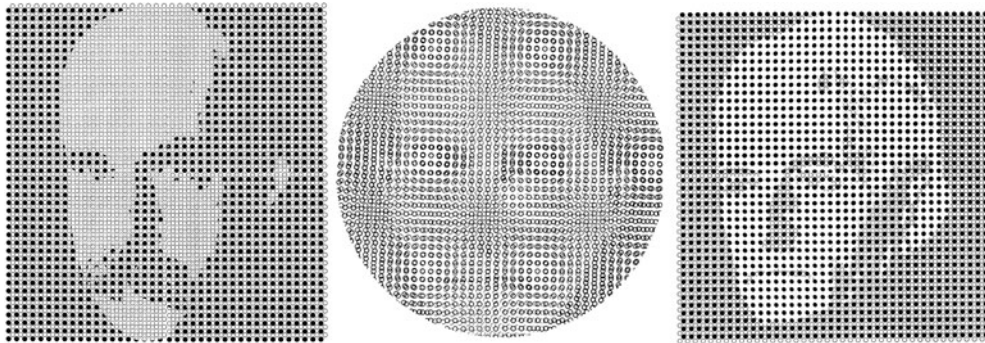
psychology and Behaviorism. Gestalt is a German word that can be translated approximately as configuration, but the German term is retained because of the difficulty of capturing its nuances with a single English word. Gestalt psychology had its origins in perception but its ambit extended throughout the whole of psychology (Ash 1995). Its precursors were to be found in Kant's innate categories of space and time, and in Goethe's phenomenology. The Gestaltists main opposition to Wundt's structuralism was theoretical – they did not accept that unitary perceptions could be analyzed into smaller parts. Indeed, the cliché associated with Gestalt psychology is that “the whole is different from the sum of its parts” – thus, the perception of a square is different from the separate effects of its four constituent sides.

Max Wertheimer (1880–1943; Fig. 8) redefined psychology as the study of configurations or *Gestalten*. He conducted a series of experiments on apparent movement – motion seen between two stationary and separated stimuli when presented in rapid succession. The inability to distinguish between real and apparent motion was taken as damning any approach that explained perception in terms of its successive sensations. Not only was it said that the whole is different from the sum of its parts, but the perception of the whole is prior to that of its parts. Publication of Wertheimer's thesis on the phi phenomenon, in 1912, is taken as the origin of Gestalt psychology; it was principally concerned with perception, and a range of robust phenomena was devised to support its holistic

nature. Much of its attraction lay in the power of the perceptual demonstrations.

Kurt Koffka (1886–1941; Fig. 8) was the second member of the Gestalt triumvirate. He used Gestalt concepts in studies of development and thinking, and he made American psychologists aware of the new movement in his writings and lectures on Gestalt psychology in the USA. Koffka did pose the fundamental question of “Why do things look as they do?” He also emphasized that visual perception is three-dimensional and that our perception is in terms of the object properties (the distal stimulus) rather than those at the receptor surface (the proximal stimulus). The third member, Wolfgang Köhler (1887–1967; Fig. 8), introduced the concept of field forces operating in both perception and in its underlying neurophysiology: brain processes were considered to be isomorphic (having the same form) with the percept, so that principles of brain function could be inferred from perceptual phenomena (Köhler 1930). He developed a speculative neurophysiology based mainly on the principles of perceptual grouping and on his experiments with figural aftereffects. His speculations probably did more to hasten the demise of Gestalt theory than any other factor: neurophysiologists failed to find any evidence for such fields of electrical activity in the brain, and so tended to dismiss Gestalt theory in general rather than Köhler's unsuccessful attempt at neuroreductionism in particular.

The Gestalt psychologists formulated some descriptive rules for perceptual organization and produced



Perception. Fig. 8 *Good figures*. The portraits of Wertheimer (left), Koffka (center), and Köhler (right) are all composed of small circles. It is from combinations of filled and unfilled circles that Wertheimer demonstrated his principles of perceptual organization in 1923 (Illustration © Nicholas Wade)

a wide range of demonstrations that could be used to support them. The principles were described by Wertheimer in two papers published in 1923; they appeared in the journal *Psychologische Forschung* (later renamed *Psychological Research*) which the Gestalt psychologists founded to propagate their theory.

Cognitive Approaches

In the second quarter of the twentieth century, most research in perception was conducted by Gestalt psychologists, initially in Germany and later in America, where it challenged the prevailing climate of behaviorism. At the same time, an alternative approach was being developed in relative isolation in Britain, and it has had a profound effect on the shape of modern perceptual research. Frederic Bartlett (1886–1969; Fig. 9) examined perception in realistic and dynamic situations and he represents a continuation of the British empiricist tradition with his analysis of perception as a skilled activity (Bartlett 1932). He rejected the application of stimulus–response interpretations of complex tasks (like playing cricket or tennis) because the actions were highly organized and initiated in advance of any contact with the ball. Indeed, the actions were made with respect to the position the ball would be predicted to occupy at some short time in the future. Complex activities of this type indicated

that behavioral sequences had to be programmed in advance and coordinated with predictions based on perception. This led Bartlett to a cognitive theory of perception, one in which the division between perception and thought was difficult to draw. Like Helmholtz, Bartlett considered that perception was like problem solving, incorporating processes of inference but also of prediction. Bartlett rejected associationist models of perception and memory and his cognitive theory provided a middle road between those of the molecular behaviorists and molar Gestaltists. He can be seen as ushering in the cognitive revolution that was eventually to replace behaviorism, although his work was neglected in America until the 1950s (Gardner 1987). In order to make predictions that involve action we need to have some mental representation of the environment in which the action will take place. This concept of forming a mental model of the world in which we behave was proposed by Kenneth Craik (1914–1945; Fig. 9), and it is one of the ideas that has proved important in the development of both cognitive and computational theories of vision. The machine metaphor has proved to be particularly attractive to experimental psychologists. Craik (1943) was only able to enlist relatively simple machines, but his insight lies at the heart of the cognitive revolution that was to sweep through psychology. His concern with prediction rather than reaction (shared with Bartlett) reflected

mass results of past changes of position and posture are actively doing something all the time; are, so to speak, carried along with us, complete, though developing from moment to moment. Yet it is certainly very difficult to think of any 'better' single descriptive word to cover the facts involved. It would probably be best to speak of 'active, developing schemes' but the word 'schemes', too, being now very widely and variously employed, has its own difficulties; and it, like 'scheme', suggests a greater articulation of detail than is normally found. I think probably the term 'organized setting' approximates most closely and clearly to the notion required. I shall, however, continue to use the term 'schemes' when it seems best to do so, but I will attempt to define its application more narrowly. 'Scheme' refers to an active organisation of past reactions, or of past experiences, which must always be supposed to be operating in any well-adjusted organic response. That is, whenever there is any order or regularity of behaviour, a particular response is possible only because it is related to other similar responses which have been serially organised, yet which operate, not simply as individual members coming one after another, but as a unitary mass. Determination by scheme is the most fundamental of all the ways in which we can be influenced by reactions and experiences which occurred some time in the past. All incoming impulses of a certain kind, or mode, go together to build up an active, organised setting; visual, auditory, various types of cutaneous impulses and the like, at a relatively low level; all the experiences concerned by a common interest; in sport, in literature, history, art, religion, philosophy and so on, on a higher level. There is not the slightest reason, however, to suppose that each set of incoming impulses, each new group of experiences persists as an isolated member of some passive patchwork. They have to be regarded as constituents

of the organized mass; one of the characteristics of memory and perception is the recognition of identity or of similarity. To designate a thing is hardly to state so in internally or objectively as the 'same thing' to which we attend on a perceptual occasion. In the above sense mechanical devices can show some degree of recognitional ability. A photocell can respond in the same way to spots having the same colour, a penny-in-the-slot machine to similar coins, and so forth. Men and animals are capable of much, but of much more. The progressive stages of recognitional ability may be classified as: (1) Those in which all the conditions of stimulation are identical, within the limits of discrimination sensibility; (2) Those in which there are differences in the perceptual dimension, some in which these may be 'corrected' by other sensory data so as to lead to the production of an identical pattern of central stimulation; (3) Those in which such correction is inadequate, so that there are points of difference between stimulation on two occasions, each point of difference being perceptible by the organism, yet the things being used as the same in certain important aspects; and (4) Those in which the differences extend to all dimensions of quality and physical constraints, to such an extent that the two objects is confined to some abstract characteristic such as triangularity, number, and other aspects of temporal relations or vague qualities such as intellectual difficulty.

PERCEPTION AND COMMUNICATION
Monitoring of several channels with response to one at a time.—The situation which we will now consider is much closer to real life than those which I have gone before. In the present case the listener hears speech from a number of different sources, but ignores any messages which are not for him. He is therefore carrying out a combination of the two simpler tasks; he may listen to two call-signs simultaneously, but then call to ignore one message and deal only with the other. As before, he is interested largely in central processes which may apply to psychology in general rather than to hearing alone. It is more difficult to be sure of the relative roles of sensory and central processes in this case than it was in the simpler ones, but some such distinction can be made by considering the types of noise and the effect of intensity. The results are comparatively few from this type of stimulation on the effect of varying the amount of information presented to the subject. Many data are to be found, however, on the familiar question of the physical methods used to present the messages; and in addition there are results on the effectiveness of certain types of message in learning responses. The spatial arrangement of the sound sources is again important. It will be remembered that spatial separation is highly beneficial only if one message is to be answered, but not when both are to receive a response. In the monitoring situation, which combines both the other tasks, separation is on the whole desirable but not altogether so. Webster and Thompson found that six channels were handled better when fed through six loudspeakers rather than through a single one, and that the provision of 'pull-down' facilities was helpful. Sperry, Curtis and Webster found that three loudspeakers were better than one.

Perception. Fig. 9 Left: Schema; Bartlett emphasized the constructive aspects of memory and perception as well as introducing the concept of “schemas” into psychology. Center: Recognition of identity; Craik was one of Bartlett’s students who developed the machine metaphor in analyzing pattern recognition. Right: Channel capacity shows Broadbent who analyzed dichotic listening and linked perception more closely with communication (Illustration © Nicholas Wade)

his dissatisfaction with behaviorism. Perception is considered to be a process in which information regarding aspects of the world is analyzed and utilized to plan behavior. This information-processing approach has become widely accepted as perception can then be considered as a sequence of representations that are initially crude and become increasingly appropriate to the three-dimensional environment.

Information in visual patterns could be quantified, and it resided at the boundaries between areas (contours) and where the contours changed direction abruptly (corners). However, it was the qualitative concept of information processing rather than quantitative information measures that was to have lasting appeal. The perceiver was conceived of as a limited-capacity information processor, and the information could be filtered, filed, or reformulated on the basis of stored events. Donald Broadbent (1926–1993; Fig. 9), a student of Bartlett, presented a model that formalized and represented pictorially the putative processing stages in perception, memory, and learning, and it was addressed to the realistic activity of communication (Broadbent 1958). Thus, Broadbent combined Bartlett's approach of examining skilled tasks with Craik's modeling metaphor.

When Bartlett and Craik proposed their theories of perception relatively little was known about the brain mechanisms that mediate perception. This is one of the reasons why the Gestalt psychologists were able to propose their speculative neurophysiology of vision. Craik, as well as Alan Turing (1912–1954), anticipated that the computer would be a powerful tool to simulate theories of perception, as well as providing a metaphor for the processes of perception and cognition themselves. Since the late 1960s, the study of visual perception had been profoundly influenced by computers. As well as allowing scientists to collect or to analyze data more quickly, the digital computer provided a tool for the laboratory scientist to develop new ways of testing the visual system with novel kinds of visual displays.

A similar cognitive revolution took place in America, but a little later. The approach to perception adopted by Bartlett was applied to human operators of complex systems. The experimental research on perception in the 1940s harmonized with developments in cybernetics. Information theory was developed in the context of telecommunications, and the mathematical

measurement of information was formalized in the late 1940s; its powerful impact on perception was felt in the 1950s. George Miller (b. 1920; Fig. 10) linked the concept of limited information capacity to absolute perceptual judgments (Miller et al. 1960). He also allied the processes of perception more closely to those of language, and this was amplified by Noam Chomsky (b. 1928; Fig. 10), a linguist who has introduced a wide range of novel terms into the analysis of language. In Chomsky's transformational grammar, one of the principal distinctions is between the surface and deep structures of a sentence: the surface structure corresponds to the sequence of words as written or spoken, whereas the deep structure refers to their underlying meaning.

During the 1970s, David Marr (1945–1980; Fig. 10) set out to develop a complete framework for vision, spanning the very lowest level processes within the retina up to the process of visual object recognition (Marr 1982). The key feature of Marr's theory was that vision can be understood at different levels. The first "computational" level is a theory of the task that the visual system is to solve, and an understanding of the constraints that can enable solution of that task. The second level, of "representation and algorithm," is a means of achieving the task, and the final "hardware implementation" level describes how the brain, or a computer, actually implements these algorithms in neural tissue or silicon.

In addition to presenting a unified approach to different topics within vision, Marr and his colleagues also presented a theory of the different stages of representation involved in the interpretation of a retinal image. In so doing, Marr distinguished a stage which made explicit the three-dimensional layout of the world with respect to the viewer (the 2½ D sketch), potentially useful for action in the world from the more abstract 3D models which allowed object recognition.

Indirect and Direct Perception

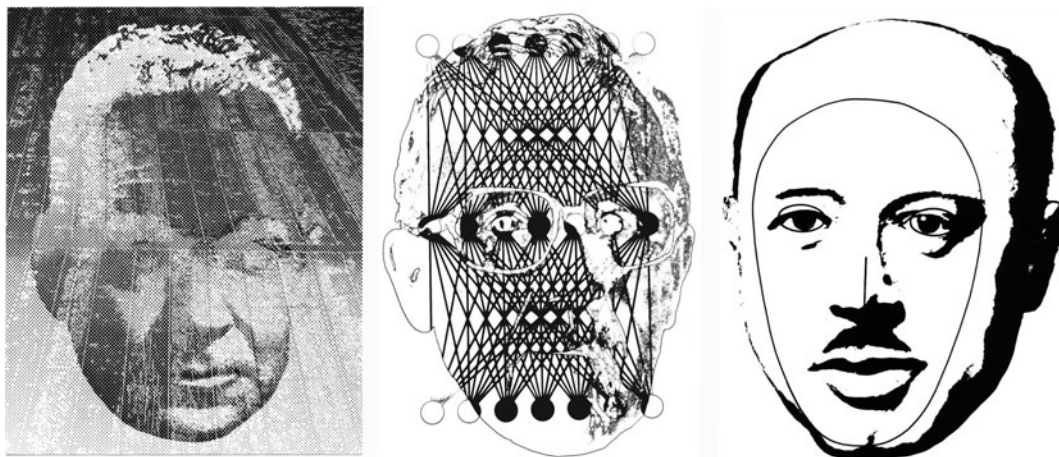
All theories of perception considered so far are what can be called indirect; some mediation between the pattern of stimulation, its effects on the visual system and perceptual experience was implicit – some mode of representation. The term often applied to this was that perception went beyond the information given. This is at the heart of empiricist approaches to perception and is in the organizational principles of Gestalt

psychology. An alternative approach was advocated by James Gibson (1904–1979; Fig. 11). He sought to stem the cognitive current and developed a novel theory. Rather than considering the senses as independent of one another he integrated them into perceptual systems

in which time was an essential component. That is, the distinction between sensation and perception was abandoned, and perceptual systems afforded useful information for interaction with the external world. Moreover, there was considered to be a perfect



Perception. Fig. 10 The languages of perception. *Left: The magical number seven, plus or minus two*; Miller is defined by his magical number and surrounded by its neighbors. *Center: Deep structure*; Chomsky is enclosed within terms he coined; the surface structure of the list is not punctuated, but the terms can be suitably segmented with respect to its deep structure: although the individual words are not alphabetically arranged, the novel terms are. *Right: 2½ D sketch*; Marr is outlined as differences of Gaussians and encapsulated within tokens of a cube (Illustration © Nicholas Wade)



Perception. Fig. 11 *Left: Texture gradients* shows the facial features of Gibson within a texture gradient of dots; superimposed on both patterns is a further, ecologically sound, texture gradient – the planks of a pier receding into waters near those lapping Cornell University, where he worked for over 30 years. *Center: Hidden units*; Hebb’s face can be seen in the middle (hidden) layer of a three-level network: each cell in the middle layer is connected to every other one in the levels above and below it. *Right: Schematic face*; Brunswik conducted studies on the perception of schematic faces and is portrayed with a one that reflects his own soft, sad, and intellectual features (Illustration © Nicholas Wade)

correlation between the pattern of stimulation and its perception; no stages of representation were involved in perception. Gibson (1966) retained separate perceptual systems which he called orienting, auditory, haptic-somatic, tasting and smelling, and visual. Gibson's ideas established a new field of "ecological" optics which has been tilled by many in recent years.

Gibson called for neither physiological nor computational support for his theory, but one of his contemporaries, Donald Hebb (1904–1985; Fig. 11), was integrating both of these. Hebb (1949), in his speculative synthesis of perception and learning, wove patterns with networks of neurons connecting perception to its underlying physiology. He proposed that perceptual learning takes place when assemblies of cells fire together; their reverberating activity resulted in synaptic changes which further increased the probability of the nerves firing together. The functions of cell-assemblies and phase sequences were based on his neurophysiological postulate: "When an axon of cell A is near enough to excite cell B and repeatedly or persistently takes part in firing it, some growth process or metabolic change takes place in one or both cells such that A's efficiency, as one of the cells firing B, is increased." Hebb later applied the concepts to account for a wide range of phenomena, from stabilized retinal images to sensory deprivation.

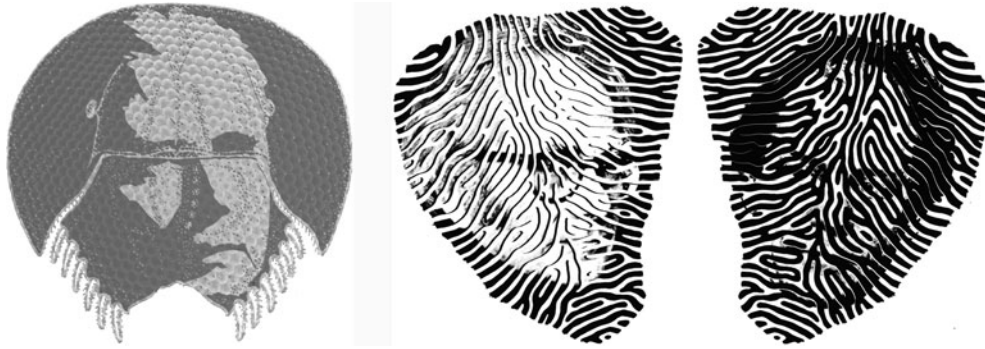
Another indirect theory was proposed by Egon Brunswik (1903–1955; Fig. 11) who introduced probabilistic functionalism into psychology. His was a functionalist theory because it emphasized the adaptive nature of behavior with respect to objects in the environment; it was probabilistic because behavior in an unpredictable environment must be based on the statistical regularities that occur within it (Brunswik 1934). He was influenced by the Vienna circle of logical positivist philosophers and believed that the probabilistic methods applied to the physical sciences were appropriate to psychology, too. He applied probabilistic functionalism principally in the area of perception. He was concerned with how we derive veridical information about objects; how the distal stimulus is perceived as constant despite wide variations in the proximal stimulus. Accordingly, he examined perceptual constancy and devised a formula for assessing it, now known as the Brunswik ratio. Veridical perception was based on the use of a family of cues that differ in

their ecological validity – the correlation between proximal cues and distal stimulus. By experience, greater statistical weight was placed on the cues with high ecological validity.

The Physiological Dimension

Most historical investigations of eyes have been addressed to the image-forming variety of vertebrates. This was so despite the knowledge of many other evolutionary adaptations for transducing light energy. Until the neuron doctrine was firmly established in the 1890s, examination of invertebrate eyes was not considered to offer insights into vertebrate visual processing. The situation was transformed with Haldan Keffer Hartline (1903–1983; Fig. 12) with his studies of responses to light in the horseshoe crab, *Limulus polyphemus*. His pioneering neurophysiological experiments, together with allied investigations of vertebrate visual responses, resulted in the emergence of a new conception of retinal processing: lateral and recurrent interactions, occurring in a complex network of neuronal circuits, were considered fundamental mechanisms for visual information processing.

In the last decades, there have been major strides in furthering our understanding of neural processes in the visual system. These discoveries have been taken to support the view that vision involves a sequence of stages in which different aspects of the stimulus, like color, contour, or motion, are extracted. Research on patterned stimulation at the receptor level had proceeded throughout the first half of the century, but its pace quickened thereafter. The glimmerings of pattern processing beyond the receptors emerged in the 1950s, and were amplified in the 1960s. When recordings of nerve impulses could be made from individual cells in the visual pathway, their adequate stimuli could be determined. It came as something of a surprise that retinal ganglion cells of frog responded to quite complex features of stimulation (like moving dark regions of a specific visual angle, resembling a bug), and stimulus properties that excited or inhibited neurons were generally called "trigger features." Retinal ganglion cells of cat, on the other hand, were excited by rather simpler stimulus arrangements. It was found that they were concentrically and antagonistically organized; if the center was excited by light, the surround was inhibited, and vice versa. Such an arrangement served the



Perception. Fig. 12 *Left: Hartline's Limulus* presents a portrait of Hartline within the carapace of the crab that he claimed for neuroscience and surrounded by the facets of a compound eye. *Right: Feature detectives* shows Hubel and Wiesel enclosed within the pattern of ocular dominance columns that they disclosed in monkey cortex using autoradiography. Hartline was awarded the Nobel Prize in Physiology or Medicine in 1967 and Hubel and Wiesel were accorded the same honor in 1981 (Illustration © Nicholas Wade)

detection of differences in luminance well, but steady states would have little effect, since excitation nullified inhibition. This pattern of neural activity was retained in the lateral geniculate body, but it underwent a radical change at the level of the visual cortex. From the 1960s, David Hunter Hubel (b. 1926) and Torsten Nils Wiesel (b. 1924), who are both shown in Fig. 12, found that single cells in primary visual cortex (V1), first of cat then of monkey, responded to specifically oriented edges; they had different receptive field properties which were called simple, complex, and hypercomplex.

Physiologists refined the stimulus characteristics of trigger features while psychologists sought their phenomenal counterparts. Almost any experiment involving contours paid lip service to Hubel and Wiesel, despite the tenuousness of the links between particular phenomena and their underlying physiology. At least an appeal to trigger features was considered preferable to reliance on the speculative neurophysiology advanced by Gestalt psychologists. The concept of channels or spatial filters emerged during the 1960s, and it was applied with particular rigor by Fergus Campbell (1924–1993) and his colleagues to the detection of and adaptation to sine-wave gratings. The attraction of gratings was that they provided at one and the same time a definition of the stimulus and theory of the response to it.

The 1960s saw the beginnings of a split between a “cognitive” approach, where the goal of vision could

be seen as an abstract categorization of the objects of vision, and an “action” approach, where vision was part of an integrated system allowing manipulation of and navigation through the world. This distinction has matured in contemporary approaches to vision, both through the influence of Marr, and through further developments in neuroscience and neuropsychology.

Future Directions

Perceptual theory in the twenty-first century is developing along many lines. Perhaps the two most prominent are the trends toward mathematics and mental modelling. The first is expressed in several strands. On the one hand, emphasis on inferential processes in perception, exemplified by Brunswik's probabilistic functionalism, finds more concrete expression in Bayesian approaches to perception. On the other, neo-Gibsonians apply increasingly sophisticated analyses of stimuli that change over time (events), particularly in naturalistic settings. Mental modelling is reflected in the imaging and computational strands. Advances in brain imaging, and the computer software associated with it, have resulted in proposals for localizing perceptual functions at more specific brain sites. Computational models of both pattern recognition and robotic control inform perceptual theory as well as being driven by it. Perception, particularly visual perception, will increasingly be integrated with motor activity and this will be reflected in both theory and experiment.

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Pestalozzi, J. H.

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Johann Heinrich Pestalozzi (January 12, 1746–February 17, 1827) was born on January 12, 1746, in Zurich, the German-speaking part of Switzerland. He made contributions as a social critic, political reformer, and teacher and is widely regarded as a forerunner of humanistic education.

Biography

Pestalozzi was born as one of four children of a physician, who died early, and subsequently Pestalozzi was raised by his mother. Pestalozzi aspired to study protestant theology and step into his paternal grandfather's footsteps to become a pastor. In his late adolescence, Pestalozzi connected with his ability to write, and at age 19 he published for the first time and remained a productive writer for more than 60 years (Pestalozzi, 1804/1912; Pestalozzi, 1951). During his educational years he was strongly influenced by the Romanticist philosopher Jean-Jacques Rousseau and decided to reorient his career toward the study of law and politics. Rousseau's romantic idealizations of the rural life inspired Pestalozzi, and a few years after entering the path of an administrative professional, he left his position. In 1769, aged 23, he acquired *Neuhof*, a farm house and some land and tried his hand at agricultural pursuits, which failed due to his lack of training and experience in that area. He married his wife, Anna, the same year and their only child, a son, was born shortly thereafter. Pestalozzi attempted to start a school for neglected and impoverished children at Neuhof; however, the funds that his friends initially provided dried up, and he had to close the orphanage (Hunziker 1887). Pestalozzi was living with his family in poverty when he started to write his first principal volume *Leonard and Gertrude* (Pestalozzi 1781/1896),

which was published on 1781 and was well received, especially in Germany. Through the ensuing 40 years, Pestalozzi became a famous advocate for emancipatory education throughout Europe. He devoted himself to practicing in various educational settings in Switzerland and integrating his practical experience with a maturing theory of education. Pestalozzi published his most important book *How Gertrude Teaches Her Children* (Pestalozzi 1801/1898) in 1801 before retiring to Neuhof in 1825, where he died 2 years later remaining active until his 80s.

Pestalozzi's Theory of Development and Education

Pestalozzi's most important contribution is that he not only embraced the ideas of Romanticism and applied them to education, but he also was consistently striving toward practical applications. His methods evolved out of the ongoing interaction between real-life education and humanistic ideals.

Pestalozzi's personal experience of poverty following his father's death shaped his concerns with providing for the needy and offering them respect and education as a tool to provide for themselves (Silber 1960). He was a dedicated humanist, and many of the ideas Pestalozzi presented seem self-evident today; however, they were revolutionary in his days, such as offering schooling free of charge to all children. Pestalozzi also emphasized love and respect for children, and in opposition to his contemporaries, he opposed severe and corporal forms of punishment.

The so-called Pestalozzi method stressed the need to educate the whole person, including emotional, moral, social, and intellectual aspects. The method encourages direct exploration and observation. Children need to learn through their activity, and it was seen as counterproductive to present them with theories and books early, and offer ready-made answers that stifled their natural curiosity. Pestalozzi's approach to education placed emphasis on individual differences, and that children need to find out what is right for themselves. Love and emotional support are the means of helping them actualize their innate potentials. Education is the unfolding of the natural powers and faculties latent in every human being.

Pestalozzi saw the education of the child as the means to achieve social change. The goal was to attain

the ideals of the enlightenment and establish a morally superior society, where poverty can be eradicated because the citizens acquire wage earning skills and moral aspiration early in life. In Pestalozzi's utopist vision, the family, the school, the community, and the state are nestled, concentric circles that mutually support each other and provide the social and emotional supports that human beings need to thrive and make meaningful contributions through their work.

Pestalozzi's ideas influenced the educational system in Prussia, and later translations of his works lead to the adoption of his methods in some Canadian and American schools.

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Phenomenological Psychology in The Netherlands

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Phenomenological philosophy, as formulated by the German philosopher Edmund Husserl, was immediately relevant to psychology because Edmund Husserl

made a point of distinguishing phenomenological philosophy from a phenomenological psychology. Husserl, the most important founding figure of modern phenomenology, in turn distinguished phenomenological psychology from experimental or scientific psychology. Hence, the interrelationship between phenomenology and psychology was on the table from the very beginning of phenomenological philosophy's emergence in German universities. Scholars in the Netherlands were among the most receptive in exploring the possibility of a phenomenological psychology as an adjunct or addition or even replacement for experimental psychology. The Dutch role in the history of phenomenological psychology was unique and relevant to the spread of phenomenological psychology to the United States.

Phenomenology or phenomenological philosophy in Husserl's (1900–01) sense of the *Logical Investigations* was a thesis about the nature of consciousness that eventually was meant to be a grounding for all of philosophy. In that work, Husserl called phenomenology a “descriptive psychology” of consciousness. This was an attempt to create a distinction between the foundations of logic and the foundations of knowing in thought. This could not be a psychological foundation but had to be a foundation independent of any psychological considerations. This would develop by the time of Husserl's 1913 book *Ideas* into a “pure phenomenology” or a “transcendental phenomenology” which suspends all transcendental claims (Spiegelberg 1965). In addition to this pure phenomenology there was also a phenomenological psychology. This continual clarification of the relationship between psychology as conceived by the new scientific psychology of the early twentieth century and a phenomenological psychology would continue to occupy Husserl until the very end of his life. In his last work, *The Crisis of European Sciences and Transcendental Phenomenology*, published in 1936 Husserl once again differentiates the two kinds of psychology (Husserl 1954 (1970)). Transcendental philosophy differentiates itself from psychology because the latter is merely the realm of the human ego, of mundane knowledge, whereas the former is the location for investigating the intentional structure of meaning. Hence, phenomenology is the foundation of psychology and goes beyond it to locate the human ego in the transcendental realm.

Although Husserl discussed the shortcomings of psychology, he left open the possibility of a phenomenological psychology without ever specifying how it actually might be constituted in practice. After World War II a number of scholars, almost all of whom were located in the Netherlands, began to articulate a movement that would form a new phenomenological psychology based on Husserl's phenomenological philosophy. This movement took place in the 1950s and preceded the later interest in a phenomenological psychology in English speaking parts of the world, which did not reach fruition until the 1960s and 1970s. This latter movement, however, was much more diverse, concerned itself with “experience” broadly speaking and was less concerned with a phenomenological psychology, properly speaking, and hence will not concern us here.

The Institutional Context

The unique appearance of a phenomenological psychology in mid-twentieth century Europe has been well documented (see van Hezewijk and Stam 2008). From the perspective of the creation and consolidation of academic disciplines, it marks a period of transition in the development of modern psychology, characterized by shifting intellectual boundaries as well as national and international competition following the upheavals of World War II. Given the vacuum created by the radical shift in German universities, first beginning in 1933 and then with the end of the war and the partition of Germany, psychology was a rather ambiguous enterprise in European nations. Unlike the Anglo and North American context, where psychology not only continued without interruption but had, at least by its own account, contributed to the conduct and outcome of the war, European psychologists were fewer and less well established. This was as true in the Netherlands as it was elsewhere. The gradual training of Dutch psychologists in American universities and their incorporation of the standard literatures would, by the 1960s, lead to the beginning of an integration of Dutch psychology with an internationally oriented, American dominated version of experimental psychology. Prior to this time, however, there was a brief period wherein various versions of psychology competed openly, including a phenomenological psychology that was inspired by French and German phenomenological and existential philosophies.

The so-called school of phenomenology in the Netherlands included such prominent figures as the physiologist and psychologist Frederik Buytendijk, pedagogue Martinus Langeveld, psychologist David Van Lennep, jurist Willem Pompe, criminologist G.Th. (Gerard) Kempe, psychiatrists H.C. Rümke and J.H. Van den Berg, and the sociologist J.P. Kruijt. Along with Johannes Linschoten and Benjamin Kouwer (representing the younger generation of psychologists) these scholars set out to do psychology in a deliberately different fashion from the natural scientific or, what they called, the positivist standpoint. They loosely defined themselves in relation to the traditions of philosophical phenomenology in Germany such as those of Edmund Husserl (the famous “founder” of phenomenology as a philosophical approach), Karl Jaspers (the phenomenologically oriented psychiatrist), Max Scheler (the Catholic philosopher who emphasized personalism in phenomenology), and the existentialists in France such as Jean Paul Sartre, Gabriel Marcel, and Simone de Beauvoir.

Frederik Buytendijk

The Dutch tradition of phenomenological psychology originated largely with the work of Frederik Buytendijk (1950, 1953, 1967). Although phenomenologically inspired work could be found in psychiatry, criminology, pedagogy, and philosophy, psychology’s importance in the creation and propagation of phenomenological research took on international importance because of Buytendijk’s status and influence. This was due in large measure to his prewar activities in biology, medicine, and philosophical anthropology. Indeed, Buytendijk had no formal training in psychology at all, which was in some ways an advantage for creating the conditions for a phenomenological psychology. The fact that he outlived his most famous pupil, Johannes Linschoten, further added to his dominance over one stream of Dutch psychology after World War II.

Frederik Buytendijk was born in 1887 as the only child to a professional officer who taught in the Royal Military Academy in Breda. In 1904 he began his studies at the University of Amsterdam, in 1909 he wrote his exam for medical doctor, and then began 4 years of research in physiology. He traveled throughout Europe to visit the foremost laboratories of the day including those of Sherrington in Liverpool, Langley and Hill in Cambridge, Engelmann in Berlin, and Dohrn in

Naples. In 1913 he was named an assistant in the psychiatric-neurological clinic of the Free University in Amsterdam and here Buytendijk also received training in clinical neurology and psychiatry. In 1914 he was given the position of lecturer in General Biology at the Free University at the age of 28. In 1917 he became head of the new physiological laboratory at the Free University, and in 1919 he received the chair in General Physiology at that same university. He published widely on basic physiological processes but from 1918 to 1920 became interested in animal psychology. In 1918 he wrote a thesis on “*experiments on habit formation in animals*” and took an interest in learning, instinct, perception, and attention in animals. He wrote two books on animals, one entitled simply *The Psychology of Animals* and the other *The Wisdom of Ants* that were widely read but also criticized by his scientific colleagues for their obvious theological overtones. In 1925 Buytendijk was appointed in Groningen to the chair of General Physiology. His inaugural lecture marked the beginning of a new interest in philosophical questions in biology and psychology. His general interest in questions of a philosophy of living things led him to animal psychology and away from basic physiology. By the end of the 1930s he had ceased doing experimental work of any sort and was writing widely on animal topics. Four different books on animals and animal psychology appeared during the 1930s, but while he was writing these books he was busy laying the foundations of an entirely different career. He maintained an extensive correspondence with, among others, the philosophers Max Scheler and Helmuth Plessner, biologists such as Johann von Uexkull, and physicians such as Ludwig Binswanger (1941). His contact with a number of key catholic thinkers such as Jacques Maritain, Gabriel Marcel, and Romano Guardini led to his conversion to Catholicism in 1937, an event that was widely reported in the Netherlands and abroad.

During the war he was a strident anti-Nazi and had published articles prior to the war already in newspapers criticizing Nazi anthropology. From July to the end of October in 1942 he was held hostage by the German occupation troops in a special hostage camp whose purpose was to prevent acts of sabotage. It was here that he wrote one of his better-known works, *On Pain*. In 1943 he was once again sought by the Germans

to be held hostage. This time, however, he went into hiding in Utrecht until the end of the war. In his very first lecture after the war, which he gave upon returning to Groningen, he began with a critique of the racial theories of the Nazis and plea for the importance of values in education.

Martinus Langeveld, who was phenomenologically oriented and had been appointed as chair of pedagogy in Utrecht ensured that Buytendijk was appointed to the chair of psychology in 1946. Its previous occupant, Frans Roels, had been removed from the chair for his collaboration with the Germans. Buytendijk's appointment was a surprise given that Buytendijk had no formal training in psychology and was self-taught in matters psychological. Furthermore, he added to this – a year later – an extraordinary chair in psychology at the University of Nijmegen, a part-time position. In Utrecht he set up a laboratory, but this was mainly a device for student instruction. His most well-known student, Johannes Linschoten, would make good use of the lab. Buytendijk himself, however, did not do any research there. The 1950s were marked by a number of varied books and publications, including a book on “woman,” which appears as a response to Simone de Beauvoir's *Le Deuxieme Sexe* that was published in 1949. Working through an existential-phenomenological position he ultimately assigns to women the role of care and men the position of labor. It would be widely critiqued by women scholars in the 1960s but would be reprinted at least 18 times and would be translated into six languages. In addition to his academic publications, Buytendijk managed to stay in touch with a broader public by writing for newspapers, magazines, and other specialty publications.

In 1957, at age 70, Buytendijk retired from Utrecht University and in 1961 from Nijmegen University. However, he maintained an office in his former psychology lab, much to the chagrin of Linschoten, by continuing to teach a course on the foundations of physiology for psychology students, allowing him to come to the lab regularly after Linschoten had already taken over the chair in psychology. After Linschoten's early death at the age of 38, Buytendijk temporarily resumed his work as the chair of psychology, finally retiring for good in 1966. He died in 1974 at the age of 87.

Buytendijk's early exposure to the work of, and his relationship with, the philosophers Max Scheler and

Helmuth Plessner would prove to be important as was his eventual relationship with Merleau-Ponty. Scheler was a German Jew who had converted to Catholicism but would eventually break with the Catholic Church before his death in 1928. He studied with Wilhelm Dilthey, among others, and was deeply influenced by Husserl. After the First World War until his death he was professor of ethics and metaphysics in Cologne. Scheler routinely invited Buytendijk to Cologne between 1920 and 1923 and Buytendijk in turn invited Scheler to the Netherlands for lectures. It was through Scheler that Buytendijk was first introduced to phenomenology as well as various aspects of Catholicism, and Scheler's vision of phenomenology was uniquely influential for Buytendijk. Scheler distanced himself from Husserl's transcendental phenomenology, as would Buytendijk. Instead phenomenology is more of an orientation, a way to view the world, and it is applicable to many disciplines. Phenomenology for Scheler is a practice and a “holding in consciousness” that can approach a pure phenomenology only by describing being as something separate from the factual-empirical givenness of experience.

Helmuth Plessner (1892–1985) was also crucial for Buytendijk's development. Plessner was a privatdocent in Cologne and from 1926 to 1933 he was an “extraordinary professor.” He fled to Groningen in 1933 where Buytendijk gave him a position as his assistant and eventually Plessner was given first a teaching position and eventually a chair in philosophy in 1946. In 1951 he returned to Germany to take a position at Göttingen. Buytendijk coauthored a paper with Plessner in 1935 that consisted of a critical study of Pavlov's work. Plessner's influence on Buytendijk was especially obvious in the latter's work on animal psychology. At the same time the importance of the body, an emphasis that Buytendijk would see confirmed and developed in the writings of Merleau-Ponty, was already clearly developed by Plessner.

Most important, however, for Buytendijk's development as a psychologist and philosophical anthropologist is the work of Maurice Merleau-Ponty (Kwant 1963). Like Scheler and Plessner, Buytendijk had a personal relationship as well as a limited correspondence with the younger scholar, but it was a much more one-sided relationship. The existential-phenomenological vocabulary that Buytendijk would

employ after World War II would come almost entirely from Merleau-Ponty. The subjective body wherein the body is both subject and the subject a body is derived from Merleau-Ponty. Suffice it to say, Merleau-Ponty's emphasis on the body as subject, as being in the world, as a pre-reflexive existence, all find their way into the phenomenology of Buytendijk and, more important, become a feature of the phenomenological psychology that is taught in Utrecht after 1946. This is not to say that Buytendijk becomes a mere adherent to a phenomenology of Merleau-Ponty but rather that the particular expression of phenomenological psychology finds its vocabulary and fundamental orientation in the writings of Merleau-Ponty.

Buytendijk's specific contribution to phenomenology consists in, among other things, a tiered expression of these questions of the body and meaning. He argues that beings have a nature that is available to the specific sciences and is objectively knowable. In addition, beings also have a body that makes an appearance that is expressive and meaningful, not just objective. Finally beings have an existence, which includes for human beings a pre-reflexive as well as conscious existence that is the foundation of our action.

Buytendijk became well known for his notion of the "encounter." Although present in the work of Sartre, Buytendijk explained its origins as essentially arising from the writings of Merleau-Ponty and Gabriel Marcel. Buytendijk argues that there are two forms of encounter, one through which we can understand the way a person can interact with others and with the things or artifacts of this world. This provides us with psychological insight but is to be distinguished from the way in which the encounter also gives us insight into the ontology of being. Every encounter provides us with some exposure to the nature of another's being, their *Dasein*. Hence the psychological and ontological are not separate but tied together; psychological knowledge is possible only on the basis of being.

Johannes Linschoten

Johannes Linschoten (1925–1964) was Buytendijk's most important student and the person appointed to his chair at the University of Utrecht when Buytendijk retired in 1957. Linschoten's reputation in the Netherlands is largely the outcome of the posthumous publication of a book he wrote just prior to his early

death on March 17, 1964, *Idols of the Psychologist* (Linschoten 1964). Having died suddenly at the age of 38, Linschoten developed into a kind of mythical figure who was originally known for his work in phenomenology but whose shift to a hard-nosed, scientific and experimental psychology was compared to a conversion experience. His last book, *Idols of the Psychologist*, was considered an important turning point that signaled the end of the phenomenological movement in the Netherlands.

Although this was overstated, one could argue that Linschoten's possible conversion away from phenomenology does mark a clear end to a particular articulation of phenomenological psychology in the Netherlands. Outside the Netherlands, however, it was his earlier interest in phenomenology that helped ensure an interest in the Dutch school and its spread beyond the Netherlands (see Giorgi 1965, 1966, 1968, 1970a, 1983; Kockelmans 1987; Luijpen 1960; Misiak and Sexton 1973). In 1961 Linschoten had written a book on William James and phenomenology that was translated and published in English in 1968 (Linschoten 1968). Prior to this, that book had also been translated into German in 1961. Because *Idols of the Psychologist* was never published outside the Netherlands, his radical conversion was neither understood nor acknowledged by those outside the Netherlands.

Like his previous books, *Idols of the Psychologist* too had been based on a series of lectures that he gave to undergraduates between 1959 and 1964. This was a time of expansion and curricular change in higher education in the Netherlands. The influx of students into the universities, their attempts to accommodate and manage the influx while growing on older curricular models, the increase in chairs of psychology and the student interest in the new discipline all led to a realization that the old curriculum must give way to forms of training that could be adapted to large numbers of students.

Phenomenological psychology, however, was idiosyncratic, required a great deal of broad, general reading, and could not be counted on to provide a coherent and uniform education in psychology. Furthermore, the new applied subdisciplines of organizational and clinical psychology showed themselves to be more amenable to Anglo and in particular American models. Technical aspects of psychology required education in

statistics and experimental methods and these were readily taught to large numbers of students in large classes. Unlike the idiosyncrasies of phenomenology which did not fit within a standardized curriculum, the new psychology could be adapted to the new realities of the education system.

The originators of the Dutch school came from many different fields. When Linschoten succeeded Buytendijk to the chair in Utrecht in 1957, it meant that phenomenological psychology rested on his shoulders, yet he had no interest in being the standard bearer for a movement. Hence, the beginning of the end of phenomenological psychology in the Netherlands was already on the horizon in 1957, and its demise was quick and sure after 1964.

In the early and mid-1950s Linschoten, like his colleagues and mentors, was quite critical of a positivistic, experimental psychology. The phenomenologists were proud of their attention to “the person” and his or her world while eschewing the objectifying tendencies found elsewhere in the discipline. Their work, however, was eclectic and never cohered into a program or even “school” despite the widespread application of that term to the group of phenomenological oriented scholars in the Netherlands.

As a footnote to this movement, it is important to note that the phenomenological psychology of the Netherlands was widely influential in certain universities and academic circles in the USA in the late 1950s and early 1960s (MacLeod 1951; McGill 1947; Smith 1983; Strasser 1963, 1977; Straus 1965; Van den Berg 1952; Van Kaam 1966). It was clearly an inspiration among others for what became known as the “Third Force” or Humanistic Psychology and a version of phenomenological psychology largely fostered by psychologists such as Amedeo Giorgi at Duquesne University would remain important in American psychology for the remainder of the twentieth century.

See Also

- ▶ [Consciousness and Embodiment](#)
- ▶ [Husserl, E. G.](#)

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Piaget, Jean

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Basic Biographical Information

Jean Piaget was a Swiss-born, French-speaking social scientist whose theory of cognitive development revolutionized the understanding of children's development. Trained as a natural scientist, with a strong emphasis on philosophy, Piaget employed an approach to development that was fresh and often controversial. Eventually, his research and writing came to dominate the specialty. Although his influence has waned, his work continues to have a substantial impact today.

Piaget was born on August 9, 1896, in Neuchâtel, Switzerland, the son of Arthur Piaget, a university professor, and a mother who is often described as troubled. A precocious child, Piaget published his first scientific paper at the age of 10, and became an authority on mollusks before he was out of his teens. After completing his doctoral degree in natural science at the University of Neuchâtel at the age of 22, he began an informal study of psychology, first studying at the University of Zurich and later working with Théophile Simon, a former associate of Alfred Binet, in Paris. It was through his work with Simon that he had what was perhaps his most formative insight (Piaget 1952; Vidal 1994).

Piaget was assigned the task of standardizing an intelligence test on Parisian children that had been constructed by the English psychologist, Cyril Burt. Piaget found himself fascinated not by the correct answers but rather by the children's thinking and the systematic way in which children made errors. He thought that an understanding of their errors would throw light on the entire thinking process of children. His goal in these years was to understand how knowledge was acquired; he was less interested in child development as such. Nonetheless, his writings on child development brought him to the attention of Edouard Claparède, the director of the Institut J. J. Rousseau in Geneva – the institute later became affiliated with the University of Geneva – who offered him a position as Director of Studies. Piaget continued his affiliation with the University of Geneva for the rest of his life (Elkind 1981).

In 1923, Piaget married one of his students at the Institute, Valentine Châtenay. She was of enormous assistance to him as he developed his theory of cognitive development, much of it based on observations of their three children, Jacqueline, Lucienne, and Laurent. Later, Piaget would be unfairly criticized because of his limited sample. Although he derived many of his ideas from observations of his own children, he and his coworkers and students would later include tens of thousands of children in their research. Piaget was also criticized for his “clinical approach” to research that lacked the highly controlled method of other research approaches. Using this method, Piaget was more open to the spontaneous utterances of children and let their behavior guide the direction of the encounter.

Piaget's ideas were slow to be accepted in the USA, largely because his approach was not compatible with behaviorism, the dominant approach in the USA at the time. In the 1950s, articles began to appear referencing his work, notably by David Elkind. The book on Piaget's theory by John Flavell (1963) is thought to have been particularly important in bringing Piaget's work to the attention of a US audience. Despite his international success, Piaget was modest about his research and writing. He was not interested in gaining disciples, but rather in finding the truth. He once said that to the extent there were Piagetians, to that extent he had failed. Piaget died on September 16, 1980.

Major Accomplishments/ Contributions

Piaget is properly called a constructivist. He viewed the behavior of the developing child as parallel to that of a scientist. In his view, children shape their thinking as they interact with the environment, developing hypotheses about the world, and changing them as they gain additional information. He proposed a four-part stage theory that outlined the progression of cognitive development from infancy to cognitive maturity. In doing so, he argued persuasively that children at different stages literally think differently. Through a series of clever tasks presented to children, he was able to demonstrate the quality, form, and limitations of thinking at various levels of development.

At the most basic level, Piaget illustrated how children learn sequencing and object permanence in the earliest part of life. As they mature, they tend to be very perceptually bound, frequently animistic and egocentric in their conceptions, and limited in their capacity for genuine thinking. It is only when they reach a stage he called concrete operations and achieve “reversibility” that they begin to engage in genuine thinking. Until then, their reliance on perception often yields surprising solutions to problems. However, their thinking is still not fully mature. The final stage of cognitive development occurs when children begin to develop qualities of abstract thinking, typically in their early teens.

Piaget’s beliefs about a stage theory of cognitive development touch on many aspects of child development, and have enormous implications for parenting, education, and the law. For instance, rather than interacting with children from an adult perspective, parents and educators are encouraged to determine the level of thinking the child is currently capable of and to address their comments to that level.

During his lifetime, Piaget published approximately 60 books and hundreds of articles. His work dominated developmental psychology until the late 1970s, at which point its influence began to fade. He was criticized on many fronts, which included questions about the timing of the stages and the generalizability of his concepts. Despite its reduced contemporary role, many parts of the theory remain useful today and continue to merit study (Beilin 1992).

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Pillsbury, Walter B.

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Basic Biographical Information

Born: July 21, 1872; Died: June 8, 1960.

Pillsbury was born in Burlington, Iowa, and got his college education at the small Quaker school William Penn College in Oskaloosa and at the University of Nebraska (B.A. 1892) with Harry Kirke Wolfe. He then went to Cornell and gained the Ph.D. in 1896, one of the first generation trained by ► [Titchener, Edward Bradford](#). For 2 years, he continued as an instructor at Cornell and then began a lifelong academic career at the University of Michigan.

Major Accomplishments/ Contributions

With Titchener, he translated into English Külpe’s “Introduction to Psychology” in 1897. Pillsbury’s most important theoretical contribution was also his earliest – his book on attention, published in French as “L’Attention” (1906) and then as “Attention” in English in 1908. Pillsbury, experienced in the laboratory study of attentive processes (Galloway and Pillsbury 1904), summarized theory and research in the methods of measuring attention and connected it across the gamut of psychological categories, including the self, emotion, consciousness, and the brain. He asserted an inverse relation between attention and emotional

arousal, noted the convergence of several studies' results on 5 as the number of items could be attended and recognized in a brief presentation, and advanced a holistic and unitary conception of the brain based on the multiple interconnections of its association areas. He did not neglect abnormal psychology, and referred to studies such as those of Kraepelin that suggested that mental disorder was distinguished chiefly by distractability. His general conclusion was that attention was an intermingling of internal and external determinants: He was aware of what now is termed the "binding problem" and spent a good deal of time as well examining the relation between self and attention, which devolved for him on the mind-body question. Several parts of the English version of Pillsbury's text, in fact, appeared first in the *Journal of Philosophy* in 1907. However, it was not a propitious time to be a specialist in an irreducibly cognitive and internal psychological process, and it was only much later that attention came back into prominence as a specific area of study. By that time, during the 1920s and 1930s, Pillsbury had settled down to producing general introductory texts which tended to look backward to the psychology of the turn of the twentieth century rather than toward the newer departures of Gestalt theory and behaviorism. His attempts at a reconciliation between Gestalt and his own views (e.g., Pillsbury 1926) were, compared to other contemporary approaches, less accessible and did not gain wide acceptance. Pillsbury tried his hand at several other aspects of psychology and wrote, at the time of the First World War, a psychology of internationalism. He also was one of three American psychologists who produced a history of psychology in 1929, but while those of the other two, ▶ [Boring, E. G.](#) and ▶ [Murphy, Gardner](#), became classics, Pillsbury's was largely forgotten. Pillsbury was politically conservative and emphatic in his support of the First World War: It is however noteworthy that he was one of the psychologists not to join the armed services during that conflict, probably because of his age but also because of his theoretical stance which echoed Titchener's distrust of psychotechnology. Pillsbury continued to work at Michigan up to his retirement and beyond. Late in his career, he made a plea for knowledge as a complement of behavior in psychological study, but by this time cognition was in the wings: The times had caught up

to him (Pillsbury 1950), but it is likely that his effect on this shift in psychological thinking was incremental at best.

See Also

- ▶ [Boring, E. G.](#)
- ▶ [Murphy, Gardner](#)
- ▶ [Titchener, Edward Bradford](#)

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Pintner, Rudolf

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Basic Biographical Information

Born: November 16, 1884; Died: November 7, 1942.

Pintner was born in England and received the M.A. from Edinburgh in 1906. He studied next at Leipzig between 1909 and 1911, receiving the Ph.D. in 1913. He moved to America and, after a short stay at the University of Toledo, taught at The Ohio State University between 1913 and 1921, and went from there to Columbia University where he remained for the rest of his career. Like Cattell and Münsterberg, Pintner easily transitioned between German academic psychology and applied psychology in the United States.

Major Accomplishments/Contributions

He began his career as a translator of German psychological works, including Wundt's *Introduction to*

Psychology (the 1912 distillation of the *Outline*), Kerschensteiner's *The Idea of the Industrial School*, Schulze's *Experimental Psychology and Pedagogy*, and, with the philosopher Emil Wilm, Otto Klemm's *History of Psychology*. He also conducted work on attention and silent versus oral reading before settling into two fields to which he contributed steadily for the next 30 years: mental testing and the education of disabled individuals, especially the deaf. In 1914, he began a collaboration with his student ► [Paterson, Donald G.](#) later to become eminent himself as a pioneer in applied vocational psychology. Within 4 years, this partnership resulted in several papers on testing practice and standardization in both normal and deaf environments as well as their nonverbal test battery *A Scale of Performance Tests* (Pintner and Paterson 1917), which established them both in their careers. Working in the context of the refinement and standardization of the Binet and other intelligence scales, they drew on existing work by, among others, H. H. Goddard, F. Kuhlmann, H. A. Knox, and William Healy to assemble a set of 15 tests, mostly variations on existing tests including the Seguin formboard, the Healy Picture Completion Test, Knox and Kempf's Feature Profile Test, Woodworth and Wells's Substitution Test, and Glueck's Ship Test. Pintner and Paterson also added some original tests of their own. This compendium filled a void in testing in situations where impaired language or other disability made testing difficult, and because of its consistent and meticulous standardization and its lucid presentation, it became a standard reference for many years and was used in many experimental studies. It also served as a springboard for the future development of the performance component of intelligence tests such as Wechsler's.

After this and after his move to Columbia, Pintner continued his dual interests in intelligence testing and in developing tests for disabled individuals, often in collaboration with students. For example, in 1923, with Bess V. Cunningham, he published the *Pintner–Cunningham Primary Mental Test* (Pintner and Cunningham 1923), a picture intelligence test which, like the Pintner–Paterson scale, had a long run as an educational measuring instrument. Cunningham later went on to become a Professor of Education at the University of Toledo and wrote a psychology textbook

for student nurses (Cunningham 1946) which was influential in the growth of a psychologically oriented nursing curriculum. Also in 1923, Pintner authored *Intelligence Testing: Methods and Results* (Pintner 1923) which was one of the authoritative sources in the field during the height of the intelligence testing controversies in the 1920s, from which Pintner kept apart. Pintner, now a member of Teachers' College, came more and more to identify with educational psychology and wrote an introductory text in that field (Pintner 1929). In 1932, he published the *Pintner Intelligence Tests* for the middle grades (Pintner 1932), but by this time he was just one of many voices in the burgeoning testing field. He compiled regular yearly surveys of advances in intelligence testing during the 1920s and 1930s which were precursors of the large compendia of test reviews such as the Buros *Mental Measurements Yearbook* that appeared at the end of the 1930s. He contributed less to theory than to practice in testing, and had his most important effect in promoting accurate and comprehensive standardization. He was honored during his lifetime for his work with deaf individuals by Gallaudet College and, after his death, the college published a memorial volume with a complete annotated bibliography (Arsenian 1951).

See Also

- [Paterson, Donald G.](#)
- [Wells, Frederic Lyman](#)

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Poffenberger, A. T.

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Basic Biographical Information/Major Accomplishments

Born: October 23, 1885; Died: December 24, 1977.

Albert Poffenberger, heir to a family tradition of becoming physicians, became intrigued by physiological psychology during his undergraduate studies at Bucknell, and after graduating in 1909 went to Columbia for graduate study in psychology. His career arc spanned the old laboratory psychology based on sensation and reaction and the new applied psychology, and he made significant and lasting contributions to each. His 1912 doctoral work was a study of the difference in reaction times between visual stimuli presented at various eccentricities (Poffenberger 1912). He estimated the difference between responding to uncrossed (same visual field as responding hand) and crossed (opposite visual field to responding hand) to be between 5 and 6 ms, a result which corresponds well with modern estimates and which he interpreted as the time for information to cross the corpus callosum. Current studies of intrahemispheric transmission time in various neurocognitive paradigms frequently reference this finding as the “Poffenberger Effect” (Saron et al. 2002). He was also involved in studies typical for the time on the effect of drugs on performance, publishing on the effects of strychnine on mental and motor efficiency in 1914. In 1917, he coauthored, with Harry Hollingworth, a comprehensive study of the sense of taste which considered, among other things, the evolution and aesthetics of taste (Hollingworth and Poffenberger 1917b). In the same year, and also with Hollingworth, who along with others at Columbia had already made significant contributions to various areas of applied psychology, he coauthored *Applied Psychology* (Hollingworth and Poffenberger 1917a) which described applied psychology as a field with good prospects for a “dignified and prosperous existence.” Written in the same lucid and accessible nonspecialist style that marked other contemporary Columbia products in applied psychology,

it covered principles and findings in the psychologies of management, business, law, social work, medicine, and education. This was followed, in the 1920s, by books by Poffenberger as sole author on advertising and on general applied psychology: His 1927 *Applied Psychology: Its Principles and Methods* was in its day a recognized standard text (Poffenberger 1927). Poffenberger saw applied psychology’s role as an agent in increasing the efficiency and economy of human effort. While as president of the American Association of Applied Psychology in 1943–1944 he played a central role in convincing the organization to become incorporated in the newly expanded and federated APA, he urged caution and recommended that programs in applied and professional psychology “above all promote in every way the pure science of psychology, for without that as an ever widening foundation our profession will wither and die” (Poffenberger 1945). Poffenberger was also a close associate of R. S. Woodworth and contributed to the development of both Woodworth’s 1921 generalist textbook and his 1938 *Experimental Psychology*. Additionally, Poffenberger worked on the problem of categorizing psychology, proposing in 1917 a revision of the Dewey Decimal System to accommodate the range of books produced by developing psychological subspecialties (Poffenberger 1917). He was also influential through his work in several organizations including the American Psychological Association, whose President he was in 1934, and through his students, who ranged from the Pavlovian Gregory Razran to the philosopher Mortimer Adler. In his insistence that beneath academic and applied psychology there is only one psychology, a scientifically grounded and experimentally validated one, he shaped psychology’s modern hybrid scientific-professional character.

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Pogson, N. R.

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Basic Biographical Information

Norman Robert Pogson was born on March 23, 1829, at Nottingham, England, and was raised to work in the family business in hosiery manufacture. Pogson received an ordinary education appropriate to his expected occupation. Yet along the way he showed an interest in science. His family helped him obtain employment with an optical instrument maker in the family's hometown, and after that, Pogson obtained instruction in trigonometry and other branches of mathematics. In time Pogson was introduced to a family friend, John Russell Hind, who was a respected London astronomer. Hind invited Pogson to study astronomy under his instruction, and the broader community of astronomers first heard about Pogson in 1847, when at age 18, he published highly accurate calculations of two comet orbits. For the next 44 years, Pogson would be an important British astronomer. Pogson's primary positions were at South Villa Observatory at Regent's Park (London), Radcliffe Observatory (Oxford), Hartwell Observatory (London), and (from 1861 to 1891) Madras Observatory (Madras, India). For most of these years, Pogson was a government employee of Great Britain. Pogson died in Madras on June 23, 1891, at age 63.

Major Accomplishments/ Contributions

Pogson is recognized in the history of science for his highly accurate and precise recording of variable

stars, eclipses, longitude measures, and even pendulum arcs on earth (for the purpose of remeasuring the earth's gravitational constant). But although Pogson performed many lines of important research, he is especially known for some detailed analysis he provided in one minor article, which is his description of a scale of the human visual ability to distinguish differing levels of brightness (Chapman 1998).

In November 1856 – while based at Oxford's Radcliffe Observatory – Pogson published a paper focusing on a research problem that required commitment to a “stellar magnitude scale” prior to performing any data collection and calculations (Pogson 1856). The problem was to chart expected positions of “minor planets” (i.e., asteroids) over an upcoming year. Because this work required a powerful telescope, Pogson preferred to use a magnitude scale with some kind of constant ratio between consecutive magnitude classes. Any table he might publish to predict monthly positions for asteroids needed to include an expected brightness value for the first day of each month, and Pogson decided to calculate such values “on the assumed ratio of light of 2.512, i.e., that a star of any magnitude, as for instance the eighth, contains 2.512 times the light of the next less, or ninth magnitude.” Each decrease in magnitude would thus represent a decrease in brightness equal to the fifth root of 100.

Pogson – who published his visual perception scale 4 years prior to Gustav Fechner's famous book of 1860 – recognized that other scientists might question where his scale came from (Pliskoff 1977). He therefore cited leading authorities who had already raised the issue. In particular, he noted his original plan to use one available option, which was German-Russian astronomer Friedrich Struve's constant ratio of 2.00, as suggested in 1827. Pogson explained how he changed his mind when a friend empirically approximated a ratio of 2.43 over the full range of stars, a value different enough from Struve's ratio to “throw uncertainty” upon the whole matter. Pogson then performed his own measurements, with data collection that rendered his conclusion that any constant light ratio seemed close to 2.5. Finally he made a sweeping review of others' results, which resulted in

a calculated mean of 2.40 for all magnitude ratios obtained by reliable methods. Pogson concluded that an idea of a constant ratio for the marginal change in distinguishable brightness was firmly in place. He noted the “high authority” of Prussian astronomer F.W.A. Argeländer who had recently endorsed a constant ratio of 2.519 for the specific purpose of measuring brightness levels of asteroids. While ultimately unconcerned about “which of these ratios is adopted in dealing with the ranges of ordinary telescopes,” Pogson wanted a ratio suited to powerful telescopic studies. He selected his own ratio, 2.512, for logical reasons: Argeländer had endorsed a value close to it; logarithm ratios are mathematical constants “continually occurring in photometric formulae”; the particular value of 2.512 worked “for convenience of calculation”; and Pogson’s ratio allowed that Edmund Halley’s (of the comet fame) long-established brightness range of 1–100 from the very dimmest to the very brightest of naked-eye stars be divided into six equal increments. Also a virtue was that calculations done with “Pogson’s rule” are fairly easy procedures (Jones 1968).

Although it took about 20 years after 1856, when astronomers finally adopted a standardized scale, the scale was Pogson’s ratio (Hearnshaw 1996). During those intervening years, Pogson’s empirical magnitude scale was recognized by a number of astronomers and psychophysicists, most notably Gustav Fechner.

See Also

- ▶ Boring, E. G.
- ▶ Herschel, J. F. W.
- ▶ Perception
- ▶ von Helmholtz, Hermann
- ▶ Wundt, Wilhelm

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Politzer, Georges

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Basic Biographical Information/Major Accomplishments

Politzer was one of the first professional psychologists who dealt seriously with Marx’s ideas in psychology. He was born in Hungary in 1903, and was executed by the Nazis in 1942 for his communist political activities. He was an active member of the French Communist Party. Politzer founded with Paul Nizan, Henri Lefebvre, Georges Friedman, Norbert Guterman, and Pierre Morhange a series of left reviews such as: *Philosophies* (1923), *L’Esprit* (1926), *Revue Marxiste* (1929), and *La Pensée* (1939). In 1929 he founded *Revue de Psychologie Concrète* to provide a forum for dialectical materialist psychology and an outlet for concrete psychological research from around the world. In the 1930s he was the co-founder of the International Workers’ University in Paris. He published over 100 articles, monographs, and books. Politzer’s psychological and philosophical ideas were grounded within the dialectical materialist standpoint. He published a master piece on *Critique of the Foundations of Psychology* (1929, translated into English in 1994). He published a series of papers in the French left journals. Politzer wanted to see a “concrete psychology” with all of its fields and approaches. His own efforts were mainly in and for the creation of a dialectical materialist psychology based on the philosophical and epistemological principles of Marxism. Psychology, according to Politzer, is in need of a fresh start with altogether new categories, concepts, and methods. No real progress is possible as long as a psychological explanation is not integrated into the

methodological explanation offered by economics and other social and the real concrete human life. He stated that, "Psychology by no means holds the 'secret' of human affairs, simply because this 'secret' is not of a psychological order" (1929, p. 170). He conceptualized the theoretical foundations of concrete or positive psychology. He outlined three conditions that lead to establish a concrete or positive psychology:

1. Psychology must be a posteriori science, that is, the adequate study of a group of facts.
2. It must be original, that is, it must study facts which cannot be reduced to the objects of other sciences.
3. It must be objective; it defines psychological facts and methods in a manner that is universally accessible and verifiable (1967, p. 242).

In this sense, concrete psychology is the study of the singular individual, conceptualized as a conscious actor within social reality. It is also the study of the drama of human actual life, drama in the sense of doing and acting. Within the concept of drama, Politzer sought to capture both the biological existence and social interaction, and excluded abstractions by focusing on the events of human existence, both in singular individual and collective social activities.

Politzer was very critical of his present day psychology; he pointed out that, "We need to understand that psychologists are scientists like evangelized wild tribes are Christians" (1928, p. 5). He equated his concrete psychology with materialist psychology. Materialist psychology explains realities with realities.

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Post-Soviet Psychology

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Introduction

In the Soviet period, Russian psychological thought has been full of delights and disappointments. Though keeping a citizen in jail for philosophical and psychological worldview was a normal case in Soviet reality, traditions of psychological thought in the Soviet Union occurred to be pluralistically rich: Physiological Behaviorism of *Ivan P. Pavlov* (1849–1936), Cultural-historical Theory of *Lev S. Vygotsky* (1896–1934), Psychoanalytical Neuropsychology of *Alexander R. Luria* (1902–1977), Existential Psychology based on *Mikhail M. Bakhtin's* (1895–1975) philological traditions, *Alexsei N. Leontiev's* (1903–1979) Activity Theory based on the principles of the Communist Party of the Soviet Union.

It was the Christmas Day of 1991, that the USSR, born in the Bolshevik Revolution of 1917, split into 15 independent republics. Russian Federation was the most influential and important one among the successors of the Soviet Union as well as the one that inherited the right to own the Soviet socio-culture.

Soviet ideological legacy was traumatic for the culture of New Russia. Since then, three psychological factors have been shaping Russian character. Russians started to think that:

1. One person, Josef Stalin by name, was to blame for the incredible number of losses in Russian population. The tragic phenomenon has the name Stalin purges. Such feelings lead to anger and anxiety for the past.
2. The international community has the crucial, even fatal responsibility for the poor state of the Russian economy, diplomacy, and mentality. This leads to the feeling of handed helplessness.
3. The nature of Russian mind has always been so unique that no one in this world was and is able to understand it. Such approach leads to the feeling of inferiority, existential fear for the future, and rigidity in Russian Character.

Soviet Versus Post-Soviet Psychology

The collapse of the Soviet Union was a progressive event for the development of Russian psychological and sociological thought, for the development of the humanities and social science in Russia and in the newly born Republics bordering Russian Federation. Russian Psychologists are trying to reevaluate their traumatic legacy and understand the hidden and latent directions likely to result from the new academic and political environments. Translations of Western authors are viewed something decisive for today's Russian Psychology.

Though the Soviets were claiming that they have solved all the earthly and heavenly problems referring to the social, political, religious, and national life of their country, it occurred to be that a bunch of deadly problems – that tend to grow into turmoil – are hanging over the head of the newly born post-Soviet Republics. All these problems are thought to be *Psychological*, never *Political*, and post-Soviet Psychologists are expected to solve them with their magic wand:

1. Ethnic hatred, tensions, and struggle that has been a historical tradition for all Russias – Czarist, Communist, and post-Communist.
2. Alcoholism, which also has a long history in Russia, plus drug addiction. Consuming a lot of alcohol is a typical part of Russian culture, and also a major problem. Since 1990, alcohol yearly consumption among males has doubled.
3. Ugly interactions in Russian families as well as high rate of divorce. A deeper tragedy is that many divorced couples in Russia and bordering Republics continue to live together because there is no other place to live – it is too expensive.
4. Unemployment and poverty – about one-third of Russian population live below the poverty line.
5. Gangs and school dropouts. Because of poverty and little chance of finding jobs, many youngsters in Russia choose gang life over education.

The field of psychology that exists for the uses of the state, for dealing with citizens, for organizational, industrial, and labor purposes has become of utmost importance. Because of the fact that *Pavlovian*, *Marxist*, and *Communist Theories* could never solve a single social, political, and/or psychological problem in the Soviet Union, *post-Pavlovian*, *post-Marxist*, and

post-Communist theories are being developed today. They are coming into existence like mushrooms appear after rain. They tend to be exercised over the whole Russian society as well as over the societies of the bordering countries, i.e., the post-Soviet countries.

Ivan P. Pavlov's Physiological Behaviorism

Ivan P. Pavlov's physiological experiments started long before the Bolshevik Revolution of 1917. Pavlov performed and directed experiments on digestion that earned him the 1904 Nobel Prize in Physiology and Medicine. The Russian Bolshevik Revolution was more than a regime change; every area of social and intellectual life in Russia was subject to protracted, traumatic, and repeated transformation. It also transformed Pavlov's life. The new Bolshevik Government started generously supporting Pavlovian Experimental Laboratory in St. Petersburg as something important for military purposes. Pavlov's physiological theory has had two distinct sides. One of them reveals the Physiological and biomedical truth that had to coincide with Marxist Dialectical Materialism while the other ought to explain the historical truth of Marxist Teaching – “the only true one in human history” – the name of which was Historical Materialism. In fact, Pavlovian Psychophysiology has been the Russian interpretation of Wundtian Physiological Psychology, with the concept of “reflex” instead of “consciousness” plus schizophrenic citations from the classics of Marxism–Leninism. All of them had to prove the Soviet teaching of *nervism* (one should read, functions of neurons). *Psychophysiology* and *higher nervous activity* for most Russian Psychologists were and are synonymous that has been challenging to the Western understanding. Pavlovian ontology and methodology gained an official and commanding position to Soviet biomedical and psychosocial sciences in 1950 with the Resolution of the June 28–July 4 Joint Pavlovian Session of the Soviet Academy of Sciences and Academy of Medical Sciences. A large portion of Soviet psychological thought has been primarily a textual and exegetic collation and conciliation of the views of Pavlov with those of classics of Marxism–Leninism. There has been the longstanding drastic ban on intelligence testing, psychoanalysis, Gestalt psychology.

Pavlov has contributed to a few areas of physiology and neurology. These experiments included surgically extracting portions of the digestive system from animals, severing nerve bundles to determine the effects, and implanting fistulas between digestive organs and an external pouch to examine the organ's contents. This research served as a base for broad research on the digestive system.

As related to Psychology, Pavlov's work involved research in temperament, conditioning, and involuntary reflex actions. Pavlov's work on reflex actions involved involuntary reactions to stress and pain. Pavlov extended the definitions of the four temperament types under study at the time: *phlegmatic*, *choleric*, *sanguine*, and *melancholic*, updating the names to "the strong and impetuous type, the strong equilibrated and quiet type, the strong equilibrated and lively type, and the weak type."

Pavlov and his colleagues *Piotr K. Anokhin* (1898–1974) (Anokhin has elaborated a theory of *Functional Systems*) and *Levon A. Orbeli* (1882–1958) (Orbeli has played an important role in the development of *Evolutionary Physiology*) began the study of trans-marginal inhibition (TMI), the body's natural response of shutting down when exposed to overwhelming stress or pain by electric shock. This research showed how all temperament types responded to the stimuli the same way, but different temperaments move through the responses at different times. Ivan Pavlov commented, "...that the most basic inherited difference was how soon they reached this shutdown point and that the quick-to-shut-down had a fundamentally different type of nervous system."

Lev S. Vygotsky's Sociocultural Theory

Since the 1950s, Lev S. Vygotsky has been widely considered a key figure in twentieth-century Russian psychology, an influential thinker and a prolific writer, who with his cultural-historical theory explored socio-cognitive development. Lev Vygotsky started his career with using the language of Ivan P. Pavlov's and *Vladimir M. Bekhterev's* (1857–1927) *Reflexology* (in Reflexology, everything was a reflex), but called for *consciousness* to be given its place as the key concept of psychology (Vygotsky 1997a, b). In fact, it was *Wilhelm M. Wundt's* (1832–1920) psychophysiological

principle. Vygotsky expressed the idea that consciousness was not a reflex but the *organization of reflexes*, a process with a social origin. He continued with another concept – *Unit of analysis*. As *Karl Marx* (1818–1883) points out in the preface to the first edition of "*Capital*," the commodity relation is "cell" of economics. All the phenomena of capitalism can be unfolded from this simplest and most primitive of relations, just like the cell in biology and the molecule in chemistry. The idea of *Unit of analysis* originated with German poet and naturalist *Johann Wolfgang von Goethe*, and was a key methodological principle for *Georg Wilhelm Friedrich Hegel* (1770–1831), the German philosopher and *Karl Marx*, the founder of Marxism. Deriving from the Unit of analysis, Lev Vygotsky differentiated between *elementary and higher mental functions*. The three critical aspects of Vygotsky's approach are the role of *mediational* means in higher psychological functioning, the contributions of social and cultural experience in providing and supporting the development and use of these mediational means, and the privacy of the development. Developmental thought and ontological thought are tied up with material objects (tools, symbols, or other people) and the practical activities through which people use them and give meaning to them.

Lev Vygotsky has introduced *sociocultural theory* which emphasizes the contributions of the social and cultural world to cognitive development. According to the main idea of this basic psychological theory, the development of all higher cognitive processes and functions is by nature social and all social development has a cognitive basis. Social and cognitive processes are intertwined due to the processes and mechanisms of internalization and externalization. The social basis of higher cognitive processes, in turn, is intertwined with the economic conditions prevailing in a given society. Using Marxism as a starting point Vygotsky developed a threefold vision focusing respectively on *phylogenetic*, *sociohistorical*, and *ontogenetic development* (Vygotsky and Luria 1930/1993). The three processes of development could be brought together by a common Marxist vision based on the concepts of general and societal evolution, *dialectical materialism*, *determinism*, and the central importance of labor and of physical and psychological tools. Within this Marxist vision, Vygotsky's special focus was on children's development and

education within their historically and culturally constituted environments. Vygotsky would criticize Swiss Psychologist *Jean W.F. Piaget's* (1896–1980) interpretation of infants' egocentric speech. Piaget thought that the child "talking to him-/herself" was a kind of autism which eventually died away. But as Vygotsky saw it: First the child used speech to gain the help of adults, and then to control his/her own actions, and then vocalization gradually faded away as the vital function of controlling their own behavior through speech turned inward. According to Lev Vygotsky, the human organism is born with a number of functional capacities each depending on various biological structures. When developing, the basic functions – that are identical with animals – are subsumed into higher psychological functions. Mental or psychological functions develop through the social use of cultural products. The result is that new, specifically human, psychological functions successively differentiate themselves, each of which mobilize the entire range of biological formations in a new Gestalt. This allows human beings to voluntarily use different functions, such as memory, speech, visual perception, and so on, which is unavailable to animals. Such approach explains the contradictory results of investigations in brain localization of psychological functions: Every human psychological function utilizes a multiplicity of regions of the brain, as well as the whole body.

Alexander R. Luria's Psychoanalytical Neurology

Together with Lev Vygotsky and Alexander N. Leontiev, *Alexander R. Luria* put forward a theory of the socio-historical genesis of higher, specifically human, mental functions. In today's Russian perception, Alexander Luria could have been counted as the founder of modern neuropsychology, if not the Soviet regime. Luria was being forced to conform his public comments on psychology to materialistic and reflexological principles in which, e.g., speech was the speech reflex as if language use could be merely understood in terms of stimulus and response.

Alexander Luria was and is one of the most outstanding Soviet psychologists. He played a great role in the development of Soviet psychology and in the formulation of psychological problems on the basis of *Dialectical Materialism*. Luria carried out numerous

investigations into the ontogenetic and historical development of these functions, as well as their disturbance with local brain lesions. As the founder, in the Soviet Union, of the new discipline of neuropsychology, he made a very significant contribution to the study of the cerebral mechanisms of mental activity. In his comments on Psychology, Luria developed the idea that idiographic method (similar to Gordon Allport's understanding) can be more effective in neurological medicine than nomothetic method. This meant that following a single individual or a group through their life and studying the entire personality and its development can be more effective and scientifically more comprehensive than generalizing observations to formulate general principles, as is done in nomothetic science. Luria's study of an eidetic individual, S, reported in "The Mind of a Mnemonist," (English translation 1987) demonstrated that the cognitive functions were comprehensible only as part of an integrated Gestalt. The Communist trends in Soviet Psychology are precisely articulated in Alexander Luria's following description, "My entire generation was infused with the energy of revolutionary change – the liberating energy people feel when they are part of a society that is able to make tremendous progress in a very short period of time."

The Theory of Activity of Aleksei N. Leontiev

Alexsei Leontiev is the founder of Activity Theory – an extension of Vygotsky's tradition in search of an organizer of all mental processes. The concept of *activity* has played as important and ambiguous a role in Soviet psychology as did the concept of *behavior* in American studies in the first half of the twentieth century. The concept of activity is deeply ingrained in Soviet general psychological theory as something deeply communistic. It was first suggested by Lev Vygotsky as a theoretical remedy for psychological systems. Alexei Leontiev departed from Vygotsky's original concept. The demarcation line separating Vygotsky's understanding from that of Leontiev's occurred in the evaluation of the relative importance of *semiotic mediation* and practical actions for the development of intelligence. Leontiev defined Activity in terms of a three-level conceptual structure. *Activity* is a collective system of *actions*, driven by a socially determined

object and motive. Activity is realized through individual actions which are oriented to goals. The individual's goals are not the same as the social motives of the *activity*, and the formation of a goal is necessarily a complex function of the social system, if individuals are to be mobilized in the reproduction of the society. Actions in turn are realized by means of routine *operations*, which depend on the conditions of the action. As a rule, individuals are not conscious of their operations, unless something goes awry. The task of Activity Theory was to connect up the subject matter of psychology with the subject matter of sociology to lay the basis for an integrated human science.

Mikhail M. Bakhtin's Humanistic and Existential Traditions

Existential and humanistic methods of research in the humanities and social sciences successfully take the roots in the social environment of Russia, joining with traditions of psychological and philosophic ideas. Humanistic tradition in Russian psychology is understood as a tradition that derives its theoretical models from the Humanities, i.e., philology and literary scholarship. Humanistic approach in Russian psychological thought is based on the philosophy of language, literary theory, and psychological ethics of *Mikhail M. Bakhtin*, a Russian philosopher and scholar. Mikhail Bakhtin views *life as authoring* and *language as tool for cognition*. The application of these ideas refers to mental cognition, psychological situations of coping and adaptation, defensive behavior and defense mechanisms, undergoing life crises and living a life of struggle.

Mikhail Bakhtin shared with Marxist theorists an interest in the historical and social world, an interest in how human beings act and think, i.e., an interest in the formation of the subject, and an interest in language as the means in which ideologies get articulated. Unlike the Swiss linguist *Ferdinand de Saussure* (1857–1913), Bakhtin views language, as something material and ideological. Although Bakhtin was active in the debates on aesthetics and literature that took place in Soviet Russia in the 1920s, his distinctive position did not become well known until he was rediscovered by Russian scholars in the 1960s. Bakhtin was an ethical theorist. He was very much aware of Marxist theories and doctrines, and how they were being implemented.

Though Bakhtin had to be a Marxist, he was not a Marxist. He was exiled because of his political conflicts with the Soviet Union and because he got in trouble with the Soviet regime. In exile, Bakhtin did a lot of his best works which were not published until the 1970s. Bakhtin is known for a series of concepts that have been used and adapted in Russian psychological thought: *Dialogism*, *carnavalesque*, *chronotope*, *heteroglossia*. Together these concepts outline a distinctive philosophy of language and culture that has at its center the claims that all discourse is in essence a dialogical exchange and that this endows all language with a particular ethical–political force. Bakhtin has theorized that language – any form of oral speech or writing – is always a *Dialogue*. This notion of dialogue is not the same as the Marxist notion of *Dialectic*, though it is similar in focusing on the idea of the social nature of dialogue, and the idea of *struggle* inherent in it. Dialogue consists of three elements: a speaker, a listener/respondent, and a relation between two or more persons. Language, ideas, characters, and forms of truth are always the product of the interactions between two or more persons. Bakhtin contrasts that notion of dialogue to the idea of *Monologue*, or the *monologic*, which are utterances by a single person or entity. Bakhtin's writings, on a variety of subjects, inspired scholars working in a number of different traditions and in disciplines as diverse as literary criticism, history, philosophy, anthropology, and psychology. The work of the *Bakhtin circle* is multifaceted and extremely pertinent to contemporary philosophical concerns. Yet their work moves beyond philosophy narrowly defined to encompass anthropology, psychology, and historiography. The vicissitudes of intellectual life in the Soviet Union have complicated assessment of the work of the circle. The writings of the group have been read into a theoretical position framed by present-day concerns over *post-structuralism* in philosophy and psychology.

New Trends in Russian Psychology of Post-Soviet Period

Creating a *Marxist cultural psychology* in the post-Stalin (after the mid-1950s) period, USSR faced an almost insurmountable difficulty. The Soviet Union was supposed to be free of any negative phenomenon. Even those who were wise enough to know that the

Communist ideology was nonsense had no opportunity to theorize the pathology of the Soviet life, being quite unable to talk or write about such things with other people. Science cannot be built without dialogue and discussion. This meant that there was a firm line beyond which Soviet psychology and social sciences could not go without descending into hypocrisy.

Boris G. Ananiev (1907–1972) was the only Soviet Psychologist who was able to use the Communist cheap and false propaganda in a scientific way. Ananiev's scientific work has been devoted to the interdisciplinary study of personality in the area of Developmental and Educational Psychology. Boris Ananiev has introduced the notion of *personality sensory perceptible organization*. He has revealed the functional peculiarities of hemispheres and their role in mental activity.

In contemporary Russian understanding, Pavlovian Theories are no more Psychology, but are Physiology, and future research should be conducted in physiological direction. Pavlovian and the like theories belong to history, just like Marxist Teaching and Theories do. The milestones for new trends are provided by Mikhail Bakhtin's concept of *life as authoring*, by the analysis of the psychological relevance of literary form. It is argued that with the "life as authoring" approach, Soviet psychology is expected to gain a new perspective, transcending Marxist social science and Pavlovian reflexological limitations.

A new generation appeared in the 1960s, whose work and ideas became an ideological source for the psychologists of the twenty-first century. *Alexander Meshcheryakov's* (1923–1974) work created a basis for a renewal of Vygotsky's legacy. Alexander Meshcheryakov, a student of Luria, took over the work of *Ivan Sokolyansky* (1889–1960), a pioneer in the education of deaf and blind children. Meshcheryakov developed methods of education of deaf and blind children and opened a school for the deaf-blind in Zagorsk in 1962. He did groundbreaking work, superior to anything to be found in the West in this field. The education of children born without sight or hearing involved the practical construction of human consciousness where it did not previously exist. In Alexander Meshcheryakov's system, *phenomenological humanistic position* consists of the special instructions about courtesy and caring attention to the patient. The paradigmatic lesson for deaf and blind

children is learning to eat from a spoon, at first with a teacher operating the spoon, and little by little the children take the initiative. Behind the spoon is the entire history of society, the *human* way of eating. Learning how to use a spoon is the first step in becoming human and through human consciousness one becomes part of a community and society. Many of Meshcheryakov's students completed higher degrees in mainstream universities and most went on to productive careers in the general community.

Crucial to making Russian Psychological thought advanced was a group of philosophers who recognized the significance of Meshcheryakov's work. First among them was *Evald V. Ilyenkov* (1924–1979) taking up Vygotsky's ideas at a new level, based on a comprehensive critique of European philosophy including the writings of *Karl Marx*. In his work "The Abstract and Concrete in Marx's Capital," Evald Ilyenkov revives the Russian Marxist philosophy after the dark days of Stalinism. Ilyenkov's main contribution is his study of the *ideal*, of how *ideals* come into being as perfectly material cultural products, the archetype of which is money. Ilyenkov gained a formidable reputation as an interpreter of *Georg Wilhelm Friedrich Hegel* (1770–1831), the German philosopher and one of the creators of German Idealism. Ilyenkov's analysis was beyond the framework of Marxism.

Another great philosophical psychologist of the Soviet generation was *Feliks Mikhailov* (1930–2006) who tackled the seemingly insurmountable philosophical problems that arise as soon as the orthodox Marxist begins to look beyond the simple slogans of philosophical materialism.

The religious-philosophical heritage with its huge experience of comprehension of spiritual problems positively developed Russian culture and psychological thought. Russian religious existentialism is represented by *Nikolai A. Berdyayev* (1874–1948) and *Lev I. Shestov* (1866–1938). Nikolai Berdyayev was a religious thinker, philosopher, Marxist, and a leading representative of Christian existentialism. He became a critic of Russian implementation of Karl Marx's views. Berdyayev's school of philosophy stressed the examination of the human condition within a Christian framework. Lev Shestov was a Russian-writing Ukrainian existentialist philosopher. Shestov's existentialism appears earlier than European. Shestov's powerful

school of historic–philosophical analysis of existentialism kept functioning even in the Soviet period.

The soil for the Russian existential and humanistic psychology was prepared by a number of outstanding scholars. The greatest and the most typical among them was *Sergei L. Rubinshtein* (1889–1960). In his unfinished work “The Human-being and the World” (“Chelovek i mir”) Sergei Rubinstein has raised the problems of *human beings*, their internal world, the relationship of ethics and ontology, *the sense of life* (with reference to the meaning of life and the perception of life as one entity and one Gestalt).

In June of 1941, Sergei Rubinstein displayed great civic courage by voluntarily staying in besieged Leningrad as a Vice-rector of the Educational Institution in to organize work in the Pedagogical Institute in severe conditions of hostile blockade. Despite that, in 1950, Sergei Rubinstein was blamed for underestimating Ivan Pavlov’s Physiological Teaching as a natural scientific basis for Psychology. Sergei Rubinstein was rehabilitated among many others (*Piotr Anokhon*, *Nicholai A. Bernstein* (1896–1966), *Pavel P. Blonskiy* (1884–1941), *Lev Vygotsky*, *Dmitry N. Uznadze* (1886–1950), *Levon Orbeli*, *Gurgen Edilian*) living or deceased expellees of science after *Stalin’s death* (March 5, 1953) who at different times were under the press of *ideological terrorism*.

Epilogue

The move into the twenty-first century coincided for Russian psychology as well as for Russian society at large with truly revolutionary reforms in the mind of the Russian people leading to greater openness in the academic sphere. Russian psychology was able to connect in a more free and fundamental way with its own heritage and with various developments around the world. These factors affected continuity and innovation with regard to the three dominant theoretical perspectives in Russian psychology: *Vygotsky’s* Developmental Theories with Cultural methodology, *Bakhtin’s* Philosophical Theories with Psychological approach, and *Luria’s* Neurophysiological Theories with Psycho-physiological approach in materialistic tradition. Meanwhile, there have been new paradigms which got the names *Organic Psychology* and *Non-classical Psychology*.

Psychology in Russia is viewed as a “magic wand” to solve all the problems and turmoil of the past Communist period. A critical analysis of the impact of different communist regimes on the research and teaching of psychology in the Soviet Union should be understood properly. The dream of influencing others is not just the ideology of Russian Psychological thought, but the political principle of Russian culture, in general. Psychology is viewed as a magic tool to influence others. The history of Psychology in the USSR gives the key to the perspective of Russian mentality.

Those who were true Marxist-Leninists (read false scholars) had a safe, even luxurious life. But those scientists and scholars who were in search of the truth would be exiled to new territories to find out the truth (read to perish) there. In such situations, Russian character was growing into Russian personality.

At the dawn of the Soviet Psychology, three trends appeared as a result of Lev Vygotsky’s Group’s Scholars scientific activities toward a Soviet Cultural Psychology. Among them, only Vygotsky had the prior understanding of Marxism (Cole 1996; Cole and Scribner 1974). Vygotsky’s Marxism was much more sophisticated than that of the people around him. Vygotsky was developing an unequalled insight into Marx’s critical methodology. Vygotsky began a new Russian Psychology by asking, “What is the subject matter of Psychology?” The same dilemma is being discussed in contemporary Russian culture.

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Psychoanalysis

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Introduction

Psychoanalysis, Sigmund Freud's (1856–1939) life work, was one the last and also one of the greatest systematic attempts to construct a general theory in social sciences, encompassing what is now called clinical and cognitive psychology, aspects of anthropology and sociology, as well as psychiatry and even unrelated fields of literature and art. As such, as a general theory of man and culture, it is a thoroughly modernistic endeavor, firmly embedded in late-nineteenth-century Romantic world view while it also has roots that go back to Enlightenment philosophy.

The term “psychoanalysis” was used for the first time in print in two papers that appeared almost simultaneously in 1896, where it has a limited connotation only, namely referring to a clinical method to treat patients suffering from hysteria. However, at the time of Freud's death, a good 4 decades later, the word “psychoanalysis” referred to what W.H. Auden aptly called “a climate of opinion” – not just a scientific method nor a particular world view but a “cultural orientation.”

Psychoanalysis started as a scientific enterprise in the margins of medicine in the first decade of the new century, brought about by the publication of a series of books covering a wide range of psychological subjects. At first it was little more than a small discussion group at Freud's home address, but it gradually developed into what eventually became known as the International Psychoanalytic Society. From its popularization during the years in between the wars, to the founding of the first specialized journals and the establishment of specific training practices, all outside academia, to the great exodus of European analysts just prior to the Second World War, the growth and partial transformation of psychoanalysis and the gradual decline of the “talking cure” due to, among other factors, long judicial battles over whether laymen should be able to get access to the profession as well as the growing influence of medicine in psychiatry. In short, the twentieth

century has seen the rise and fall of psychoanalysis as a “paradigm.”

Overviewing psychoanalysis as a “grand discipline,” a common distinction is followed, differentiating between (a) psychoanalysis as a “movement,” implying processes of institutionalization and popularization; (b) psychoanalysis as a scientific theory, characterized by different phases and developments; (c) psychoanalysis as a therapeutic endeavor, which includes not only a systematic method of treating patients but also aspects of training and schooling, and (d) psychoanalysis as a cultural factor or influence upon society at large (see Moscovici 1961 for an early and still very interesting analysis of psychoanalysis as a sociological phenomenon).

The amount of literature on all four aspects is, however, so immense that it would be impossible to even begin to summarize the most important sources, let alone present a complete picture. Instead a general historical account of the development of psychoanalysis is presented, from its beginning to the death of Freud, with brief references to the years thereafter. The reader is referred to the most important sources that allow further study in all four domains. No original perspective or new interpretation of psychoanalysis is offered. Also, this entry does not cover Freud's biography or any of his followers in any detail (but see elsewhere in this Encyclopedia), nor does it deal extensively with all the later developments in psychoanalysis or the many theoretical hairsplitting that were to follow later. Finally, it does not offer technical explanations of psychoanalytic terms (but see Laplanche and Pontalis' excellent work *The Language of Psychoanalysis* (1988) for brief encyclopedic entries on all the various terms), nor does it offer philosophical or other detailed discussions or critiques. References to Freud's works are to the *Standard Edition* (SE), in English, edited by Strachey et al.

Preparatory Years 1873–1897

Evidently, the early history of the psychoanalytic movement coincides with Freud's own biography. Of the at least two dozen biographies or so that have appeared on Freud, Jones' three volume *The Life and Work of Sigmund Freud* (1953–1957) remains authoritative, despite all the criticism that has been leveled against it. Ronald Clark's (1980) more popular volume and

Peter Gay's (1988) impressive more recent account offer additional insightful studies; the latter is especially mentioned for its rich bibliographical essay that very briefly discusses a huge amount of biographical literature.

Freud was a Jew, born in the second half of the nineteenth century, in a very distinctive cultural and political climate and raised in a very distinctive city (Vienna) of a very distinctive empire. A bourgeois, anti-Semitic culture, parred with a positivistic scientific climate defined the parameters of psychoanalysis (see Schorske 1981, for a very detailed picture of political and cultural fin-de-siècle Vienna).

At the age of 17, Freud entered the University of Vienna in 1873 and joined the medical faculty. He was supervised by physiologist Ernst Wilhelm von Brücke and studied with Prof. Karl Claus, a Darwinist, which both left a lasting impression of Freud (see Ritvo 1990). In his *Lectures on Physiology*, Brücke proposed the radical view that the living organism is a dynamic system to which the laws of chemistry and physics apply: This is often considered the starting point for Freud's dynamic psychology of the mind and its relation to the unconscious (see Bernfeld 1944).

Indeed, the influence of Brücke upon his development was considered "significant" by Freud himself, who thought of him as one of the two first teachers in his field (the other being Brücke's assistant, Ernest Fleischl-Marxow, but in the background there were others such as Helmholtz and de Bois Reymond). It was also Brücke who advised Freud to abandon laboratory work as there would be no assistant's post for him (whether this was due to Freud being a Jew or not is subject of discussion), even though he aspired to continue working in this discipline. Freud followed Brücke's advice and entered Vienna's principal hospital, the *Allgemeine Krankenhaus* as an "aspirant" or interne. There he met psychiatrist Theodor Meynert, who would become the next great influence upon his intellectual development.

Under Meynert, Freud proceeded to study the central nervous system of the human and published several works on organic diseases of the nervous system. Interests in the neurological effects of cocaine resulted in a number of experimental studies, published in the years 1884–1887, in which Freud himself served as his own test subject (none of these studies are included in

the *Standard Edition* or the *Gesammelte Werke*). Allegedly also, as a result of his experimentations, Freud developed a cocaine addiction, which according to E.M. Thornton (1984) would explain his excessive interest in sexuality (being a symptom of this substance abuse). This somewhat preposterous thesis is mentioned only as one of the many examples to "explain away" psychoanalysis using details from Freud's biography.

By October 1885 Freud went to Paris on a traveling fellowship to study with Europe's most renowned neurologist and researcher of hypnosis, Jean Martin Charcot. He would later remember the experience of his stay with Charcot as "catalytic" in turning him toward the practice of medical psychopathology and away from a less financially promising career in neurological research. Upon return, in 1886, Freud married his fiancée Martha Bernays and settled as a private practitioner specialized in nervous diseases. At this time, presumably as a result of his work at the Children's Hospital, where he noticed that many aphasic children had no organic cause for their symptoms, Freud became aware of the existence of mental processes that were not conscious. He wrote a monograph about this subject (also not included in the *Standard Edition*).

Contact and subsequent friendship with physician Joseph Breuer (1842–1925) dating back to the late 1870s and a shared interest in hypnosis, resulted in collaboration on the problem of hysteria which led to a first joint publication in 1893, followed by *Studies in Hysteria* in 1895 (*SE 2*), now often considered the first psychoanalytic publication, even though it contained only the germs of some psychoanalytic ideas. In *Studies in Hysteria*, Breuer and Freud claim that what hysterics suffer from are their reminiscences – their unconscious memories.

By the mid-1880s, the term unconscious, which was previously associated with unawareness, took on a new meaning – it referred to a part of the mind beyond conscious awareness. The unconscious was a Pandora's box of traumatic memories, taboos, sexual desires, and shameful feelings that the individual refused to reveal because of fear of humiliation or condemnation. Freud, while collaborating with Breuer, turned his attention to his patients' sexual history and fantasies, with a view to understanding how childhood traumas, buried in the

unconscious, could lead to neurosis in adulthood. Tragically, Freud believed, was inherent in the human condition, the consequence of an irresolvable conflict between man's instinctual sexual nature and demands of civilization.

Cure, or at least relief from symptoms, seemed to be brought about when patients began to speak about their illness, as Breuer had discovered when he treated a hysterical patient named "Anna O" (real name Bertha Pappenheim) in 1880. Treatment thus depended upon the ability of patients to reveal their unconscious thoughts and feelings, hence the name "talking cure." The cure required some method of discharge or "abreaction" of build up psychological tension (Breuer used the term catharsis).

It was Freud who had convinced Breuer to publish the case. Thus, Anna O became the first psychoanalytic patient. She was never treated by Freud and it was not before long that Freud became increasingly critical of Breuer's treatment of Anna O, arguing that he had disregarded the affectionate feelings of his patients toward him.

The history of Anna O has given rise to a remarkable amount of debate among historians. There seems to be much uncertainty about the Anna O's actual condition as well as about the extent of her clinical improvement following Breuer's treatment. It was conformed that despite Breuer's "cure," she was admitted to a sanatorium shortly thereafter (see Borsch-Jacobsen 1986, for literature on Anna O).

And so, by the time *Studies* came out, the collaboration between Freud and Breuer has already begun to deteriorate. Freud now also put much more emphasis on sexuality as one of more fundamental contributing factors in the etiology of hysteria than Breuer, which was another cause of dissent (see Sulloway 1979, for an excellent discussion of Freud's early work and thinking).

Still heavily vested in biological thinking, Freud undertook at this point in his career an attempt to conceptualize theoretically a radical new approach within psychology, which resulted in the abandoned *Project for a Scientific Psychology* (SE 1), in which Freud had wanted to create a science of the mind on an epistemological par with medicine, with the same useful applications as medicine (Flanagan 1987). The *Project* was not to be published for a long time and in fact addressed to one reader only, the Berlin nose and throat

specialist Wilhelm Fliess (1858–1928) whom Freud had encountered in 1887 and began corresponding with that same year. Freud's relationship with Fliess is one of the most significant early influences on Freud at this point in his life. He was, says Gay (1988), the necessary friend and enemy Freud needed to develop his own ideas ("my alter," Freud wrote to Fliess). For several years, they would have regular meetings which Freud jokingly called their "private congresses," during which they would discuss scientific issues (see Farrell 2001, for an interesting analysis of the creative dynamic in the relation between Freud and Fliess).

The *Project*, retrieved from their correspondence and first published in 1950, already contains in rudimentary form a number of important psychoanalytic distinctions, notably between a perceptual system of neurons, an unconscious system, in which most of our mental life takes place, and a consciousness inducing system. The *Project* was not meant to be published however, and was left unfinished. Clearly, Freud was struggling with a fairly mechanical and still very biological conception of psychological mechanisms. Thus, in the introduction to the *Project*, the editors wrote "internal forces are scarcely more than secondary reactions to external ones. The id, in fact, is still to be discovered." The *Project* marks the end of the first phase in Freud's development.

Early Beginning and Self-Analysis 1895–1902

Midway the 1890s Freud's conception of hysteria began to change. In a now famous letter to Fliess dated September 21, 1897, Freud sums up his reasons for abandoning the "seduction thesis," his earliest theory to explain hysterical symptoms. That letter also contains his main arguments for postulating a much more psychological theory. To a certain extent, this marks the birth of psychoanalysis as it is commonly known.

When Freud, following Breuer, first began to use the "talking cure," his patients would "remember" incidents of having been sexually seduced in childhood. Until this point, Freud believed that they had actually been abused, only to later repress those memories. However, as Freud now wrote to Fliess, he believed this first theory had become untenable. As a result of his work with his patients, Freud learned that a majority of his patients complained of sexual

disturbances, many having to do with coitus interruptus as a form of birth control. He suspected their problems stemmed from cultural restrictions on sexual expression and that their sexual wishes and fantasies had been repressed. So rather than actual experiences, internal or psychological processes seemed to be at play.

Between this “discovery” of the unexpressed sexual desires and the relief of the symptoms by abreaction, Freud began to theorize that the unconscious mind had determining effects on hysterical symptoms. This then marks the birth of “modern psychoanalysis.” This introduction of a qualitative factor (as opposed to a quantitative or purely neurological factor) would alter the theory of neurosis and consequently also the therapeutic procedure involved, as well as the method of research (see Ellenberger 1970, for an extensive discussion of the roots of psychoanalysis).

It is still in the late 1890s when Freud began to work on his Magnum Opus, his book on dreams, while at the same time his relationship with Fliess began to deteriorate, due to scientific disagreements and issues of priority. Just as with Breuer, this break too upset Freud, and although it is difficult to estimate exactly how traumatic this break was to him, it has been argued that after the loss of Fliess, Freud did not dare to fully trust another person again (with the possible exception of Jung). His years of “splendid isolation” now began: a creative period of relative seclusion (Freud did have a small teaching position as a *Dozent* at the Vienna university but was otherwise cut off from Academia) during which his most important works were written (see Ellenberger 1970, who argued that this period represented a “creative crisis” in Freud’s life).

The beginning of the end of Freud “splendid isolation” is marked with the publication, in 1900, of *The Interpretation of Dreams* (SE 4/5), a work with tremendous scientific pretensions. This book can be (and often is) considered the first “real” psychoanalytic publication since it capitalizes on (a) the relation between manifest and latent content (of dreams), (b) the use of free associations to explore unconscious mechanisms, and (c) the symbolic nature of innocent representations.

Indeed, to this day, this book remains a key publication in Freud’s oeuvre. It has been updated by Freud several times with each new edition. Interestingly, the

author opens *The Interpretation of Dreams* with a statement about his theoretical accomplishment:

- ▶ In the following pages I shall provide proof that there is a psychological technique which allows us to interpret dreams, and that when this procedure is applied, every dream turns out to be a meaningful, psychical formation which can be given an identifiable place in what goes on within our waking life.

He maintains as one of his key findings that dreams are never meaningless but always the fulfillment of a wish. He provides ample examples of this principle, many of which are autobiographical. Thus in the famous dream of “Irma’s injection,” Freud explains that each element in the dream is meaningful and that the main instigating force for it was a wish to absolve himself from any blame for the lack of complete success in the treatment of Irma’s condition. Later reinterpretations have traced this dream back to Freud’s traumatic break with Fliess (see especially Masson 1984, who proposed the controversial thesis that Freud’s rejection of the “seduction theory” actually meant a conscious subversion of the truth).

The main claim in *The Interpretation of Dreams* is that dreams, far from being meaningless, are in fact “constructed by a highly elaborate intellectual activity.” What appears to be trivial nonsense in a dream, can, through the process of analysis, be shown to express a coherent set of ideas. This goes for anxiety dreams, absurd dreams, and nightmares as well as ordinary dreams, which all are believed to be expressions of unconscious desires. Freud explains that the process of “censorship” in dreams causes a distortion of the dream content while the forgetting of dreams serves the purpose of resistance. These examples of “dream work” illustrate that the mind condenses, distorts, and translates (latent) “dream thoughts” into (manifest) dream content. Freud therefore proposes that the ultimate value of dream analysis may be in revealing the hidden workings of the unconscious mind.

Since so much of the material in *The Interpretation of Dreams* is in fact autobiographical, this book is considered Freud’s self-analysis. Thus Freud was not only the inventor of psychoanalysis, he was also his own therapist. The consequence of which was that in order to become a psychoanalysis, one had to appropriate Freud – his language as well as his history.

The first edition of *The Interpretation of Dreams* did not sell well: It took some 10 years before a second edition would be needed, a fact that Freud took as a sign of neglect by the scientific community, which he both resented and took pride in. Indeed, Freud's approach was deliberately "marginal," in terms of both scientific objects (dreams) and its interpretative methodology. He complains in the second edition that colleagues in psychiatry did not take the trouble to read his book because his ideas were so "new." This ambiguous, equivocal stance toward mainstream sciences characterizes its discourse, which in several ways is unique, both stylistically (see Mahony 1987) and rhetorically (see Jaffe 1990).

Interestingly, one of the great myths surrounding Freud is that he was forced to move outside academia because he was ignored by academic psychiatry. However, historic research shows that the reverse is true. Freud was already largely outside the scientific world when he wrote this book, which in fact was received quite constructively, although also somewhat critically (see Decker 1977 and especially Sulloway 1979). Thus right from the start, psychoanalysis would be characterized by a constant dynamic of inclusion and exclusion, defense and offense, attempts to persuade and at the same time fend off outsiders (see Bos et al. 2005). Consequently, long after Freud's death, debates on psychoanalysis were still caught in the extremely polemical "if you're not for it, you're against it" mode (see Frosh 1997, for a refreshing attempt to escape this dichotomy).

Formative Years 1902–1910

With the foundations of his new approach published in 1900, Freud began to produce a series of volumes that applied his method to other domain. Of these *The Psychopathology of Everyday Life*, published in 1901 (SE 6) and his book on jokes from 1905 (SE 8) stand out. The first is an attempt to explain common (everyday life) unintentional occurrences, such as slips, errors, mistakes, the forgetting of names or words, etc., by applying the same psychological processes that determine the unconscious which are also to be found in dream life. This book is one of the most accessible and frequently translated of his volumes, and indeed, since it is so easily readable it would fulfill the purpose of bringing the gospel to both the laymen and to the

professional. Freud wrote "this book has an entirely popular character; it merely aims, by an accumulation of examples, at paving the way for the necessary assumptions of unconscious yet operative mental processes, and it avoids all theoretical considerations on the nature of this unconscious."

His psychopathology book is something of a cross-over between psychiatry and cultural studies, making it difficult to situate it in the scholarly academic structure which was still, generally speaking, a conventional structure. Consequently, it attracted little attention during the first few years of its existence. When Freud expanded its text and published it as a book 3 years later, Theodor Ziehen, a leading expert in the field, said it deserved "many but critical readers" (quoted in Decker 1977, p. 143).

Central in the book is the analysis of a case of forgetting of the "aliquis" in a poem by Virgil. The case has been analyzed and reanalyzed endlessly (see Timpanaro 1976, for a detailed discussion). It presents the reader with two elements: an autobiographical story presented in the form of a riddle (What is the next word in Virgil's *Aeneid* and why can't I remember?), as well as an explanation/resolution presented in the form of a confession (a psychological complex, a certain wish, resistance to something). It is important to note that at his point in history, none of his ideas were taken for granted, yet Freud was already certain that in 5–10 years' time, his "Psychopathology" would be considered *doxa*; such was his confidence in his own discoveries.

The book on *Jokes and the Relation to the Unconscious* sets out to investigate the underlying psychological meaning of jokes, which is, Freud claims, by and large almost always aggressive in nature. Again several unconscious psychological mechanisms are at work here, such as condensation, displacement, and representation, that allow the speaker as well as the listener to enjoy the joke without transgressing the cultural demands (and hence feeling guilty or embarrassed). The psychogenesis of jokes reveals that the pleasure in a joke is derived from a play with words or from the liberation of "nonsense" to protect that pleasure from being done away with criticism.

These two ground laying works, as well as his university lectures, attracted the interest of a small group of students who began to hold weekly informal

gatherings at Freud's office to discuss this "new psychology." These were Freud's first followers, who within a few years would form the Vienna Psychoanalytic Society (see Grosskurth 1991). Records of their meetings have been kept from 1906 on and were later published (Nunberg and Federn 1962–1975). Although many members were medical doctors, most were much more interested in cultural applications of psychoanalysis than in therapeutic possibilities, with which few had firsthand experiences. Not surprisingly, the very first psychoanalytic periodical to be published under Freud's editorship, the "Series on applied mental science" (*Schriften zur angewandten Seelenkunde*), ran exclusively literary and biographical studies, such as Freud's own study on *Delusions and dreams in Jensen's Gradiva* from 1907 (SE 9). Also, Freud, wary that psychoanalysis be absorbed by medicine, not only encouraged nonmedical applications of psychoanalysis, he strongly suggested that the practice of psychoanalytic therapy not be restricted to medical doctors only.

In the first decade of the twentieth century, psychoanalysis thus slowly emerged as a "scientific school." Among the most important early followers were Paul Federn, Eduard Hirschmann, Otto Rank, Wilhelm Stekel, and Alfred Adler, all from Vienna. Many would soon start to practice psychoanalytic therapy. The latter two furthermore edited from 1910 to 1914 a monthly journal (the *Zentralblatt für Psychoanalyse*) whose main function it seems was to disseminate psychoanalytic knowledge among a broader educated public. However, as the ideas and practices of many early followers differed from Freud's in a number of essential respects, significant friction would occur before long (see Bos and Groenendijk 2007 for a discussion of the friction between Freud and Stekel).

While the first expansion of psychoanalysis rested on the theory of dream interpretation and above all on literary and cultural applications, what was missing was a model of the development of the human mind. Freud made up for this lack with the publication of a theoretical exposition on the etiology of anxiety neurosis, neurasthenia, and psychoneurosis, published as *Three essays on the theory of sexuality* (SE 7).

Apart from *The Interpretation of Dreams*, the "three essays" are considered Freud's most important contribution to the human sciences. It too was revised and updated by its author several times. His aim was to

explain the origin of sexual "aberrations," such as "inversion" of sexual objects (homosexuality), fixations (including sadism and masochism), and other neurotic sexual preferences.

Freud proposed a model of psychosexual development that he theorized to be universally valid. He derived his model from ancient mythology and contemporary ethnography, although it appears to bear autobiographical observations as well. He wrote: "I found in myself a constant love for my mother, and jealousy of my father. I now consider this to be a universal event in childhood." The event Freud refers to here is known as "the Oedipus complex," perhaps Freud's most well-known "discovery." He recognized in the development of the dynamics of the mind a distinct pattern that follows certain stages. Each stage represents a progression into adult sexual maturity, characterized by the resolution of certain conflicts.

Thus, during the "oral phase" (first year) the child struggles with the conflict between protection and neglect; during the "anal stage" (years 1–2) between retention and letting go; and during the "phallic stage" (years 3–6) with gratification and guilt. The "Oedipus conflict" typically points to a basic problem that humans need to deal with: incest desire on the one hand, and the problem of repression on the other. Two further stages (latency phase and genital phase) characterize the development of the ego toward maturity.

The theory of developmental stages proposed in the "three essays" has been considered ground laying in developmental psychology, but has also been strongly criticized. Early attempts to confirm the theory were remarkably successful, but oftentimes biased and, in one case, fraudulent (the publication in 1921 of a diary of a young girl, by psychoanalyst Hermine Hug-Hellmuth, confirmed to the detail Freud's theory but was completely fabricated). Its neglect of female development and its one-sided emphasis on males ("phallocentrism") has led female analysts to propose a specific female sexuality, characterized by its own conflicts.

Freud's own work from this period includes furthermore two case histories. The first case history is *Fragment of an analysis of a case of hysteria* (SE 7), better known as the "Dora" case study, published in 1905. Eighteen-year-old Dora diagnosed with hysteria was

analyzed only briefly by Freud in 1900. The entire analysis rests on the interpretation of only two dreams by the girl (see Decker 1991, for a historical reading of the Dora-case). Although the cure itself was incomplete, the importance of the case history lies in the recognition of two important psychological mechanisms: resistance and transference. Resistance refers to an unconscious struggle or conflict in the mind of the patient, transference to the reproduction of that conflict in terms of new symptom produced or triggered by the treatment itself. Freud realized that these principles represented the two main tools with which an analyst has to work.

Two further case histories, both published in 1909, are *Analysis of a phobia in a five-year-old boy* (SE 10) and *Notes upon a case of obsessional neurosis* (SE 10). The first is a case of a phobic boy (“little Hans”), not treated by Freud himself. It contains some of Freud’s most important ideas on psychosexual developmental, in particular his notion of the Oedipus complex (the struggle in boys to compete with the father for the affection of the mother). The second case history (that of the so-called Rat man) outlines the intricate unconscious thought processes in obsession which at first glance do not seem to make sense but reveal a hidden logic.

From 1907 onward, Freud’s followership was expanded beyond Austrian boundaries when Swiss psychiatrist Eugene Bleuler (1857–1939), director of the psychiatric clinic Burghölzli, took an interest in psychoanalysis and began to encourage his staff to study unconscious and psychotic mental phenomena. Although Bleuler’s interest faded fairly quickly, by 1907 a regular contact was established between Freud and some of Bleuler’s students, most notably Franz Riklin and Carl Jung, who used word association tests to integrate Freud’s theory of repression with empirical psychological findings. Riklin and Jung were also the editors of the voluminous “Psychoanalytic Yearbook” (*Jahrbuch für psychoanalytische und psychopathologische Forschungen*), the first journal to publish psychoanalytic research, which appeared between 1909 and 1914.

Karl Abraham, then a student of Bleuler who later moved to Berlin, and Sándor Ferenczi of Budapest joined the growing body of followers that same year (1907), soon joined by Ernest Jones from England, Brill, Putnam, and Jelliffe from the USA, as well as

others in Holland, France, and Italy (see Alexander et al. 1966, for brief biographies of most early followers). By now, psychoanalysis was beginning to assume the properties of a “movement.” Bi-annual congresses, three periodicals, and a growing body of literature, not just by Freud but by his followers also, all securely placed outside academic circles, attracted the interest of the public and at least in literary circles, psychoanalysis became “fashionable.”

In 1909, Freud reluctantly accepted an invitation by G. Stanley Hall to receive an honorary degree at Clark University. His journey to the USA, in the company of Jung and Ferenczi, won him numerous new adherers there too but did not free him from his lifelong misgivings about America (Rosenzweig 1992). Freud’s influence on American “medicine” would nevertheless steadily increase (see Burnham 1967; Hale 1971).

Institutionalization and Consolidation 1910–1925

The founding of the International Psychoanalytic Association (IPA) in March 1910 at the Salzburg conference marks the beginning of a new phase in psychoanalysis. The first generation of followers had stood in close personal contact with Freud through both correspondence and face-to-face contact (many correspondences with Freud have now been published; they give an invaluable insight in the development of psychoanalysis). As their numbers grew, this type of informal management would no longer be possible and hence formal rules had to be introduced regarding admission to the society and to training practices. Therefore, in the next decade, psychoanalysis institutionalized its practices. To become a psychoanalyst, one had to go through a whole series of initiation rituals, including an authorized analysis by a training analyst (see Wallerstein 1998; Bos 2001).

The institutionalization of a “training analysis” during this phase, in which the analyst in training himself is analyzed by a senior analyst in order to get free from unconscious constraints, proved to be a singularly important constitutive principle in psychoanalysis. It safeguards transfer of psychoanalytic knowledge and allows it to remain “pure” at the same, since there runs a straight line from Freud, who had analyzed himself, to the first generation of analysts, many of whom had not been analyzed but instead

had received some form of personal instruction from Freud, to the third, fourth, and further generations.

Two issues related to the institutionalization of psychoanalysis emerge at this point. One is that immediately after the founding of the IPA, psychoanalysis began to expurgate “dissident” followers. Among the first were Alfred Adler, Wilhelm Stekel, and Carl Jung, who for different reasons would not adhere to the strict Freudian doctrine. Especially the loss of Jung is considered important, because Freud had hoped that he would succeed him (see the Freud–Jung correspondence edited by McGuire 1974). Jung was followed by a long list of dissenters who have been expelled from the movement at one point or another (these include Otto Rank, Wilhelm Reich, Jacques Lacan, and many others). Freud’s own polemical account of these early schisms was published in 1914 (SE 14).

A second development concerned the question of whether or not nonmedical analysts were allowed to analyze patients. The Americans in particular were against all forms of so-called wild (or non-medical) analysis, but Freud himself and several European analysts were not. After the Second World War, with a large parts of the psychoanalysts (many of whom were Jewish) having fled to the USA or England, the controversy would effectively be settled in favor of what Kurt Eissler (1965) called “medical orthodoxy” (see Wallerstein 1998 for an insiders’ perspective on the problem of “lay analysis”).

By the 1920s, to the public at large, psychoanalysis had become a respectable branch of science, thanks, in part, to Freud’s *Introductory Lectures* (ES15/16) which specifically addressed a lay public. Also the works of novelists such as Thomas Mann (*The Magic Mountain*, 1924) and Italo Svevo (*Confessions of Zen*, 1923) helped popularize psychoanalysis, as well as *Secrets of a Soul* (1925), a full-length feature film by the German film director Wilhelm Pabst, which took a psychoanalytic case history as its point of departure.

In theoretical respect, a series of papers by Freud, which appeared between 1914 and 1917, Ferenczi’s paper on introjection (1909) and Abraham’s technical papers, such as the one on the female castration complex (1920) signify the growth and development of psychoanalytic vocabulary at this point in time. For sure, a mature theory began to emerge, in which various theoretical notions were now well connected.

Freud’s paper on narcissism, for example, introduces the notion of ego-ideal and discusses the problem of ego-libido and object-libido. In “instincts and their vicissitudes” (1915), “Repression” (1915), and “The Unconscious” (1915) he now presented a systematic and coherent exposition of his psychological theories. Still utilizing an energetic system as proposed in the abandoned “Project,” Freud conceptualized in his paper on the unconscious the question of energy directed at the self versus energy directed at others. And in “Mourning and Melancholia,” which appeared in 1917 (SE 14), he suggests that certain depressions were caused by turning guilt-ridden anger on the self.

A second wave of theoretical papers appeared in the early 1920s and marks the final development of psychoanalysis under Freud’s auspices. Notably his works *Beyond the Pleasure Principle* (SE 18) and *The Ego and the Id* (SE 19), from 1920 to 1923 respectively, contain important improvements or elaborations of his theoretical framework. *Beyond the Pleasure principle* introduces the notion of “pleasure principle” and “reality principle” as two vitally important mechanisms within the mental apparatus. *The Ego and the Id* distinguishes between the three main psychological dynamic systems “Id,” “Ego,” and “Super-ego” that replace the former distinction between conscious and unconscious. In this book, repression is now considered one of many defense mechanisms that occurs to reduce anxiety.

Not all of Freud’s new distinctions were immediately accepted by his followers. In particular, the notion of “death instinct” (borrowed from Swiss analyst Sabine Spielrein and introduced in *Beyond the Pleasure Principle*) was rejected by many, while the tripartite Id–Ego–Super-ego may have been widely accepted, but its use varied widely. Thus, later revisions of psychoanalytic therapy heavily emphasized the Ego-component, from which eventually “Ego-psychology” emerged, particularly strongly represented in the USA.

By the mid-1920s, psychoanalysis thus had evolved in a formal society, a full blown theory, a standardized practice with its own rules of admission and training. It had its own press (a publishing house, several journals), was recognized by the public as a serious scientific school and had now also a footing in academia, notably in medicine, in many Western European countries.

Disintegration and Regrouping of Psychoanalysis 1925–1950

Among Freud's last major contributions are his papers on religion and questions of sociology. These are also his least accepted works. *The Future of an Illusion* (SE 21) and *Civilization and its Discontents* (SE 21), both described religion as a phase in evolution of mankind, eventually to be replaced by scientific thought (even though he remains pessimistic about the capacity of man to free himself from this collective neurosis). Several psychoanalysts, among whom Oskar Pfister, a close friend of Freud who wrote a rebuttal titled the *Illusion of a Future*, objected to such a pessimistic view.

In *Inhibitions, Symptoms and Anxiety* (SE 20), published in 1926, Freud laid out how anxiety is caused by an intrapsychic conflict between drive and super-ego and how anxiety may lead to a further inhibition of mental functions. *Inhibitions, Symptoms and Anxiety* was written partly in response to Otto Rank, an early follower of Freud who had proposed in *The Trauma of Birth* that separation anxiety plays a major role in the onset of neurosis. According to Rank, separation anxiety takes place at a developmental phase even before the onset of the Oedipus complex. This was impossible according to Freud, who saw the Oedipus complex as the nucleus of neurosis and the foundational source of all art, myth, religion, philosophy, indeed of all human culture and civilization. Rank's suggestion that the Oedipus complex might not be the only factor contributing to intrapsychic development led to an estrangement from Freud, who would eventually exclude him from the inner circle.

By the early 1930s, in Germany the Nazis climbed to power, which would cause many analysts (a majority of whom were Jews) to flee the country. Many settled in England and the USA. After the occupation of Austria (the so-called Anschluss) Freud too escaped, just in time; he ended up in England where he died in 1939.

In the years leading up to the Second World War, the psychoanalytic movement slowly began to dissipate, despite attempts to safeguard it from outer influences (a group of loyal followers around Freud's youngest daughter Anna Freud took it upon themselves to fence off any and all "intruders"). Both internal critique and emerging postwar demands led to a large number of neo-analytic schools, of which only the most important ones shall be mentioned briefly here.

A first group of neo-analysts, consisting of people such as Heinz Hartmann, Ernst Kris, David Rappaport, and Alexander Lowenstein, developed in the 1950s an approach known as "Ego-psychology," which became quite influential within psychoanalysis and to this day remains a dominant school therein. This group built upon an understanding of the synthetic function of the ego as a mediator in psychic functioning. Hartmann in particular distinguished between autonomous ego functions (such as memory and intellect which could be secondarily affected by conflict) and synthetic functions which were a result of compromise formation. Ego-psychology found a better fit in US culture than tradition psychoanalysis, as it presents a more optimistic, malleable picture of man.

A second school consists of female analysts who felt dissatisfied with Freud's one-sided emphasis on male sexuality. They argued that he had regarded females basically as "castrated males." Thus Karen Horney, Helene Deutsch, Therese Benedeck, and others, many of whom were trained in Germany and had emigrated to the USA in the 1930s, began to propound "neo-analytic" schools that explored questions of female sexuality and female development, sometimes also called "feminist Freudians." More recent authors would include Nancy Chodorow and Julia Kristeva (see Judith Alpert 1988 for an overview).

A third group of analysts is represented by Melanie Klein and her followers. She represents within psychoanalysis a school called "object-relations theory." In her work, emphasis is put on the development of the subject in relation to others within the environment. The "objects" the theory refers to are both real and internalized images of others. Object relationships are initially formed during early interactions with primary care givers (especially the mother). Today, Kleinian psychoanalysis is one of the major schools within psychoanalysis.

A fourth group of analysts, whose ideas and works have gained influence in the 1950s, consist of followers who have taken psychoanalytic interpretations into the domain of medicine proper. Georg Groddeck from Germany and Smith Ely Jelliffe from the USA and later also Franz Alexander are considered forerunners of what became known as "psychosomatic medicine." These theorists sought to establish a link between somatic and unconscious psychological processes.

Groddeck, to whom Freud owed the concept “id” (*das Es* in German), for example insisted that all bodily processes have a psychological counterpart (thus nausea represents the unconscious wish to get rid of something one cannot stomach, etc.).

From a political point of view, a group of left-winged analysts were attracted by the potentially liberating capacity of psychoanalytic doctrine, which they transferred to the domain of politics when they tried to combine Marxism with Freudianism. This group was initially represented by figures such as Otto Fenichel and Wilhelm Reich (who both immigrated to the USA), later by a group of sociologists from Frankfurt, notably Erich Fromm, Herbert Marcuse, Theodor Adorno, and others, who formed the “Frankfurt School of Social Research.” Some theorists (such as Fromm) remained fairly loyal to some of Freud’s principles, others, however, digressed far from psychoanalysis (see Robinson 1969, for an interesting discussion of the “Freudian Left”).

Finally, in France a radical new approach to psychoanalysis was offered by Jacques Lacan and later also Giles Deleuze and Felix Guattari, whose works have slowly gained influence outside of France (and reached their peak in the 1990s). Lacan (1977) integrates psychoanalysis with semiotics and Hegelian philosophy. He emphasizes the unconscious workings of linguistic processes (hence his famous saying that the unconscious is structured like a language). Deleuze and Guattari (1984) on the other hand have tried to match psychoanalysis with postmodern theory. Their works draw on Freudian theories but are at same time extremely critical of it.

Taken “orthodox” approaches together with all its various, sometimes contradicting approaches, the influence of psychoanalysis in the first 2 decades after the Second World War remained fairly considerable, especially in psychiatry. The first two editions of the *Diagnostic and Statistic Manual of Mental Disorders*, the leading sourcebook in psychiatry (DSM I and II, published in 1952 and 1968), are clearly marked by psychodynamic models of the mind inspired on Freud. In the 1960s, however, psychoanalysis was beginning to lose ground, as can be evidenced from the third edition of the DSM, published in 1980 and revised several times since.

Critique and Decline, post 1950

Psychoanalysis, both as a theory and a “movement” has always been subject of severe critique, within academia and outside of it, but it succeeded to survive until well after the Second World War. In the post 1950s, however, the Freudian empire slowly but surely crumbled and by the turn of the new century it has all but been abandoned, at least in its traditional form.

There are several reasons why psychoanalysis lost its appeal. One is that in the 1960s a new generation of much more effective medication hit the market, rendering psychodynamic approaches not only much more costly but also in fact less effective. Secondly, due to a series of judicial battles, nonmedical therapists (mostly psychologists) were finally allowed access to psychoanalytic training institutes in the USA, which in consequence meant a significant lowering of the status of the professional psychoanalyst. Lastly, several waves of critique attributed to its decline. Some of these critiques shall be discussed briefly below.

One of the first important postwar critics was Karl Popper (1990), who argued that psychoanalytic explanations are “unfalsifiable.” Its claims are not testable and therefore cannot be refuted; this makes psychoanalysis a “pseudoscience.” Similarly, Hans Eysenck (1985) strongly criticized the dogmatic and sect-like attitude of psychoanalysts, who anxiously refuse outsiders entrance into their circles and are afraid to enter into debate with them. Attempts from within hermeneutics to defend its scientific claims (Spence 1987) were unconvincing or only succeeded in moving psychoanalysis away from “hard core” sciences, into the domain of “literature.”

In the 1970s and 1980s a host of critical historical literature was published, set out to damage Freud’s reputation and, by implication, the reputation of psychoanalysis as a whole. This resulted in sometimes outrageous claims, such as that Freud was a cocaine addict, or in moral reproaches (for instance that Freud may have had an affair with his sister-in-law, etc.). Some of this “Freud bashing” continues to this day (see Crews 1995, for a more recent illustration).

A more serious attack was leveled by philosopher Adolf Grünbaum (1985), who argued that psychoanalytic claims to therapeutic success are based on circular reasoning. Thus Grünbaum demonstrates that when psychoanalysts claim that a particular therapeutic

intervention (an “interpretation”) can be shown to be effective on the grounds that it does something in the patient, it presupposes that such an interpretation actually may do something in the first place. Discussions following Grünbaum’s work reveal that psychoanalysis was unable to refute this charge.

Debates about the scientific status of psychoanalysis continue to this day, but the number of patients who submit themselves to classical psychoanalytic psychotherapy has diminished dramatically in many countries, even though many forms of psychotherapy are still being practiced, based, at least in part, on Freud’s ideas. However, use of psychoanalysis as a “scientific endeavor” today is effectively restricted to the domain of “cultural studies,” that is, as a form of literary critique. It thus ended where it started.

See Also

- ▶ [Analytic Psychology of Carl Jung](#)
- ▶ [Bleuler, Eugen](#)
- ▶ [Breuer, Josef](#)
- ▶ [Deutsch, Helene](#)
- ▶ [Erikson, Erik](#)
- ▶ [Klein, Melanie](#)
- ▶ [Rank, Otto](#)
- ▶ [Trauma Psychology](#)

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Psycholinguistics in Historical Perspective, From Monologue to Dialogue

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A Perspective on the History of Psycholinguistics

In a recent article entitled “Recapturing a context for psychology: The role of history,” Benjamin and Baker (2009, p. 97) have stated:

- ▶ *With the ever-increasing fragmentation of psychology into narrower subspecialties, the field devolves further and further into a focus on specialized knowledge, answering smaller questions and avoiding the larger and more meaningful ones.*

Their complaint pertains to psychology in general, and the authors suggest that in order to regain a broader intellectual context, “an understanding of the history of psychological science offers a way.” In the following, we wish to take Benjamin and Baker’s lead and apply it to the subdiscipline of psycholinguistics. Our aim is to show that the historical development of psycholinguistics gives hope for a gradual perspectival shift both from an emphasis on the written to an emphasis on the spoken and from monological to dialogical language use.

Accordingly, we wish to inquire as to what psycholinguistics has been up to. Suffice it to say that mainstream modern psycholinguistics began in the mid twentieth century. But already by 1980, the “Quo vadis, psycholinguistics?” question was being posed by the Romanian psychologist Tatiana Slama-Cazacu (1980, p. 93), specifically in terms of “Should and can psycholinguistics contribute to the improvement of human communication?” Her answer was an emphatic affirmative: Psycholinguistics has both “the scientific methodological possibility” and “an obligation” to make such a contribution (p. 93). But more than a quarter of a century later, the German psychologist Theo Herrmann (2006, p. 420; our translation) has been less optimistic and has accordingly expressed his dissatisfaction that a “psychology of language use” (“Sprachpsychologie”) is currently not adequately engaged by psychologists, especially in Germany. In this context, he has asked an even more fundamental question than the one asked by Slama-Cazacu: “What is it about language that makes it so intractable for psychologists?” (p. 420; our translation). He has suggested that one reason for the inordinate intractability of language is that the term *language* has multiple meanings: What *language* means in any specific instance depends upon the *status questionis* proper to a given approach to the study of language use. This in turn is dictated by many contingencies – historical, sociological, and personal/biographical. Herrmann (p. 421; our translation) has spelled out three psychological perspectives: language as “a species specific mental faculty,” as “a process of speaking under neurological/physiological control,” and as “the most important vehicle for interaction between two or more people.” He has concluded that these three perspectives have not been integrated: “Psychologists of language use have not yet succeeded in developing a standard theory of language use that is adequately empirically based” (p. 422; our translation).

The present essay accepts the problematic nature of psycholinguistics itself as the central theme of its history and current development. More specifically, it emphasizes the gradual development of modern psycholinguistics from a preoccupation with language as “a species specific mental faculty” to an engagement of language as “the most important vehicle for interaction between two or

more people.” The history of neuropsycholinguistics will not be engaged herein (but see, e.g., Altmann 2006).

Early History of the Psychology of Language Use

In fact, a great deal had already been written about language use before the mid twentieth century. On the one hand, some authors emphasized the social aspects of language use. Thus, Moritz Lazarus (1879/1986, p. 5; our translation), founder, along with Heyman Steinthal, of the *Zeitschrift für Völkerpsychologie und Sprachwissenschaft* in 1859, was already urging the psychological investigation of “everyone’s actual, everyday, ever present conversation,” and Wilhelm Wundt continued to promote a sociocultural approach to language. In fact, according to Clark and Van der Wege (2002, p. 209), “psycholinguistics was launched in 1900 with the publication of Wilhelm Wundt’s *Die Sprache (Language)* as the first two volumes of his monumental *Völkerpsychologie*.” It is interesting to note that Blumenthal (1970, p. 7) considered Lazarus and Steinthal’s *Journal of Social Psychology and Linguistics* (his translation of *Zeitschrift für Völkerpsychologie und Sprachwissenschaft*) “the first journal largely devoted to the psychology of language” (for a thorough discussion of the German contributions from 1850 to 1920, see Knobloch [1988] and the English-language review of his book by Murray [1990]).

On the other hand, the general psychology or *Allgemeine Psychologie* of the second half of the nineteenth century was also rich in language studies. By way of contrast, Cattell (1886) was studying individual words in experimental reading settings, and Ebbinghaus (1885/1964) was investigating memory by means of consonant–vowel–consonant trigrams. A wide diversity of research topics seems to have been characteristic of the nineteenth century, and, according to Gaskell (2007, p. v), still survives in the twenty-first century, with notable differences consequent upon technology, methodology, and theoretical orientation.

But much of the early work was still being done outside of psychology. For example, in the first half of the twentieth century, most of the review articles were published in the *Psychological Bulletin*: Faris (1919), Esper (1921), Adams and Powers (1929), McGranahan (1936), and Pronko (1946). The first of these (Faris 1919) on “The psychology of language” cited

only three references, two of which had appeared in French philosophical journals. Two years later, Esper (1921) cited under the same title 17 references, all but two (12%) of which were from other disciplines than psychology: education (5), linguistics (3), communications (3), biology (2), philosophy (1), and anthropology (1). It was not long before the recognition dawned that research on the psychology of language “demands a type of investigator trained in both linguistics and psychology” (Weiss 1925, p. 57); in other words, the collaboration of psychologists and linguists or other language experts was not considered to be the ideal. The need for linguistic sophistication on the part of psychologists of language themselves is reflected over a number of decades in the three following review articles (Adams and Powers 1929; McGranahan 1936; and Pronko 1946). Therein, a successive decline from a high of 82% in cited references that clearly belong to the psychological literature – a huge and sudden increase over Esper’s (1921) low of 12–64% and then to 56% – was paralleled by an increment in references to linguistics from 11% to 18% and again 18%. This increment also set the stage for a major historical incursion from linguistics in the form of transformational grammar that would notably contribute to modern mainstream psycholinguistics.

Historical Beginnings of Modern Psycholinguistics

At mid twentieth century, World War II was over, behaviorism wasn’t going anywhere, and researchers were regrouping. To expedite the process of transition on the part of both psychology and linguistics, the Social Science Research Council established in the United States a Committee on Linguistics and Psychology in October, 1952 (in association with summer seminars at Cornell University in 1951 and at Indiana University in 1953). Thus, 1952 came to be considered in the course of time as the moment of conception for modern psycholinguistics. Knobloch (2003, p. 19; our translation), in his German-language history of psycholinguistics, has referred to these events as the “founding myth” of the discipline and to the publication resulting therefrom (Osgood and Sebeok 1954; 1965) as the “acknowledged ‘founding document’ of the new psycholinguistics.” But Knobloch himself was of the opinion that the history of psycholinguistics had

begun long before, and Altmann (2006), in his recent history of psycholinguistics, has mentioned neither the committee and seminars nor the Osgood and Sebeok publication.

The task proposed by the Social Science Research Council's committee in their initial seminar is worthy of our attention:

- ▶ The seminar first set itself to the task of examining three differing approaches to the language process: (1) the linguist's conception of language as a structure of systematically interrelated units, (2) the learning theorist's conception of language as a system of habits relating signs to behavior, and (3) the information theorist's conception of language as a means of transmitting information. (Gardner 1965, p. x [originally dated May 12, 1954])

In retrospect, this listing may not appear to be the most promising with which to launch a new scientific discipline, but it reflected both the zeitgeist and the cross-disciplinary constitution of the committee quite accurately: (1) structural linguistics; (2) behaviorist and neo-behaviorist psychology; and (3) information theory. The first author of this chapter personally recalls some of the denunciations of behaviorism (for its naivety, reductionism, and/or oversimplifications) heard from the lips of J. S. Bruner, G. A. Miller, and C. E. Osgood a decade later as they moved on into the new psycholinguistics. During the early formative period, a review article by G. A. Miller (1954) entitled "Communication" reflects his own orientation toward communication and information theory at that time. It is of historical interest to note that Miller criticized therein a variety of theoreticians, including Jakobson, Osgood, and Shannon, for their "attempts to optimize something" (p. 418). And he added that such a normative approach "makes many psychologists uncomfortable" (p. 418). However, he was soon to become the leading psychologist proponent of the new transformationalism with its emphasis on yet another normative approach to language use, namely the ideal speaker and listener. And this new orientation on his part was in its own turn to make many psychologists uncomfortable.

Diebold's (1965, pp. 205–291) "A Survey of Psycholinguistic Research, 1954–1964" pinpointed with multiple (>6) citations who the leaders in early psycholinguistic research were: Roger Brown (10),

John B. Carroll (12), Noam Chomsky (10), Eric Lenneberg (12), George A. Miller (18), and Charles E. Osgood (10) – one from the Midwest of the United States (Osgood from the University of Illinois, Champaign-Urbana) and the rest from East Coast institutions, Harvard University and Massachusetts Institute of Technology; all of them psychologists, except for Chomsky; none from outside the United States. Miller (1965, p. 306) also acknowledged: "My own opinions have been strongly influenced by Noam Chomsky." More specifically, Miller adopted a psychological generative or transformational hypothesis to the effect that generative structures of language are paralleled by psychological processes. The German psycholinguist Hans Hörmann (1986, p. 63) expressed this hypothesis as follows:

- ▶ At a certain period of its development psycholinguistics considered it to be its task to prove, by means of research into performance (only this can be examined by empirical research), the "psychological reality" of processes and concepts which had been postulated by linguistic competence theory.

The hypothesis itself came in the first instance not from empirical psychological evidence, but from a theoretical claim of one school of linguistics. Although it then elicited a great deal of empirical research, eventually it had to be abandoned for lack of empirical evidence, but seems to be still very much alive in mainstream psycholinguistics even in the twenty-first century (see below the section on [A Return to Dialogue in the Twenty-First Century](#)).

Meanwhile, an emphasis on the use of grammatically well-formed sentences in written experimental materials continued to grow unabated on the part of psycholinguists. And Chomsky (1968, p. 84) was arguing that linguistics is a subdiscipline of cognitive psychology. Chomsky (1965, p. 3) had actually proclaimed the subdiscipline several years earlier:

- ▶ Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance.

But from the very beginning, this linguistic concept of the ideal speaker was totally unrealistic from a psychological point of view insofar as it explicitly excluded precisely the *psychologically* relevant conditions of all language use. In historical perspective, then, it is no less than astounding that it became the model for the psycholinguistic concept of the ideal delivery in what was to be the most successful textbook in the psycholinguistics of that time: Clark and Clark's (1977) *Psychology and language: An introduction to psycholinguistics*. According to Clark and Clark, the "ideal delivery" (p. 261) was executed by someone who read a revised written text aloud – without speech error, without hesitation, and without turn-taking. Or to put it in other words: The ideal which determined what was to be considered defective speech included a written text, its fluent performance by reading it aloud, and monologue. Small wonder that Hörmann (1981, p. viii) was led to exclaim that generative linguistics "has nothing (or practically nothing) to tell us about the actual processes of meaning and understanding." It should be added that, in their preface, Clark and Clark (1977, p. vii) had acknowledged that "the primary use of language is for communication. Curiously, this fact has played practically no role in previous treatments of the field." Unfortunately, their own treatment did not succeed in engaging "people's aims in communicating with one another" and hence was unable to "correct this imbalance."

Historical beginnings and indeed the further development of psycholinguistics have been recorded in a notably disparate manner from publication to publication. As noted above, Knobloch's (2003) and Altmann's (2006) histories of psycholinguistics strikingly exemplify this phenomenon. A similar historical anomaly has occurred in psycholinguistic textbooks, wherein overlap of archival references has been quite minimal. For example, O'Connell (1988b, p. 347) reported that, across five textbooks of the 1980s, only six references were common to all: "Bever (1970), Chomsky (1957, 1965), Fromkin (1971, 1973), and Sachs (1967)." O'Connell and Kowal (1997, p. 851) found an additional discrepancy: Whereas Clark and Clark (1977), in the first major textbook in psycholinguistics, had referenced all six of these common sources, H. H. Clark (1996b) referenced none of them. Perhaps even more important in this regard is the title given by

Clark to his more recent book: *Using language*. Therein, he no longer used the term *psycholinguistics*, but instead *language use*. The theoretical and methodological implications thereof will be discussed below in the section on Clark.

Growth of Modern Psycholinguistics

The origin of the term itself – *psycholinguistics* – is dated by Miller (1965, p. 293) as about 1954, but it had already been used without further explanation almost two decades earlier by Kantor (1936, p. 55), who included in his book a section heading "The Psycholinguistic Situation Analyzed," and later by Pronko (1946), himself a student of Kantor, as part of the title of his (Pronko's) review. It is of historical interest that both these scholars were dedicated behaviorists.

Despite or perhaps partly because of its pretentiousness, the designation psycholinguistics stuck. Journals incorporated it (e.g., *Journal of Psycholinguistic Research* from 1972 on, *International Journal of Psycholinguistics* from 1974 on, and *Applied Psycholinguistics* from 1980 on), and the Max Planck Institute for Psycholinguistics was founded in Nijmegen in 1980.

In a certain sense, the term *psycholinguistics* itself contains an important lesson: *Linguistics* is the substantive portion of the term, and the *psychological* component is adjectival to it. It is not surprising that such an approach found its empirical hypotheses about language in linguistic rather than psychological theories. There are actually three common terms currently in use: psychology of language, psycholinguistics, and psychology of language use. Whereas psychology of language and psycholinguistics are typically used synonymously (e.g., Harley 2008), some authors distinguish between terms. For example, Herrmann (2006, p. 419) has considered psycholinguistics ("*Psycholinguistik*") to be a subdiscipline of linguistics, whereas he has thought of the psychology of language use ("*Sprachpsychologie*") as a subdiscipline of psychology.

During the first half of the twentieth century, periodical articles (listed above) entitled "The Psychology of language" were published in the *Psychological Bulletin*: Faris (1919), Esper (1921), Adams and Powers (1929), and McGranahan (1936). A fifth review by Pronko (1946) was entitled instead "Language and psycholinguistics: A review." It included the most numerous reviews in this set of five articles and

presented a thoroughly behaviorist approach to the topic of language use.

In the second half of the century, periodical articles entitled “Psycholinguistics” or some more specific expansion thereof were published in the *Annual Review of Psychology*: Rubenstein and Aborn (1960), Ervin-Tripp and Slobin (1966), Fillenbaum (1971), Johnson-Laird (1974), Danks and Glucksberg (1980), Foss (1988), and Bates et al. (2001). They span a period from 1960 to 2001 – the last year in which psycholinguistics appeared as a separate topic in the *Annual Review*. An analysis of the publication dates of the references in the reviews yielded a clear indication of the heyday of psycholinguistics: The 1960s were the decade of most productive research. The emphasis in the respective reviews, as indicated by their titles, has shifted over the years from “Psycholinguistics” (Rubenstein and Aborn, Ervin-Tripp and Slobin, and Fillenbaum), to “Experimental psycholinguistics” (Johnson-Laird, Danks and Glucksberg, and Foss), and, finally, to “Psycholinguistics: A cross-language perspective” (Bates et al.).

The three reviews written in the 1960s and at the beginning of the 1970s have in common the title “Psycholinguistics.” But their conceptualizations of the discipline are quite different from one another, in keeping with the shifting zeitgeist. Rubenstein and Aborn (1960, p. 291) were clearly influenced by behaviorism:

- ▶ Psycholinguistics is not a well-integrated field of study, and one can hardly speak of anything like a general trend in the field as a whole. Nevertheless, a number of studies concerned with the probability of language segments and with word association have brought forth a point of view which stresses the significance of the concept of response hierarchy in interpreting the subject’s performance in various verbal tasks.

A dramatic shift in emphasis is to be noted 6 years later in Ervin-Tripp and Slobin’s (1966) review. Although they still contended, as had Rubenstein and Aborn (1960) before them, that psycholinguistics seems to be “a field in search of a definition” (p. 435), their own definition of the field clearly reflects the influence of transformational linguistics: “the study of the acquisition and use of structured language” (p. 435). Accordingly, their review began with a section on Language Acquisition, followed by sections on Grammar and Verbal Behavior, Linguistic Perception, Internal Language

Functions, and Biological Bases of Language. In addition, they included sections on Extralinguistic Phenomena and Sociolinguistics, topics that were not taken up again in the later reviews. This exclusion parallels the gradual introduction of the topic of “Experimental psycholinguistics” as a narrowing movement in the discipline. The Ervin-Tripp and Slobin review can therefore be looked upon as a bridging moment in the history of modern psycholinguistics – retrospective with regard to behaviorism (e.g., Verbal Behavior), while also prospective with regard to the inclusion of extralinguistic and sociocultural topics.

Only 5 years later, Fillenbaum (1971) became the first of these reviewers to take a rather critical stance toward the development of psycholinguistics. He pointed out the difficulties faced by a psychologist who attempts to use a linguistic model: “Shall it be a phrase structure model of the sort presented by Yngve. . . , a stratificational model in the spirit of Lamb. . . , a transformational model after Chomsky. . . , or what, and what difference will a particular choice make?” (p. 253). And he added with respect to the revisions of models developed by Chomsky: “To the extent that psycholinguistic work is based on some linguistic formulation, it may be embarrassing or likely much worse, to find that linguists have now rejected that formulation, making very difficult indeed the interpretation of any result” (p. 254). In view of later reviews, it is of interest that Fillenbaum included a rather long section entitled Experimental Psycholinguistics. Therein, he clearly expressed his concerns about the perspective taken by the experimentalists with respect to language:

- ▶ The view of language which has been focal in recent research, perhaps just because contemporary psycholinguistics has been so strongly influenced by work in generative grammar, is one of language as idea, knowledge, or mental structure, largely or entirely abstracted from its setting, from problems of communication particularly in, say, the context of dialogue, and without much serious worry about normal temporal constraints. Obviously such a view of language concerned principally with the perception of and memory for short stretches of monologue excised from any setting and without continuity, to caricature a little (but only a little) is far from being the whole story, and there have been protests, perhaps most vigorously by Rommetveit. (p. 276)

In a similarly critical vein, he warned researchers about unwanted side effects of experimentation:

- ▶ We should be alert to the possibility that the results of some (perhaps much) experimental work may be as much a consequence of special ad hoc strategies adopted for coping with particular laboratory tasks as of anything else, and that often subjects may not at all be dealing with what we want them to deal with, and what we think they are dealing with. (p. 277)

With the 1974 review of Johnson-Laird, there occurred a shift in title from “Psycholinguistics” to “Experimental Psycholinguistics.” Accordingly, a focal limitation to “comprehension and its cognate problems” (p. 1345) was established, and this limitation persisted through the following review by Danks and Glucksberg (1980). According to Carroll (1985, p. 839), “it was Miller’s work on the psychology of grammar, inspired by Chomskyan theory and reported in his 1962 paper in the *American Psychologist*, that established the new subspecialty, called *experimental psycholinguistics*.” Foss (1988) further widened the scope of his review of Experimental Psycholinguistics so as to include both comprehension and production. He also made explicit what Johnson-Laird as well as Danks and Glucksberg had done implicitly: He limited his review to “work done with adults” (p. 302).

The last review of Psycholinguistics to appear in the *Annual Review* up to 2010 was published 13 years after the one authored by Foss (1988) – the longest interval between any of these reviews. Bates et al. (2001, p. 369) entitled their review “Psycholinguistics: A cross-language perspective” and thereby emphasized the need for cross-linguistic research in an attempt to identify “universal processes in language development, language use, and language breakdown.” Their contention shows that developmental psycholinguistics, neglected in the reviews on experimental psycholinguistics since 1974, was again being considered a legitimate part of psycholinguistics. Moreover, the inclusion of language breakdown in aphasia as a topic marked another shift toward inclusiveness. Many years earlier, Rubenstein and Aborn’s (1960, p. 308) review had explicitly pointed to methodological difficulties involved in such research:

- ▶ The research in the area of language disturbance has been quite unsatisfying from a psycholinguistic point

of view. This is not to make light of the difficulties of working with abnormals – where the experimental method has limited application and where the psycholinguist is, for the most part, faced with the time-consuming and laborious task of minute analysis of utterances.

Their warning was well taken: The topic did not occur again in the reviews for the next 40 years. Bates et al. (2001, p. 390) concluded their review with a note critical of the past, but hopeful for the future of psycholinguistics:

- ▶ The dominance of English in twentieth-century psycholinguistics was a historical accident, more socio-political than scientific. However, it has had particularly unfortunate consequences for those fields that try to study the universal psychological and neural underpinnings of language. Psycholinguistics has finally broken away from the hegemony of English, and the field is better for it.

Paradoxically, Bates et al. cited not a single non-English reference, although research regarding languages such as Russian, Kiswahili, Chinese, Italian, and Dutch was indeed referenced in English-language reports. In other words, Bates et al. indulged a second type of Anglophilia: They actually included many references to research on languages other than English, but they failed to include among their references research published in languages other than English.

A Brief Recapitulation from Central Europe

There exists also a review of “German Psycholinguistics: 1967–1977” by Hörmann (1978) that concluded with a warning about linguistics that should have been important also for American psycholinguists during those years:

- ▶ In Germany psycholinguistics has become a general psychology of language. Amid all the minute subtleties to which linguistics has directed our attention, we must not lose sight of what Bühler [1934] showed us more than 40 years ago: that man is a creature who acts purposively in his world and uses language as a tool to achieve his aims. (p. 148)

Hörmann’s movement toward a general psychology of language use was far in advance of the American

scene and was, in fact, redolent of the inclusive coverage of the general psychology or *Allgemeine Psychologie* of the nineteenth century. Meanwhile, his emphasis on the goal-oriented, purposive nature of language use was still being thoroughly neglected in most Anglo-American psycholinguistics of the era. The processing of the linguistic structure of isolated, asocial, monological sentences (e.g., the trivial *John hit Mary* and the pseudo-ambiguous *They are flying planes*) was the focus of research; at the same time, ordinary conversation was being categorized as essentially defective.

Cognitive Psychology as Umbrella for Psycholinguistics

But there was, from the very beginnings of psycholinguistics, still another general formulation, adverted to above in connection with Chomsky's (1968, p. 84) argument that linguistics is a subdiscipline of *cognitive* psychology. J. S. Bruner and G. A. Miller incorporated the formulation into the Harvard Center for Cognitive Studies when they founded it in 1960, and Blumenthal (1970, p. 241) adopted the concept of "psycholinguistics, an area within the broader scope of cognitive psychology." This conviction has accompanied psychology through the second half of the twentieth century in various guises and still serves as a banner for psycholinguistics in the twenty-first century (e.g., Cutler 2005; Trueswell and Tanenhaus 2005a; Altmann 2006; Caron 2008).

However, cognitive psychology has a history of its own that must be taken into account. Moore's (1939) original textbook *Cognitive psychology* used the concept in contrast to his *Dynamic psychology* (Moore 1924); it was clear to Moore that cognitive and affective considerations were equally important in psychology, a conviction that was soon to be forgotten. Neisser's (1967) classical textbook *Cognitive psychology* then failed even to advert to Moore. This omission was the beginning of much obfuscation as to the definition of cognition. What Neisser succeeded in doing was to chronicle the zeitgeist. From the very beginning, his use of the term cognition was open-ended, as his own developing conceptualizations of cognition through the years eloquently show: the cognitive to the exclusion of the dynamic (Neisser 1967), processes and activities of acquiring and using information (Neisser 1975), inclusive of consciousness (Neisser 1976), and inclusive of ecological validity (Neisser 1985). Many others (see

O'Connell 1988a, p. 42 f., for further details) joined the "cognitivism" (Sampson 1981, p. 730) charade to the point where everything is now cognitive, and cognition has become a shibboleth with no meaning of its own.

The cognitive revolution in psychology (Baars 1986), it was alleged, changed everything. But the concept of cognition had already become so vague as to refer accurately only to "a system of processes for the manipulation of information" (Hunt 1982, p. 33). And in the meantime, it has been erected into the all-embracing edifice of cognitivism:

- ▶ Cognitivism is both more and less than the study of cognition. It is *more* in that it covers not only topics such as knowledge, reasoning, and memory, but extends to most of the rest of psychology and cultural life, including social relationships and child development, and topics such as psychopathology and the emotions. That extension, beyond the more straightforwardly 'cognitive', is accomplished by treating knowledge-based processes (or even a particular, information processing version of them) as primary, the foundation of all the rest. (Edwards 1997, p. 27)

Further relevance of cognitivism in psycholinguistics is to be found in the subsumption of psycholinguistics under the umbrella of cognition. Textbooks in cognitive psychology published in the second half of the twentieth century always contained a number of mandatory chapters on language. This is still the case in the twenty-first century:

- ▶ It is quite clear that psycholinguistics is still being considered a part of cognitive psychology in the most recent textbooks (e.g., Anderson 2001; Best 1999; Reed 2000; Reisberg 2001). In none of these texts is there any mention of conversation or dialogue. (O'Connell and Kowal 2003, p. 196)

A European Psychology of Language Use

The preceding depictions are good examples of a notable neglect, not only of psychologists, but of an entire continent of psychologists – European psychologists of language use. Given the fact that virtually *all* of the nineteenth century pioneers in the psychology of language use were European, this is nothing short of astounding. And it certainly is not

in accord with the facts, i.e., with the existence of European psycholinguists' contributions written in the English language. Hörmann's (1978) review of "German Psycholinguistics: 1967–1977" alone, despite his very narrow definition of psycholinguistics, listed 109 references, most of which were contributions to German psycholinguistics within a single decade.

One of the first European critics of modern psycholinguistics to emerge was the Norwegian social psychologist Ragnar Rommetveit. As early as the mid-1960s, mimeographed copies of his criticisms of American psycholinguists were circulating in the Harvard Center for Cognitive Studies. His early publications in English (Rommetveit 1972, 1974, and 1979) all challenged the psychological relevance of deep structure of sentences and proposed message structure in its stead. Later, he referred to "the fragile empirical foundation of mainstream psycholinguistic models of language use" (Rommetveit 1988, p. xi). As social psychologist, his principal emphasis has been on "intersubjectivity, in which there exists a partial complementarity, temporary reciprocity, and above all a shared consciousness among interlocutors" (O'Connell and Kowal 2003, p. 203). This emphasis echoes the words of Lazarus (1879/1986, p. 42; our translation) that conversation is "a joint action of minds. . . : The thought does not originate in me or you alone, but in both of us" (see also Clark 1996b, p. 3). Obviously, Rommetveit's emphasis was at odds with mainstream psycholinguistics from the beginning, and Fillenbaum (1971, p. 276), in his critique of "the view of language. . . focal in recent research," had already referred to some of Rommetveit's early objections.

Rommetveit's more recent insistence that morality must be factored into any adequate theory of language use is even more at odds with mainstream psycholinguistics:

- ▶ Morality is an intrinsic feature of any dialogue. It is in and through dialogue that man constitutes himself as a moral agent, . . . morality is a multidimensional and multilayered phenomenon. It ranges from premoral and proto-moral forms to explicit moralization, from authentic expression to tactful respect for integrity, from embodied feeling of a social-interactional origin to socioculturally sedimented norms and values oriented to in human dialogue and interaction. Morality remains

both a prerequisite and a product of the engagement in dialogue. (Linell and Rommetveit 1998, p. 472)

This statement was the conclusion of a special issue of *Research on Language and Social Interaction* on "the relation of social interaction and morality" (Bergmann 1998, p. 279).

Hörmann (e.g., Hörmann 1978, p. 136) also began to write in English during the 1970s, referring to the theory of "Generative Linguistics" as "in itself rather a-psychological" and moving to higher ground in the following summary:

- ▶ One of the main tenets of orthodox generative-transformational grammar – that semantics is only a secondary, 'interpretative' determinant – has never been accepted in German psycholinguistics. Accordingly, language has been viewed. . . as continuation of (non-verbal) human action by a different and highly specific means, rather than as a self-contained system. One of the topics of a comprehensive psychology of language is therefore the investigation of the goal-directed dynamics of a verbal utterance. These dynamics depend heavily on the situative context of the utterance. (p. 143)

Such a statement, made as early as 1978, was extraordinarily bold and deliberately agonistic. Although Hörmann had spent a number of months as a visiting scholar at Massachusetts Institute of Technology in 1968, it seems clear that he had not been heard. Many years later, his final statements were published posthumously (Hörmann 1986, p. 268):

- ▶ Under the influence of information theory and of what was appearing with great acclaim as semiotics. . . , the process of understanding was for a long time viewed as one of decoding. It was viewed as a kind of retranslation of the language signs into the thoughts which contain this same information. Then understanding would indeed be a linguistically determined process, because it would move exclusively in the area of the language code. Now we see that understanding is a creative, constructive act that always goes beyond the information coded in the utterance itself.

In addition to intersubjectivity, morality, and creativity, at least two more elements of a psychology of language use – *dialogism* and *perspective* – have been thoroughly neglected in mainstream psycholinguistics

and are to be credited to European psychologists of language use. Both these concepts have been presented not as adjuncts or supplements to mainstream psycholinguistics, but as radical departures from its basic stance. Our own engagement of them has been of more recent date (for a summary, see O'Connell and Kowal 2008).

Linell's (1982) early insistence on the primacy of the spoken was evident in his title *The written language bias in linguistics*. Much of his research from that point on had to do with *dialogism*. In 1988, the Bad Homburg Study Group on "The Dynamics of Dialogue" was formed; the group sponsored as many as 12 seminars between 1988 and 1993. Linell (1998, p. xvi) has expressed his dependence upon and gratitude to its members: "Jörg Bergmann, Rob Farr, Klaus Foppa, Carl Graumann, Thomas Luckmann, Ivana Marková, and Ragnar Rommetveit." It was from these meetings that his clearest expression of dialogism evolved (p. xii f.):

- ▶ Thus, the paradigm of dialogism must be understood in contrast to something else, namely 'monologism'. The latter is the dominant theoretical framework in the language sciences. The term alludes to the tendency to identify the speaker alone as the origin of the utterance. Basically, such a framework adopts some version or other of the following theories; cognition as individually-based information processing, communication as information transfer, and language as a code. This is coupled with a long-standing tradition in the language sciences in general, and in linguistics in particular, to give priority to theories and methods that suit written language and text better than they do spoken interaction.

Graumann (1990, p. 14) started from the importance of taking another person's *perspective*: "The capacity to take another person's perspectives may be considered the elementary communicative competence." But behind the ability to *take* someone else's perspective is the even more fundamental necessity to *have* one's own perspective:

- ▶ Each thought or utterance views aspects of the world from some particular vantage-point, thus telling us (as recipients or analysts) something not only about the things talked about but also about the actor's background. (Linell 1998, p. 48)

As we have noted already above, one's personal perspective dictates what one means and what one's interlocutors understand, and extends to one's values and ideals: "Morality is an intrinsic feature of any dialogue" (Linell and Rommetveit 1998, p. 472).

More than any other group – especially after the untimely death of Hörmann in 1983 – the Bad Homburg Study Group symbolizes opposition to mainstream psycholinguistics and an engagement of spontaneous spoken discourse on the part of European psycholinguists. Not least in importance is the Bad Homburg Study Group's rejection of cognitivism as the theoretical umbrella for psycholinguistics and the relocation thereof to social psychology.

Another European psychologist who over the years has devoted a good part of his research to language use from the viewpoint of *Allgemeine Psychologie* has been Theo Herrmann. In our introduction to this chapter, we have referred to his (Herrmann 2006) discussion of the various perspectives taken by psychologists on the study of language use. Herrmann (2005) has repeatedly expressed his discontent with the state of the art in the psychology of language use and, more specifically, with its reductionistic approach to methodology:

- ▶ The psychology of language use as well as psycholinguistics are currently incapable, by reason of their methodology, of engaging research on many important and central aspects of basic problems of language use.
- ▶ Under these circumstances, the psychology regarding language use and psycholinguistics must necessarily neglect the problems for the time being, unless their canon of methodologies be broadened, tolerance with regard to other methods be expanded, and the requisite interdisciplinary cooperation be intensified or set in motion altogether from scratch. (p. 15; our translation)

He has found a broader approach to language use within some subdisciplines of psychology (e.g., social psychology), but also in ethnology and cultural anthropology. Nonetheless, he has concluded:

- ▶ *Mainstream psychology of language use* only seldom gets beyond research on the mental or neural processes involved in the production and reception of individual sentences. (p. 78; our translation)

Among those who have broken away from these limitations, Herrmann mentions Clark (1996b) and Hörmann (1976).

A Comparison: Modern Psycholinguistics in Field (2003) Versus Bates (1989)

Perhaps the question may arise as to whether our characterizations of mainstream psycholinguistics are sufficiently current. In fact, we have relied on the most recent summary presentations of psycholinguistics at our disposal (e.g., Cutler 2005; Trueswell and Tanenhaus 2005a; Brown 2006; Traxler and Gernsbacher 2006; Gaskell 2007; Harley 2008). We wish to add a brief analysis of one of the more recent textbooks in the tradition of mainstream psycholinguistics. Field's (2003, p. 2) *Psycholinguistics: A source book for students* was clearly intended as a handbook of the discipline for the beginner. By all criteria, it is mainstream:

- ▶ Psycholinguistics explores the relationship between the human mind and language. It treats the language user as an individual rather than a representative of a society – but an individual whose linguistic performance is determined by the strengths and limitations of the mental apparatus which we all share.

In other words, the asocial, monologistic, rule-governed behavior of the individual is to be studied. There is no mention of conversation or dialogue throughout the book. Of the references, 98% (191/195) were published since 1960, and none of the many precursors of a modern psychology of language use, none of the Bad Homburg Study Group, and none of the other prominent European contributors mentioned above are included therein. His examples are characteristically either artificial settings or at best monologistic (see, e.g., p. 208 ff.).

Contemporarily with the publication of Field's (2003) book, Elizabeth Bates, a psycholinguist of great renown, died at the early age of 56. Almost two decades ago, she had sized up mainstream psycholinguistics, but not unlike Hans Hörmann before her, did not live to reap the fruit of her research. Bates (1989) published her review of the state of the art in psycholinguistics in Italian and for the Italian journal *Sistemi Intelligenti*. In stark contrast to Field, she pointed out already at that early date the basic flaws of mainstream psycholinguistics.

First of all, she thought of herself as a psycholinguist with specialties in child language development and aphasiology. But she was convinced that, by 1989, psycholinguistics had already disappeared as a coherent and identifiable discipline. It is to her credit that she recognized the importance of Fodor et al.'s (1974) formulation: "The goal of generative linguistics was an account of linguistic competence," whereas "the goal of psycholinguistics ought to be a characterization of performance, i.e., the linguistic behavior (overt and covert) by real human beings" (Bates 1989, p. 308; her own translation). As for Fillmore's (1968) generative semantics, Bates (1989, p. 310; her own translation) described "an embarrassing year or so in which his case grammar had followers in psycholinguistics (especially child language), but no followers at all within linguistics proper (including Fillmore himself)." By then, the separation between psychology and linguistics "seemed to be complete." In their more recent review, Bates et al. (2001, p. 390) have pinpointed an important historical footnote on the Anglo-centrism of modern psycholinguistics:

- ▶ The dominance of English in twentieth-century psycholinguistics was a historical accident, more socio-political than scientific. However, it has had particularly unfortunate consequences for those fields that try to study the universal psychological and neural underpinnings of language. Psycholinguistics has finally broken away from the hegemony of English, and the field is better for it.

H. H. Clark's Shift from Monologism to Dialogism

We have repeatedly described mainstream psycholinguistics as monologically oriented from the very beginning. But nature does indeed abhor a vacuum. Within psycholinguistics, the research of H. H. Clark gradually shifted from monologism to dialogism. More than a decade ago, Garrod (1999) reviewed this tradition of research. Historically, Clark and Clark's (1977) very popular textbook was thoroughly embedded within mainstream psycholinguistics. Evidence of this has already been adverted to: Of the canon of six references characteristic of psycholinguistic textbooks (see O'Connell 1988b, p. 347), all six were cited in Clark and Clark. By way of contrast, in H. H. Clark's (1996b)

Using language, none of them were cited, and the very concept of psycholinguistics was deliberately played down (see O'Connell and Kowal 1997, p. 854 f.). However, citations of ethnomethodologists, sociolinguists, conversation analysts, and other *non-psychologist* researchers with a generally sociological background, "including Goffman, Goodwin, Greatbatch, Heritage, Hymes, Jefferson, Levinson, Pomerantz, Sacks, and Schegloff" (O'Connell and Kowal 2003, p. 205) were abundant in Clark (1996b). None of these had been cited in the Clark and Clark (1977) book, although works of at least Goffman, Hymes, Jefferson, Sacks, and Schegloff were already available. A comparison of all of the references in Clark (1996b) showed that 95% (356/376) of them do not overlap with the references in a psycholinguistics textbook by Forrester (1996) published the same year. Already by 1985, Clark had pointed out, in his contribution to the *Handbook of social psychology*, psycholinguists' "lack of interest in social processes" and had emphasized his own conviction that "language is a social process" (Clark 1985, p. 179). By the time of Clark (1996b, p. 3), his conviction had become quite explicit: "Language use is really a form of *joint action*." Accordingly, *Using language* contains many transcripts of conversations: "A book about language use wouldn't be comprehensible without examples of spontaneous speech, so I have appealed to authentic examples wherever I could" (p. x). But his engagement of spontaneous spoken dialogue was accomplished only at the cost of isolating himself – both theoretically and methodologically – from mainstream psycholinguistics as traditionally understood. Even so, he still clung to the vestigial notions of lawlessness in conversation; it remained for him "purposive, but unplanned" (Clark 1996a, p. 294).

Back to the Future

In the motion picture *Back to the future* (Zemeckis 1985), a mad scientist takes a young man back in time in order to influence his future. In recent years, an analogous phenomenon has been developing in the history of psycholinguistics and more generally in the history of a psychology of language use. What might have been becomes abundantly clear from a revisionist version of history based on an array of mostly German-language sources from the late nineteenth and early twentieth centuries. The reason for this late emergence

of sources is no mystery. In the late nineteenth century, the German language was the premier language of science. Through the influence of the First and Second World Wars and the emergence of English as the *lingua franca* of the scientific world at large, German sources have become increasingly difficult to access. The vast majority of American psychologists are unable to deal with the German language. And translations of German-language materials emerged either very late or not at all. For example, Moritz Lazarus's (1879/1986) *Über Gespräche* and Mauthner's *Beiträge zu einer Kritik der Sprache dritter Band: Zur Grammatik und Logik* (1923/1999) have still not been translated; Philip Wegener's (1885) *Untersuchungen über die Grundfragen des Sprachlebens* appeared only 86 years later in English translation (Trans. Abse 1971) as *The life of speech*; and Bühler's (1934/1982) *Sprachtheorie* was translated into English only 56 years later (Trans. Goodwin, 1990) as *Theory of language: The representational function of language*.

The overall thrust of these and other neglected sources can be summed up as radically antithetic to modern mainstream psycholinguistics as it evolved in the second half of the twentieth century. The emphasis across the board in all these early, pre-psycholinguistic sources was neither *written* language use nor the *grammatical structure* thereof. Their interest was instead extended to everyday oral language use, dialogue, and field observation. It is no exaggeration to say that, had their wisdom been heeded historically, mainstream psycholinguistics could not have seen the light of day.

More specifically, to Lazarus (1879/1986, p. 5; our translation) goes the credit of being one of the earliest to insist on the investigation of "actual, everyday, hour-by-hour conversations of ordinary people." Not long afterward, Wegener (1885) moved radically away from classical philology toward a genuinely psychological approach to language use, a method that engaged naturalistic observation of spoken dialogical usage of the mother tongue. He also insisted on the temporal and logical priority of a form of occasional speech that was later to be designated *empractical speech* by Bühler (1934/1982). Wegener's insistence upon the relevance of the situation was also taken up by his successors, not least of all by Malinowski (1923, p. 465 ff.), with his emphasis on the "*context of situation*." Knobloch (1991, p. xxxviii*) has well delineated the entire movement in

characterizing the mentalist stance of Wegener himself: “For Wegener language is situated within a world of purposeful social action.”

A Return to Dialogue in the Twenty-First Century

In 2001, MacWhinney published an overview on psycholinguistics in which he stated its purpose as follows:

- ▶ This article will examine research in six core areas of psycholinguistics: spoken word recognition, sentence comprehension, sentence production, message construction, memory limitations, and cross-linguistic comparisons. In addition to these core areas, psycholinguists are involved in the study of reading, conversational interaction, figurative language, text comprehension, aphasia, child language disorders, gesture, prosody, neurolinguistic imaging, animal communication, and language evolution. However, our analysis here will focus on these six core areas. (MacWhinney 2001, p. 12344)

MacWhinney’s selection of “core issues” (p. 12348) is relevant in the present context for two reasons: It makes explicit how strongly modern psycholinguistics is still bound to its historical beginnings in the mid-1950s, and, at the same time, it makes room for “conversational interaction,” although not as a core issue. MacWhinney’s own justification for the selection of the core areas is as follows: “These areas are central to the study of psycholinguistics, because they allow us to evaluate the psychological reality of linguistic formalisms” (p. 12348). This argument is surprisingly similar to a division of labor between linguistics and psychology expressed by Ervin-Tripp and Slobin (1966, p. 436) in their review of psycholinguistics from 1959 to 1965:

- ▶ To psychologists remains the challenge of finding the processes by which the competence described by linguists is acquired by children and is reflected in performance under a variety of conditions.

And Hörmann (1967) had entitled one of the chapters in his book *Psychologie der Sprache (Psychology of language)* more than 40 years ago “The psychological reality of grammar” (p. 246; our translation).

It should be duly noted that MacWhinney concluded his review as follows: “A satisfactory resolution of the core issue of the psychological reality of linguistic structures has not yet been obtained” (p. 12348 f.).

It should also be noted, however, that some time ago, Kurcz (1996, p. 18) had already acknowledged that an approach such as MacWhinney has portrayed was already passé:

- ▶ The idea of studying the psychological reality of any theory has come into question (Chomsky himself has rejected the validity of the conception of psychological reality, as it was used by experimental psycholinguists, cf. Rieber, 1983)

In any event, MacWhinney’s core issues have been presented by him as viable for the twenty-first century. The several review articles (Clifton and Duffy 2001; Gernsbacher and Kaschak 2003; and Diehl et al. 2004), which have appeared in the *Annual Review of Psychology* pertaining to these core issues, confirm such an interest throughout the first decade of the century. It would appear that some American and British psycholinguists are still very much committed to these core issues, insofar as they fail to engage genuine dialogical spoken language use and still substitute controlled experimentation for field observational studies.

In the following, we wish to summarize some recent developments in psycholinguistics all of which emphasize the importance of dialogue as both a significant as well as neglected topic in psycholinguistic research – developments which at the same time rely on the work of H. H. Clark and his colleagues.

Pickering and Garrod (2004), two of the leading psycholinguistic researchers on dialogue, have introduced their account of “a mechanistic psychology of dialogue” as follows:

- ▶ The most natural and basic form of language use is dialogue: Every language user, including young children and illiterate adults, can hold a conversation, whereas reading, writing, preparing speeches and even listening to speeches are far from universal skills. Therefore, a central goal of psycholinguistics should be to provide an account of the basic processing mechanisms that are employed during natural dialogue. (p. 169)

In view of the fact that currently “there is no such account” (p. 169), they have added:

- ▶ So far as most psycholinguists have thought about dialogue, they have tended to assume that the results of experiments on monologue can be applied to the

understanding of dialogue, and that it is more profitable to study monologue because it is “cleaner” and less complex than dialogue. Indeed, they have commonly assumed that dialogue simply involves chunks of monologue stuck together. (p. 170)

Pickering and Garrod’s mechanistic account is based on the assumption that “in dialogue, production and comprehension become tightly coupled in a way that leads to the automatic alignment of linguistic representations at many levels” (p. 170), and they have carefully distinguished automatic alignment through basic cognitive processes from the strategic alignment that they interpret to be Clark’s (1996b) approach. However, by 2007, Garrod and Pickering (Garrod and Pickering 2007) had added strategic to automatic mechanisms in their account of alignment: “Just like other complex cognitive processes, alignment in dialogue involves both automatic and strategic components” (p. 443). They have also insisted that research on the relative impact of both components is “a major goal for future research in dialogue” (p. 449). More generally, they contended that language is used by interlocutors to “align their mental states, so that they come to have the same ideas about the topic under discussion.” Finally, Costa et al. (2008) have pointed out the need for dialogical research in view of their speculation that “our cognitive machinery is better designed for dialogue than for processing language in an isolated context” (p. 528). But unlike Costa et al. (p. 529), who concentrated on “successful” dialogue, Clark (2004, p. 365) emphasized “the SPONTANEOUS, INTERACTIVE LANGUAGE of cafés, classrooms, and offices.”

The research of Garrod and Pickering and their colleagues has elicited a lively discussion about dialogue within psycholinguistics and beyond. However, whether or not their concepts of “mechanistic account” and “successful” dialogue will remain theoretically viable is still an open question. Moreover, it would seem that the finality of any dialogical engagement is precisely whatever interlocutors decide for it to be; otherwise, it ceases to be informed by the interlocutors’ intentions. In addition, ascertaining “the same ideas about the topic under discussion” on the part of interlocutors seems to be empirically impossible. In the face of the truly radical dialogism of Linell (2009, p. 35), such latter-day traditions within psycholinguistics itself

still appear to be too closely related to a monological system wherein “the situated meanings of utterances are determined by the individual speakers.”

Another ambitious proposal to bridge the polarities within modern psycholinguistics has been made by Trueswell and Tanenhaus (2005b, p. xv):

- ▶ A confluence of methodological and theoretical developments in psycholinguistics, linguistics, and computational linguistics, all related to the goal of providing mechanistic accounts of language use within rich referential environments, suggest[s] that the time is ripe to bridge the product and action traditions.

Trueswell and Tanenhaus (p. xi) refer the traditions of “language-as-product” and “language-as-action” back to Clark’s (1992) *Arenas of language use*:

- ▶ The product tradition, which has dominated psycholinguistics, has its roots in George Miller’s (1962) synthesis of the then-emerging information-processing approach to cognition with Chomsky’s (1957, 1959) revolutionary approach to linguistic knowledge as a cognitive system of rules and representations. Clark labeled this the language-as-product tradition because it focuses on the cognitive processes by which listeners recover, and speakers create, linguistic representations – the “product” of comprehension.
- ▶ The second tradition sketched by Clark, the language-as-action tradition, has its roots in work by the Oxford philosophers of language use (e.g., Austin 1962, Grice 1957, and Searle 1969), and work on conversational analysis (e.g., Schegloff and Sachs 1973)... This approach focuses on how people use language to perform acts in conversation, arguably the most basic form of language use.

How can one reconcile these “mechanistic accounts of language use” after all these years of conflict between “the product and action traditions” (p. xv)? The title of their first chapter (Tanenhaus and Trueswell 2005, p. 3) has specified the remedy: “Eye Movements as a Tool for Bridging the Language-as-Product and Language-as-Action Traditions,” and Tanenhaus and Trueswell have further specified that it is this single available response measure that is presently to be the key to reconciliation of the two traditions: “A response measure bridging the

action and product traditions” (p. 8); and they have added that “other methods will emerge” (p. 31).

The logical difficulty with this is that the conflicts between the two traditions are only superficially conceptualized as *product* and *action*. It seems difficult to conceptualize the differences between the two traditions as only – or even primarily – methodological. In fact, some representatives of the action tradition (e.g., H. H. Clark himself) would balk at the requirement of “mechanistic accounts” of language use. Nonetheless, Tanenhaus and Trueswell’s prediction is gratifying in the following respect:

- ▶ The most ground-breaking work will come from those using increasingly rich (and complex) data arrays to understand the dynamics of comprehension and production in conversation. (p. 31)

We have already found implausible the claim that a bridge is readily available. More important, however, is the historical picture painted by these brief excerpts. They are without doubt oversimplifications, but, nonetheless, they throw light on the development of psycholinguistics over the years. The sketch provided for language-as-product seems quite adequate (but see Bates 1989 on the foundational importance of Osgood’s mediation theory); George A. Miller was undoubtedly the most important researcher within the discipline of psychology to engage the new psycholinguistics, and Noam Chomsky’s influence was nothing less than charismatic, even though the distance between himself and Skinner was not as great as he made it out to be: “Chomskyan mentalism is not incompatible with a behaviorism that builds upon internal mediating variables” (Linell 1998, p. 58). The sketch provided for language-as-action, however, seems less straightforward. The salient thing one may note in it is that there is no mention of psychologists, but only of philosophers and sociologists, a description quite in accord with Clark’s (1992, p. xii f.) own depiction.

In a somewhat different way, a (re)turn to dialogue is to be noted in Harley’s (2008) third edition of his textbook *The psychology of language: From data to theory*. He has added an entirely new chapter entitled “How Do We Use Language” (p. 453), wherein he recommends Clark’s (1996b) book as “a classic work on using language” (p. 453). However, a noteworthy distinction is presented in some introductory remarks,

wherein he sets the understanding of a comprehender and the production of a speaker *apart from* language use:

- ▶ Much of what we have been concerned with so far is either how a comprehender understands language, or how a speaker produces language. But usually we use language in a social setting: we engage in dialog. . .
- ▶ This chapter is about how we use language. (p. 453)

Evidently, *language use* in the production and understanding of language is understood by Harley as other than *language use* in dialogical interaction – quite in accord with the monological tradition of mainstream psycholinguistics.

The recent emphasis on dialogue has also been paralleled by a plea on the part of some researchers for recognition of the importance of affective as well as cognitive processes in language use. Accordingly, Schober (2006, p. 569) has pleaded:

- ▶ Note that studies of affective processes involved in dialogue have largely been left to social psychologists. . . But cognitive and affective processes no doubt interact in important ways, and ought to be part of a full psychological theory of language use.

A radically dialogistic contribution to the literature on dialogue from outside psycholinguistics is clearly to be found in a major work published recently by Linell (2009) under the title *Rethinking language, mind, and world dialogically: Interactional and contextual theories of human sense-making*. Dialogism for Linell (p. 400) is

- ▶ a family of somewhat loosely linked theories and traditions across many disciplines. In some ways, we would claim that dialogism, by its very nature, is interdisciplinary, because most, if not all, established disciplines have been dominated by non-dialogist (‘monologist’) traditions.

Among these monologistic traditions, mainstream modern psycholinguistics surely holds the first place for Linell, and, accordingly, he has disavowed any affiliation with it. Linell (p. 3) has also pointed out that the limitation of dialogue to “one-on-one language use with a partner” (Schober 2006, p. 564) relies on a false etymology and does not accurately reflect the new dialogism.

Linell’s book is primarily dedicated to the historical and philosophical – both ontological and epistemological –

background of dialogism. There is considerable discussion of methodology, though primarily in an abstract rather than an empirical mode. And whereas his previous work might be characterized as negative in the sense that it was a critique of *The written language bias in linguistics* (2005), the more recent book is a quite positive engagement of dialogism, including even an application of dialogism to the written. The import of dialogism is then that

- ▶ a human being, a person, is interdependent with others' experiences, actions, thoughts and utterances; a person is not an autonomous individual who can decide everything for him- or herself, as monologism tends to assume. (Linell 2009, p. 11)

Hence, for Linell, “dialogism’ is a countertheory to dominant theories in psychology, social science, linguistics and elsewhere” (p. xxviii). It “requires interdisciplinary work, rather than mono-disciplinary compartmentalization” (p. 433). Whether there is currently present within the social sciences a strong enough impetus to carry forward such a radically uncompromising dialogism remains to be seen. Note, however, that Linell makes numerous references to the work of Clark and his colleagues, refers to their approach as “interactionist social psychology,” and counts it among the research traditions which “have provided important empirical evidence for the fruitfulness of a dialogical approach” (p. 399).

It would surely be a mistake to neglect Bakhtin’s (e.g., Bakhtin 1981) influence on Linell and others. For example, Morson (2006, p. 561) has emphasized Bakhtin’s insistence on the fact that language use is dialogical and that the utterance rather than the sentence is the unit of language use:

- ▶ Language is a matter of people speaking to each other on specific occasions for specific purposes, and many features of language will be overlooked if one focuses on the sentence.

Future Directions

After all the vagaries of mainstream modern psycholinguistics throughout the first six decades have been duly recorded and pondered, we wish to formulate for our readers some basic principles for future research: (1) The designation *psycholinguistics* should be restricted to “linguistic performance as a component of human

cognition” (Dietrich 2002, p. 7; our translation); by contrast, a legitimate *psychology of language use* should take into account intersubjectivity, morality, creativity, dialogism, and perspective as essential components of human discourse (Linell 2009, *passim*). (2) Such a psychology of language use, as a subdiscipline of social psychology, should be open to other social-scientific disciplines (e.g., sociolinguistics and conversation analysis, anthropological linguistics, and ethnolinguistics) and to their emphases on social role and culture (Graumann 2006, p. 62). (3) The *written language bias* (Linell 1982; 2005) must be avoided, and spoken discourse must be given consideration in proportion to its salient use. (4) In addition to the use of controlled experimentation and inferential statistics, the importance of field observation, description, and qualitative methods should be acknowledged, much as the Conversation Analytic tradition has insisted all along. (5) The Anglophilic bias must go; corpora from other languages and researchers from other cultures and languages must be taken into account (see Bates et al. 2001, p. 390; Anderson 2006, p. 274).

What did happen historically to psycholinguistics? In short, a tiny corner of formal language structure was emphasized to the exclusion of a vast universe of language use. The vehicle for this dynamic was a mechanistic cognitive view – frighteningly like behaviorism, despite all the protests and breast thumping contrition of the new mentalists to the contrary. Paradoxically, psycholinguistics mimicked the natural sciences in its meticulously quantitative and reductionistic approach to the processing of language structure, even while at the same time following the largely nonempirical epistemology and nativistic speculations of the generativist linguists down the primrose path to triviality. Small wonder that meaning still remains “a core unsolved problem of cognitive science” (Fitch 2005, p. 395). There are ways of getting at the problem of meaning, and a legitimate psychology of language use must now embrace them.

In its original format, this presentation was to have served as a complement to the historical views of Blumenthal (1970, 1985). And his reflections do encourage our own:

- ▶ Whatever the future course of relations between psychology and linguistics it should be a more intelligent

one if we pay attention to what has happened in the past. (Blumenthal 1985, p. 111)

And we may now return to Slama-Cazacu's (1980, p. 93) question, "Should and can psycholinguistics contribute to the improvement of human communication?" The answer must be: Only if there is a radical movement in the direction of dialogue. Such a change in direction is in fact the fulfillment of Lazarus's (1879/1986, p. 19; our translation) plea 130 years ago for the integration into psychology of "a future study of the lawfulness of conversation." Such a vision, however, demands a genuine psychology of language use, not mainstream psycholinguistics.

Our penultimate citation is from a linguist rather than from a psychologist, Otto Jespersen. He anticipated a great deal of the conflict between those who would engage only the abstract system of language and those who would engage the actual use of language on the part of interlocutors. The battle has endured from the very beginnings of psycholinguistics to the present day and bids well to continue on through the twenty-first century unabated. Indeed, it could be discerned in the opposition experienced by Lazarus as early as 1879, when he argued that conversation was the primary linguistic activity of mankind and should accordingly be salient in any psychological consideration of human language:

- ▶ The essence of language is human activity – activity on the part of one individual to make himself understood by another, and activity on the part of that other to understand what was in the mind of the first. . . . But in former times this was often overlooked, and words and forms were often treated as if they were things or natural objects with an existence of their own. (Jespersen 1917, p. 17)

In the light of history, it is small wonder that Theo Herrmann (2006, p. 420; our translation) exclaimed: "The current situation of the psychology of language use – at least in the domain of the German-speaking scientific community – must be judged to be thoroughly unsatisfactory." Yes, and elsewhere too! But we must never forget that the writing of history is an act of hope: Understanding the "thoroughly unsatisfactory" is the very best spur to remediation.

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Psychological Theory of John Bulwer

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John Bulwer (1606–1656) was a London physician best known for his writings on gesture, the semiotics of the body, and speech for the deaf. However, his psychological theory has received almost no attention from historians, and the fact that Bulwer was the most important British contributor to the psychology of motor action, physical expression, and nonverbal communication in the period between [William Harvey \(ca. 1627\)](#) and [Thomas Willis \(1664\)](#) has gone largely unrecognized.

John Bulwer was the first surviving child and only son of Thomas Bulwer, a London physician. As an apprentice apothecary, the elder Bulwer worked under a leading light of London's medical profession – Roger Gwyn, apothecary to both St. Bartholomew's and St. Thomas's Hospitals from 1587 to 1614. Since the great majority of topographical references connected with the life of John Bulwer, including the parish of his birth, are located close to St. Bartholomew's in the northwest corner of the City of London, it may be conjectured that his father had worked with Gwyn there. Thomas Bulwer became a full member of the Grocers Company, which then still included the apothecaries, in 1599.

On July 1, 1600, Thomas Bulwer married Mary Collet, and on March 27, 1603, they christened a son, Peter; but both mother and son died that year, probably

from the plague that killed an estimated 30,000 Londoners. On May 26, 1604, Thomas married Marie Evans of St. Albans, daughter of George Evans of that city, probably an apothecary, and on May 16, 1606, John Bulwer was christened in the church of St. Michael Wood Street, a parish situated on the north side of The Cheape, a major thoroughfare and center of goldsmiths and apothecaries in northwest London. Three younger sisters, Mary, Dorothy, and Alice, followed.

Thomas Bulwer was one of the 19 men who left the Grocers Company to form the Worshipful Society of Apothecaries in December 1617. The new guild was opposed by both the Grocers and the City of London, but it was under King James's protection and received his charter in 1618. Though in some respects still beholden to the College of Physicians, the apothecaries now could practice as physicians themselves. Thomas Bulwer was one of the more prominent of the London apothecaries, and he certainly treated patients. John Bulwer, in the dedication of *Pathomyotomia* (1649) to his father, refers to “Physick, wherein your experience hath crowned your Profession, having ever been *Fortunatus in Praxi*.”

John Bulwer's parents moved to St. Albans in 1631 or 1632. By this time John was a physician himself, presumably having taken over his father's medical practice. It is noted in the 1634 Visitations of Hertfordshire (St. George 1886:35) that Thomas's son “John Buller” was by then married to “the widowe of – Middleton” (a woman who has not been further identified). Evidence suggests that by the mid-1630s, Bulwer had a prosperous and well-connected practice in the London liberties around Holborn, for many of his intellectual circle were law students at the Inns of Court during that decade, while others, also lawyers, were their fathers and uncles.

Bulwer's mother was buried August 23, 1638, in St. Albans Abbey.

Because of the disturbed conditions during the English Civil War, the Inns of Court were practically deserted from the summer of 1642 through the summer of 1646. This seems to fit with the fact that from the 1640s to 1653, Bulwer was not practicing medicine. From this decade (1644–1653) date all his publications, but in the colophon to his last, the second edition of *Anthropometamorphosis*, he bids farewell to the making

of books (unless he shall be fortunate enough to receive financial support), for he must, he says, return to the practice of medicine. Thomas Bulwer, in his will (1649), had noted that his son was not then in practice.

The genesis of Bulwer's main research project must fall somewhere within the years 1632–early 1640s. In his dedication to *Chirologia* (1644) he says that when he jotted down the basic idea of the project, the first person he shared it with was his “Intellectual Friende” Edward Goldsmith, of Gray's Inn; and that Goldsmith had strongly encouraged him and had recommended the project to his friends. Francis Goldsmith, Edward's nephew, who is known to have resided at Gray's Inn between 1635 and 1642, himself wrote a laudatory poem for *Chirologia*, and in the same dedication, Bulwer tells Edward Goldsmith that “This book by *prescription* and *signiority* of acquaintance as by a *Prerogative*, and by a reciprocation of *love* for your affection to it, falls to your *Tuition*. I confesse some other of my digested thoughts struggled for precedencie . . . and the head would have had the priviledge of primogeniture. But it fell out. . . . *This is come out first.*” (This playful figure of speech hints that Bulwer was already studying the gestures of the face and head, part of which research would later emerge as *Pathomyotomia*.)

Most likely, it was around 1641 that Bulwer showed his prospectus to Goldsmith. Bulwer's project is very likely his response to three factors: ongoing discussions of universal language stimulated by the visit to London (Sept. 1641–June 1642) of the great Moravian reformer Jan Amos Comenius; the publication in 1641 of John Wilkins' *Mercury*, which touches on some related themes in its fourteenth chapter (Wilkins 1984:158–162); and the religious political crisis of the time. Although 1641 is suggested here as a starting point for Bulwer's project, the exact date is less important than the ongoing historical context in which it was certainly embedded (Wollock 2011).

In 1648, John Bulwer published his next book *Philocophus*, dedicated to two deaf brothers, Sir Edward (b. 1620) and Mr. William (b. 1630) Gostwicke of Willington, Bedfordshire. As Bulwer explained in the dedication, he had been solicited on their behalf “by a worthy Friend of yours (who had observed you not onely to be affected but seemingly edified upon the sight of the Alphabets of my *Chirologia*

or naturall language of the hand which hee had presented you with) . . .” (Bulwer 1644a: unnumbered p.; Wollock 1996:4–5). From this it is clear that Bulwer's *Philocophus*, and his idea for an academy of the deaf, originated only after he met the Gostwicks. *Chirologia* was published in 1644; *Philocophus* was in print by July 1648, at the latest.

The first month of 1649 ended with the parliamentary execution of King Charles I. In the spring of that fateful year, Bulwer published his *Pathomyotomia* with a dedication to his father. *Pathomyotomia* complements *Philocophus* by discussing the whole topic of animate motion and the connections between sensation, mental imaging, and bodily movement. This was the same year in which Descartes issued his last published work, on a related subject, *Les passions de l'ame* (Amsterdam 1649).

Pathomyotomia, subtitled “A dissection of the significative muscles of the affections of the minde,” was based on actual anatomies conducted by Bulwer. The only place this could have been done was what he had referred to in *Chironomia* (1644b:85) as “the new Ovall Theater, lately erected for the dissecting Anatomists in Barber-Surgeons Hall in London.” Located in the northwest corner of the city of London, a very short walk north and slightly west of Bulwer's home parish of St. Michael Wood Street, it had been built in 1636 by Inigo Jones on the model of the anatomical theatre at Padua.

Thomas Bulwer died in 1649 and was buried on June 4 in St. Albans Abbey next to his wife. He left to his son his apothecary shop in St. Albans, which Bulwer later leased to the apothecary Charles Tirrell. At this time, Bulwer also inherited two tenements in St. Albans from his mother.

His father's will had stipulated that in order to inherit the St. Albans properties, John must resume the practice of medicine. In the new London of the Commonwealth, it would have been difficult to pick up where he had left off without acquiring an M.D., and it is certain that he had obtained one by 1653, and certainly not in Great Britain. Around this time, Bulwer adopted a young girl (born probably c.1649) he identifies in his will as “Chirothea Johnson alias Bulwer.” Circumstantial evidence suggests that she may have been deaf (Wollock 1996:34–35).

For some time up to 1649, Bulwer had been searching for a copy of Juan Pablo Bonet's book, *Summary of the Letters and the Art of Teaching Speech to the Deaf* (Madrid 1620), and for the teacher whom Digby, in the excerpt from his *On Bodies* (1645), quoted and commented upon by Bulwer in his *Philocophus*, had referred to (Wollock 1996:23–27). It is clear from the manuscript *The Dumbe Mans Academy* (unpublished, probably written in 1649, see Wollock 1996:16–18, 21–23), a fair copy almost ready to be set in type, that Bulwer had by then obtained a copy of Bonet's book, for it contains a paste-in of a plate from Bonet and translations from the text.

The year 1650 saw the first edition of *Anthropometamorphosis*, dedicated to Thomas Diconson. This includes a colophon listing the author's unpublished works. Two additional titles, *Glossiatrus: Tractatus de removendis loquelaе impedimentis* and *Otiatrus: Tractatus de removendis auditionis impedimentis*, are included in the updated list of "Works to Be Accomplished" printed with the second (1653) and subsequent editions of *Anthropometamorphosis* (Wollock 1996:31–32). This corresponds to the period in which Bulwer got his M.D. Their titles seem to form a pair, they are in Latin, and the subtitles sound exactly like typical titles of academic theses. Unfortunately both are lost. *Glossiatrus* was as far as is known, the first monograph on speech disorder ever written (Wollock 1996:18–19). Bulwer summarized his research on this topic in a paragraph in *The Dumbe Mans Academie* (Wollock 1996:19).

Anthropometamorphosis is a compendium of alterations to the human body, sanctioned by custom and fashion, in all parts of the globe including England. Man's corrupt ingenuity had invented myriad modes of disfiguring what William Blake would later term "the human form divine," by way of dress, cosmetics, and mutilation. Like the other works this one is about the semiotics of the human body. It has been frequently described as a work about "monsters," but this extends the word *monster* in a way that Bulwer could not have intended. True, he speaks in the dedication of "National Monstrosities" (1653: unnumbered p.), but this should be understood in a figurative sense. Bulwer was a Baconian, and Bacon clearly differentiates *monsters* (in which nature "is forced out of her proper state by the perverseness and insubordination of matter and

violence of impediments"), from "things artificial," where nature is "constrained and molded by art and human ministry." (*Novum Organum*, book II, "Aphorisms on the Composition of the Primary History.") The subject of *Anthropometamorphosis* is man's *artificial self-deformation*. Here, as in all his books, the true source of the theme is Bacon's *De Augmentis* (specifically Book IV, Chap. 2, which immediately follows the one on expression as a link between soul and body), where Bacon writes censoriously on "cosmetica," or artificial adornment).

Bulwer glossed his topic medically as *de abusu partium*, a play on the title of a classic work of Galen (*De Usu Partium*) which discusses every part of the body in terms of its purpose or final cause. Since in his previous books, above all *Pathomyotomia*, Bulwer had examined the natural expressiveness of the parts, one may assume that his concern here is the *artificial interference* with that natural expressive intentionality or finality, brought about by mankind's false ideas of beauty. On April 17, 1654, Bulwer presented a signed copy of *Anthropometamorphosis* to the Bodleian Library, Oxford.

On July 15, 1656, Bulwer made his last will and testament at Westminster. He died in October 1656 and was buried at St. Giles-in-the Fields, Westminster on October 14. The church has been rebuilt since then and there is no longer any trace of his grave or record of an inscription.

Bulwer's Theories and Their Sources

Bulwer's books tend to be treated separately by different investigators in various specific disciplines; his thought has rarely been surveyed as a unified whole. Here the attempt will be made. Though somewhat differently conceived, the *Anthropometamorphosis* also belongs to this unity. For reasons of space it cannot be treated here, but the present discussion will supply a suitable groundwork for such a treatment.

Chirologia is a treatise on natural gesture; its companion work, *Chironomia*, presents a systematic application of gesture to rhetorical delivery. The material for both is drawn from classical, biblical, and other Christian literature. The introduction to *Chirologia* presents a "General Projection" of a grand design for the study of expression and gesture, of which these books are but the first two offerings. The whole idea had been

inspired by two discussions in Francis Bacon's *De Augmentis Scientiarum*, the 1623 expanded Latin version of *The Advancement of Learning* of 1605 – Book IV, Chap. 1, and Book VI, Chap. 1.

In IV.1, Bacon calls for a new investigation of the common bond of body and soul; how they are aware of each other and how they interact. Bulwer takes his hint from Bacon's observation that although Aristotle has written on personality traits as signified by the physical features in a state of rest (physiognomics), he has ignored the whole topic of expressions and gestures.

Delving further, Bacon asks about the influence of "the humours and the temperament of the body" on the soul, and of the passions of the soul on the body. He notes that medical writers have dealt with this to some extent. As a physician, Bulwer would have been well aware of the topic, as it was important to medical practice and was discussed in the literature going all the way back to Hippocrates. Under the influence of Aristotelian and Stoic dialectic, symptomatology and medical semiotics had been systematized, the most comprehensive system surviving from Antiquity being that of Galen.

The classic definition of a sign is found in Augustine, *De Doctrina Christiana* II.1: "anything which, beyond the appearance it engenders in the sense faculty, makes something else come to our knowledge (Maclean 2002:148–149)." Augustine understood that verbal language is not the only species of sign. While spoken language and its alphabetic representation became the main focus of the medieval study of signs, it was recognized that this does not cover the whole range of signs (cf, Augustine, *Doctr. Chr.* II.2–8). Things may also be signs, whether by arbitrary imposition, by customary association, or by necessary natural connection. Modern semiotics uses the terms of Charles S. Peirce, *icon* (a sign that bears a natural resemblance to what it signifies) and *index* (a sign that has a necessary connection with what it signifies).

Medical signs are both nonverbal and natural. An observable physical sign points to an underlying condition not by custom but by natural connection. In Peirce's terms, it is an *index*. In Galenic medicine, "disordered motions" or "injured actions" are recognized as a distinct class of symptoms (Wollock 1997:109–112). However, a physician must be able to recognize not only disease but also health and all

degrees in between. Thus, just as disordered motion is a class of symptom, so all motions of the body provide clues as to what Bulwer calls (borrowing a phrase from King James I's *Basilikon Doron*, 1599, also quoted by Bacon) "the present humour and state of the minde and will." This is virtually equivalent to the study of expression as suggested by Bacon, who himself reviewed the natural signs of fear, grief and pain, joy, anger, light displeasure, shame, pity, wonder, laughing, and lust in his *Sylva Sylvarum* (published posthumously in 1627), "Experiments in consort touching the impressions which the passions of the mind make upon the body" (Cent. VIII, experiments 713–722).

From this starting point, Bulwer advanced to an insight of his own. Implicitly linking the first chapter of Book VI of *De Augmentis* (on nonverbal signs, natural and artificial) with the physical expression of IV.1, he envisioned a theory blending natural action-signs with physical expression, unmediated by the arbitrary conventions of spoken language and supported by psychology, physiology, and rhetoric.

In VI.1, Bacon describes gesture and hieroglyphic as "emblems" conveying their meaning by resemblance to what they signify. He likens gesture to a transitory hieroglyphic, hieroglyphic to a permanent gesture. Natural resemblance or connection, as well as spontaneous production, become for Bulwer the key to the relationship between gesture and cognition.

But it is also possible to construct artificial nonverbal signs, which Bacon calls "real characters." These are as arbitrary as alphabetical symbols, and may be adopted by convention. Being abstract, and capable of systematization, they are more rational than the "primitive" hieroglyph and gesture, and thus an improvement and advancement.

Significantly, Bulwer scarcely alludes to the real character, except in one place where he refers to the gestures of the hand as the "universall character of Reason" (1644a:3), and another where he describes the correspondence between particular speech sounds (from whatever language) and the motions of the mouth necessary to produce them, as "very neere to the nature of an universall character" (1648:156, cf. 38–41). This lack of interest in the artificial real character can be explained by the fact that Bulwer, as a physician, privileged the natural over the artificial. This also had ethical implications – the natural is

morally superior to the arbitrary, misleading character of verbal language – an outlook he shared with Bacon (Wollock 2002:230–240). The real character, though intended to provide an accurate reflection of the structure of reality and all its interrelationships, was still an artificial construct; Bulwer preferred a ready-made, universal mode of expression emanating straight from the roots of human nature and the structure of the human body (cf. Wollock, [forthcoming](#)).

Bulwer is aware that natural signs are not free of an element of conventionality, but he does not see this as a contradiction. In being adopted by society they become conventional by definition. Augustine (*Dpctr. Chr.* II.25) writes that “All desire a certain resemblance in signifying, in order that the signs themselves should, as much as possible, resemble the things they signify. But because there are many ways in which something may resemble something else, such things do not qualify as signs among men unless agreement occurs.”

No less than words, gestures also have an intellectual or universal level of meaning, as Bulwer explains for the sign of blessing (1644a:144). Aristotle taught that even on the intellectual level, the mind cannot think without mental images: *Nihil in intellectu quod non fuit prius in sensu* (a medieval catchphrase derived from *De Anima* III.7 [431a14–17]). Thus, imitative signs do not signify concrete particulars alone: that “imitation is natural to man from childhood” (*Poetics* [1448b6]) is related to what Aristotle says in section 9 of the *Poetics* (1451a36–b11), arguing that the imitative arts are related to philosophy because every imitation is the representation of a universal idea.

Gesture is impossible without the ability of the body to move itself. *Pathomyotomia* (1649) begins by affirming that self-motion is the highest perfection of the animate creature, the Creator’s last and noblest end in the fabric of the body; that it belongs to the very substance of the animal; and that the chiefest and nearest instruments of animate motion are the muscles. “For were the abilities that proceed from motion and its instruments separated from the Body . . . [man] could neither follow that which is wholesome, nor avoid what is noysome” (1649:2).

- ▶ He would be left destitute of the grace of elocution, and his mind would be forced to dwell in perpetual silence, as in a wooden extasie or congelation: nay his

Soul, which is onely known by Action, being otherwise very obscure, would utterly lose the benefit of explaining itself, by the innumerable almost motions of the Affections and passions which outwardly appear by the operations of the Muscles. (1649:3)

Similarly in *Chironomia* (1644b:24), the mind, “by some stratagem of wit,” expresses herself by “darting her rayes into the body, as light hath its emanation from the Sun.” Expressive gestures arise “by instinct of nature,” not by “statute of art” (1644a:1). Being natural signs, these demonstrative gestures derive their meaning from the unalterable laws of nature. Bulwer explains this by an analogy adapted from Augustine (*Dpctr. Chr.* II.2): gesture is as direct a consequence of “each motion of the Minde,” as smoke is of fire, a sweet smell is of incense, or the light of dawn is of the sunrise. Augustine’s examples are all what Peirce would call indexical signs or indices, phenomena that have a necessary connection with what they represent – in this case, effects signifying their causes – just like symptoms in medical semiotics. In other words, Bulwer believes that the formation in humans of a sign for fire is as spontaneous and as natural a consequence of the thought of fire, as smoke is of the fire itself. They signify particular states of the soul, including everything involved in their production – the whole Aristotelian action-syllogism: mental imagery, motivation, the neurophysiological functioning – including sensory integration – the entire mechanism that renders the process truly spontaneous and makes sign formation as much a physical as a mental act.

In the context in which Bulwer introduces them, such examples become still more complex, for they are not only indices of their instrumental causes, but as “transient hieroglyphics” they also bear a natural resemblance to what they represent (or to something necessarily connected with what they signify) – they are icons. This hybrid sign is what Anttila and Embleton (1995) call the *iconic index*; while this is not Bulwer’s terminology, it is clear that he refers here both to the imitative sign and to the entire process of its formation, its neuropsychology and neurophysiology. From this point of view, Bulwer sees all such manual motions and habits as arising by instinct of nature and devoid of artifice – purely natural, not imposed, not remote in

their meanings from the true nature of what is signified. Their natural resemblance or congruity to what they represent is a result of “mental habits” wrought in the pliant hand by a kind of “impetuous affection.”

What are these “mental habits”? They are those that form and concatenate mental images that direct the “pliant hand.” “When the fancy hath once wrought upon the Hand, our conceptions are display’d and utter’d in the very moment of a thought.” (1644a:4).

- ▶ The Hand . . . , receiving good intelligence of the patheticall motions of the minde, proves a Summarie or Index, wherein the speaking habits thereof significantly appear, representing in their appearance the present posture of the phansie. And as we can translate a thought into discoursing signes; so the conceptions of our minde are seen to abound in severall Dialects while the articulated Fingers supply the office of a voyce. (1644b:157)

This is true whether the volition is conscious or not. Speech and gesture are co-conceived in the mind, but gesture is almost simultaneous with thought. “And if words ensue upon the gesture, their addition serves but as a comment for the fuller explication of the manuell Text of utterance; and implies nothing over and above but a generall devoyre of the minde to be perfectly understood” (1644a:4). This is the opposite of what almost everyone else believed at the time, that is, that gesture was a decoration, at best a helpful adjunct to oratory – but it seems to be corroborated by recent scientific findings.

Is Instinct Voluntary?

But if gesture occurs by “instinct of nature,” in what sense is it a *voluntary* motion? In a discussion drawing on a treatise *On the Diseases of the Higher Faculties of the Soul* (Marinellus 1615) by the Venetian physiologist Curzio Marinelli (c.1560–after 1624), Bulwer explains, near the beginning of *Pathomyotomia* (1649:3) that the word “voluntary” is used in a wider sense in physiology and psychology than in ethics. Galen simply opposed the voluntary to the “natural” motions (such as digestion or the beating of the heart, today classed under the parasympathetic autonomic system). For Galen, as long as “we can excite these voluntary motions when we please, use them often or seldome, heighten them or abate them, and leave them quite off,” they are

“voluntary.” Some say that the muscle should be defined as the instrument of *free* or *spontaneous* motion rather than voluntary, for will presupposes reason; animals lack reason, but they have muscles. In the medical and biological literature on animate motion, “will” was not defined by rational appetite, but by appetite in general, “the propertie of the very Phancie it selfe,” as Bulwer notes, and what was called “voluntary motion” was not confined to humans (1649:4–5).

The question remains, if some form of knowledge must precede, how is it that sometimes we carry out actions unawares? Are there not many motions independent of our will? Bulwer denies this, following Marinelli in distinguishing between action *kata prohaeresin* (by conscious choice) and *kath’ormén* (by impulse), for example, in those who do a thing in their sleep, “when the outward senses are notably hindred” (an allusion to Aristotle, *De Somno*, 465a25–29 [462a19–26]). But all these actions proceed from the soul, not from anything extraneous, for “the Phansie may doe its worke and move when we perceive it not.” Even motions commanded by reason and will are physiologically identical to those of animals (1649:30–31). Galen in *De Motu Musculorum* II.4 (Galen 1821–1833: vol. 4:435–436), while he does not presume to know the cause by which we do things unawares, speaks from the probability of the matter, noting that

- ▶ wee are not intent with our whole mind upon them, as many have done actions which they forget to have done in fits of anger and passion, having made but a slight and superficial impression in their mindes . . . Contemplation of something, Custome, or some affection of the mind, may prove impediments to the knowledge of the Command of the will; for if our Cogitation be very intent upon a thing, so that it slights other things which had intended it, it errs from its proper end, which often happens to men when they intend a journey to a certaine place, and many times being engaged in other thoughts, doe passe it. . . (Bulwer 1649:33–34)

Referring again (1649:34–35) to the phenomenon of somnambulism as described by Daniel Sennert (1572–1637) in his *Institutiones Medicinae* (1611), Bulwer concludes (with Galen, *De Motibus Manifestis et Obscuris*) that when actions are performed from force of habit, more or less unconsciously, the will

does operate, but obscurely and without attention (1649:33–37).

Another objection, raised by Girolamo Cardano (1501–1576) in his *De Subtilitate Rerum* (1550), is that it is not the soul and the muscles, but custom that moves the person unawares. In his famous riposte, *Exercitationes Exotericarum . . . De Subtilitate contra Cardanum* (1557), the Aristotelian philosopher J.C. Scaliger (1484–1558) replies, in Bulwer’s paraphrase (1649:36):

- ▶ . . . what is custome? if I should aske, you would spend above two days in deliberation what you were to say, & it would fall out well if you could then come off with credit (Exerc. 339, 1620:1017–1018), Custome is nothing else but a habit, but a habit is not the cause of motions but a quality added to the motion [the qualities of promptness, order, and timing, according to Scaliger’s own text], because it so adheres to the members, that [it] . . . brings forth its actions as they are to be done without any inquisition. Custome, indeed, and the aptitude of parts doe advance and helpe forwards the doing or perfecting of some motions.

Similarly, at Exerc. 307 (1620:948), Scaliger castigates Cardano for saying that there is memory in all parts of the body, for example, in the fingers, when we play on a lute. For

- ▶ the organs of memory are not in the fingers but answer to their own principles; exercise and custom cause these principles to be conjoined and present to their effects. In this way, we find our way home without any consideration or choice: because from the custom of the parts of the body, all the organs and spirits at once, are connected with the imagination and will.

Scaliger is talking about what Aristotle calls the *hexis poetiké* (operative habit), a relatively fixed quality acquired by repetition, through which a previously indeterminate agent is disposed to act in a definite way (Wollock 1997:127, note; see also Aristotle’s *Nicomachean Ethics* II.4 [1103a29–b14] and *Met.* 5.1 [1047b32–35]: “We learn an art or craft by doing the things that we shall have to do when we have learnt it: for instance, men become builders by building houses, harpers by playing the harp” [cf. Wollock 1997:128]).

There is another sense involved in all voluntary motion. Bulwer does not mention it, but Scaliger does

at Exerc. 109. Aristotle (*De Sensu et Sensatu* vi, [445b5]) lists weight (*baros*) among the sensible qualities of a body; for the medievals as well, weight is not a quantity, but a quality perceived through the sense of touch. The key point is that for Aristotle, the organ (*aestheterion*) of touch is not the skin, but “the flesh (*sarx*) or [in other animals] its counterpart.” Ignorant of the true function of the nerves, Aristotle specifies the seat of all sensation as the *mória homoiomerei*, the simple or uniform parts (i.e., tissues), designating the nonuniform parts (which the medievals called the compound, organic, or official parts) as “the means for various activities.” (*Parts of Animals* II.1, 647a20–24; Wollock 1997:99, 115–118). Now, everything that we call muscle, Aristotle referred to as a kind of flesh. If flesh is the organ of touch and movement is a common sensible perceptible through touch, then one feels a proportionate sense of tactile movement in this flesh when either pushing or resisting an object possessing weight. Since the body itself, and every part of it, possesses weight, the weight of one’s own body can be sensed in every local motion, whether of the whole body (*holon athróon*) or any part (*kata méros*). This is the same phenomenon that Bastian in the nineteenth century called *kinesthesia* and Sherrington in the twentieth, *proprioception*. Aristotle says (DA iii.1, 425a20–21), “it is clearly impossible for there to be a special sense of any of these common sensibles, e.g., motion.” As psychologist James J. Gibson (1966:238) wrote,

- ▶ The organs with their receptors set limits on the kinds of stimulus information that can be registered. The five modes of attention, listening, smelling tasting, touching, and looking are specialized in one respect and unspecialized in another. They are specialized for vibration, odor chemical contact, mechanical contact and ambient light, respectively, but they are redundant for the information in these energies whenever it overlaps.

Motion is a common sensible, perceptible by sight, hearing, and touch. This is what Scaliger means (*ibid.*) when he refers to the motive power, in the case of weight, as a power of *perception*. What is perceived, through touch, is its motion as a common sensible.

Sensory Integration in Skilled Motor Action

Speech is just such a motion, sensed not by hearing alone, but in common with sight and touch. In *Philocophus*, Bulwer therefore argues, by a fine analysis of the process of voluntary motion, that there is no reason the deaf should not be able to speak, if properly taught. For “Letters the true elements of speech [are] made of Motions, nay [are] nothing else but locall motions of the parts of the Mouth” (1648:17). He focuses on the relation of sense and voluntary motion, the relationship and community among the senses, and the manner in which complex motions are learned and become habit. Contrary to popular belief at the time (even among many physicians), their speech motor mechanism in most cases is unaffected by whatever it is that damaged their hearing. Speech for the deaf was something that, as Bulwer knew from his reading of Sir Kenelm Digby’s *Of Bodies* (1645), had actually been achieved in Spain; but in England, up to Bulwer’s time, it had not even been attempted and was generally assumed to be impossible.

It was *Chirologia/Chironomia*, particularly the illustrations, that led to Bulwer’s introduction to the deaf Gostwicke brothers and eventually inspired him to write *Philocophus*. Astonished at the brothers’ ability to communicate so well through gestures and facial expression, Bulwer confessed he had nothing to teach them on that score. But he sympathized with their desire to communicate with the hearing through speech. With this, the issue of iconicity is shifted. In the books on gesture, iconicity concerned the resemblance of sign to its object; here we return to the question of how one who does not speak can produce words similar to those of his interlocutor (cf. Bulwer 1648:156, 38–41).

Galen, in his *Commentaries to the Sixth Book of Epidemics* V.5.2 (1821–1833: vol. 17:236), notes that little children can imitate “difficult words, such as *stranx* and *sphynx*, as soon as they hear them, unaware of which muscles of the tongue have to be moved or how it is to be extended, curved, turned around, moved up toward or pressed against the palate, or the front teeth, or any other part of the mouth.” Galen confesses that he does not understand how they do this. The question preoccupied him; he raised it also in his *De Foetuum Formatione* cap.6 (1821–1833: vol. 4:689–691;

694–698:700) and *De Motibus Manifestis et Obscuris* (alluded to by Bulwer [1649:25–27], after Scaliger).

In *Philocophus* (1648), Bulwer gives the old question a new twist: no longer is it about infants with normal hearing, but about those, whether children or adults, who cannot hear. Emphasis now falls on the fact that the action of speech, even in normal speech development, depends not only on hearing, but also on sight and touch. It requires the integration of all these sense modalities, which Aristotle attributes to the *sensus communis* or common sense.

According to Aristotle, the common sensory is the faculty that senses the unity of the several sense modalities as adhering in a single object. Besides unity, it also senses other accidents common to the five senses, such as number, motion (change), rest, and magnitude, which are therefore called the *common senses*. In speech production, the linkage in the common sensory of auditory and tactile/proprioceptive (“muscular”) sensations according to their common rhythmic motion is clearly of central importance (Wollock 1990:19; in general, see Gregoric 2007).

The common sensory is crucial not only to perception but also to voluntary motion. Aristotle hints at this in *De Anima* III.1 (425a15–20). Motion, rest, shape, magnitude, number, and unity are the sensible objects common to the five senses, but *movement is primary*; through it we perceive the others. Indeed, he speculates (DA III.1, 425b3–11) that the very reason we have five special senses and not just one is so that we can perceive the common sensibles more clearly. Shape and size, for example, are difficult to discern by sight alone.

In *Philocophus* (1648:145–147) there ensues a disquisition on the coordination of the senses in the production and reception of speech. While possibly the most penetrating up to that time, it has the unusual feature that instead of the leading role in the coordination being taken by the sense of hearing, emphasis falls on the sense of sight, which must compensate for the lack of hearing. The happy result is that in this way Bulwer became the first systematic investigator of the role of sight in speech acquisition, an issue of great importance for hearing children as well as for the deaf.

- ...to imagine after what manner the words *seene* (or as we use to speake) *heard* with his eye were transferred to *pronunciation*, and againe to the *intellect*; is the

greatest difficulty of this businesse; we will suppose this *transmutation* was not performed without a necessary *junction* between those *words seene* and the *habit of moving the vocall Muscels*. ... (1648:145)

In this way, Bulwer is brought to the general idea of an “anagram” of the senses. Since sense perception always involves the integration of modalities, senses that are deficient can always, with special training, be compensated by those that are present. The reason the sense modalities are convertible in this way, explains Bulwer, is that they are all reducible to the common sensible of *motion*.

In *Philocophus* 145–147, Bulwer reviews the psychology of infant speech acquisition; comparing a normal child learning to read, to a deaf child learning to read lips. He notes that “by joyning the vision of wordes seen in their Horn-books, to the [teacher’s] representation of the sound” the children acquire a habit of coming into the auditory mental image of the sound through the visual mental image of the letters. (“out of the Phancie of the thing seen they may come through into the Phancie of the sound. . .”). “It being wel known unto us, that boys when they learn to reade, they bring forth a voice out of a sound (i.e., out of “the Phancie of the sound” in their imagination), and that is the reason why those who are Deafe by nature, are necessarily mute (i.e., because never having heard, their minds are devoid of auditory images)” (1648:145–146).

Bulwer goes on [1648:146] to suggest that infants learn to speak in a similar way. From hearing alone, they do not comprehend, but they “learne to know,” because “although wordes are not understood by an Infant, yet this Cognition which consists in sight and hearing is proper to them; for, man hath understanding . . . from his first Infancie. . .” (That is, they connect the sight of the object with the sound by which it is called, and this is an elementary level of understanding.) And just as understanding comes from words thus seen or heard, so may it come after the same manner from the sight of writing. “For writing is “a kind of visible speech permanent, as the motions of the mouth, are a transitory speech.” This is an adaptation of what Bacon says about hieroglyphs and gesture (*De Augm.* VI.1): “Gestures, however, are as one might say, transitory hieroglyphics. And thus the hieroglyphics

expressed by gestures are transient, while those that are painted endure.” From this, Bulwer might have glimpsed a closer parallel between gesture and speech; but there is no indication that he did, because he seems to have always considered speech to be as arbitrary and artificial as gesture was natural. His only concession to naturalness in speech comes in an idea borrowed from Lazare Rivière, that interjections expressing certain emotions are natural because even the deaf make them (*Philocophus* 1648:125–126).

Speech acquisition in infants is another example of voluntary motion that is at the same time a natural instinct. As Bulwer counsels in *Pathomyotomia* (1649:225–226),

- ▶ Neither need it to trouble any one, seeing a thing [226] that is done out of Deliberation, and which seemes to proceed from Prudence, to be done by Infants, and of us without considering of it; for, Nature (as Hippocrates saies) is Learned without a Teacher. These are done by a certaine Instinct, but not such as most men take to be Naturall, for we understand this Action to be voluntarily done, because when we please we can begin it and restraine it . . . for, our voluntary motion is done somtimes by Deliberation, and sometimes by Imagination; Imagination alwaies prevents and goes before Deliberation . . .

Bulwer returns to the question of psychophysical coordination and habit-formation in the learning of speech at the very conclusion of the book:

- ▶ The first principles indeed are but simple and naked; but it is a wonderfull thing to consider the great distance betweene them, and the strange readiness and vast extent of speech resulting in process of time out of them: whereof it is enough for us to finde a ground for the possibility of the operation, [i.e., in theory] and then *the perfecting of it and reducing of it to such a height, as at the first might seem impossible and incredible, we may leave to the energeticall power of Art*. Hee that learneth to read, write, or to play on the Lute, is in the beginning ready to lose heart at every step, when he considereth with what difficulty and slownes he joyneeth the letters, spelleth syllables, formeth characters, fitteth and braketh his Fingers (as though they were upon the Rack) to stop the right frets, and to touch the right strings; And yet you see how strange a Dexterity is

gained in all these by industry and practice; and a readinesse beyond what wee could imagine possible, if wee saw not dayly the effects. (1648:189–190)

Hearing with the Eye?

Fully two-thirds of Bulwer's *Philocophus* is a line-by-line commentary on a section of Sir Kenelm Digby's treatise *On Bodies* (Paris, 1644, London, 1645) in which he talks about the "Constable of Castile's brother" (i.e., Don Luis Velasco), a deaf man in Madrid who had been taught to speak (Wollock 1996: 7. 14–17). Referring to him in Chap. 28, Digby says: "I have seen one, who could discern sounds with his eyes. 'Tis admirable, how one sense will oftentimes supply the want of another." And again, "I mentioned one that could hear by his eyes; (if that expression may be permitted me)."

Bulwer was much taken with this idea. He writes, *Philocophus* (1648:70–72):

- ▶ Now whether the expression of hearing sounds with the Eye may be permitted, will appear, if it cannot be denied but that Hearing is nothing else but the due perception of motion, and that motion and sound are not different entities, but in themselves one and the same thing, although expressed by different names and comp[r]ized in our understanding under different notions, which is proved by the observation of sounds which follow the lawes of motion, for every effect of them is to be demonstrated by the principles and proportions of motion. . . . Aristotle [DA II.8 419b4–13] therefore defines sound by motion, and the Voice to be a kind of percussio, and therefore sound is the same with motion, and no resulting quality; which may be further convinced by the ordinarie experiment of perceiving Musique by mediation of a sticke: for, a man is capable of that sound no otherwise than as bare motion is sound. Now since articulate sound or motion may be perceived by the Eye, then it may hear as well as see, and hear by seeing. It will be no great impropriety of speech to affirme the Eye may hear, since it can perceive the adequate object of hearing, and performe the office of an ear in judging of sound as it is motion (all sound being motion as soon as it is perceived) and the thing which we call sound and makes speech audible, being purely motion. Indeed sound which is but an accident of speech, & which is as they commonly speak, the sensible quality

of Hearing, is reckoned by Philosophers to be *proprium sensile*, to wit, to be perceptible but to one sense: yet as it is figure and motion, which two always imply one another, and of the essence of speech, it may be accounted *commune sensile*, and be perceived by more outward Senses than one.

Digby's philosophy was a blend of Aristotelianism and atomism. Bulwer, in "saving" Digby's text, wound up adopting a view contradictory to his own Aristotelian perspective. It would take sophisticated experimentation to discover the relation of motion to the other senses, but that sound was caused by motion had been known since time immemorial. Aristotle did not reduce sound to motion, however, but taught that it is *caused by* motion (Pasnau 2000). For Digby, on the other hand, the "resulting quality" would be nothing but an illusion. The reduction of sound to motion threatens to destroy the distinction between proper and common sensibles.

Yet the notion of "hearing with the eye" was not entirely alien to Aristotle, for he taught (*De Anima* III.1 [435a30–425b2]) that the senses perceive each other's special objects, albeit *incidentally*, because they all form a unity. When this sensory unity perceives two different sense qualities in the same object, the unitary sense makes it seem as if one sense is perceiving another's object. The real problem in that formula comes when a particular sense is lacking, as in the case of deafness. How can a sound be said to be perceived incidentally, when it is not perceived at all?

The actual Aristotelian theory of motion as a common sensible clearly explains the function of the senses in speaking; if hearing is present, it coordinates with the other senses; if lacking, its absence can be compensated by the remaining senses. The doctrine that Bulwer borrowed from Digby, that "sound is the same with motion and no resulting quality," contradicts his otherwise Aristotelian orientation, and may be described as mechanistic. (On the Cartesian theory of hearing and Digby's relation to it, see Gouk 2004:131–144.)

Was Bulwer a Mechanist?

With Richards (1992:73), one can say that Bulwer was a mechanist only in the limited sense in which the term might also apply to Bacon. In *Novum Organum* II, aphorism 5, Bacon hints at a mechanical application

to voluntary motion and speech, within the general aims of his whole philosophy, where he suggests an investigation.

- ...on the voluntary motions of animals, from the first impression on the imagination and the continued efforts of the spirit up to the bendings and movements of the limbs; or concerning the motion of the tongue and lips and other instruments, and the changes through which it passes till it comes to the utterance of articulate sounds.

This reflects Bacon's larger goal of reorienting science toward technology. Thus, we find phrases in Bulwer like "the clockwork of the head, or the springs and inward contrivance of the instruments of all our outward motions, which give motion to and regulate the dial of the affections which nature hath placed in the face of man ..." (from the dedication of *Pathomyotomia* to his father, 1649). This mechanistic language, however, is here no more than figurative: it helps to create a *myth* of a new technology. "From its first formulation by Francis Bacon," writes historian Michael Zuckerman (1993:254), "the modern mechanistic world view was a faith that outran the empirical evidence and remade the world in its own image."

In *Philocophus*, chapter 13 (pp. 45–49), Bulwer discusses the possibility (following Bacon's suggestion in *Sylva Sylvarum*, Cent. II, exp. 200) of imitating "the motions of the parts of the mouth in speech" by "mathematicall motions." In itself this thought contains nothing beyond the biomechanics of Aristotle's *De Motu Animalium* and *De Ingressu Animalium*, except for the more Platonic suggestion that behind these motions lie mathematical regularities; but this makes them amenable to mechanical imitation, toward the construction of what Bulwer calls a speaking "engine." Even in current cognitive science, this same mechanist (now computationalist) model continues to inspire new research, even though there is little evidence that the human mind works like a computer.

On the physical cause of animate motion, however, Bulwer follows Aristotle in attributing the mechanical motion to *qualitative* change in the underlying substance of the parts of the body: "whence the sense offering what is desired, the motions are done no otherwise then as you see in machines, the pullies loos'd, one thrusting forward the other, *but in*

machines without the mutation of qualityes, but in us the formall cause of motive heate and spirits is transmitted withal to the parts ..." (1649:17–18, emphasis added). Aristotle had described the substance of the parts executing motor action as capable of becoming larger or smaller by changing from solid to liquid and liquid to solid (*De Motu Animalium*, 701b13–16, 23–24); Galen described the action of the nerves as something akin to electrochemical changes, or as he puts it, a flow of heat and light through the nerve substance.¹

As to actions performed unconsciously from force of habit, Bulwer does not adopt a purely mechanical explanation like many of the later Cartesians. Rather he holds to the old Galenic position that even in such cases the intellect does act, but obscurely and without attention. This also agrees with Aquinas (*Summa Theologica*, Part I, quest. 84, art. 8, obj. 2; and Second Part of Part II, quest. 154, art. 5). Thus, as a Baconian experimental anatomist and physiologist, and as a physician, Bulwer was certainly very interested in the *mechanisms* of the human body; but he was not philosophically a *mechanist*. (The difference is immediately apparent if one compares Bulwer with Giovanni Borelli, *De Motu Animalium* of 1680, who really was a Cartesian mechanist.)

More accurate is Rowe (2001:79), who refers to Bulwer's "biomechanical but resolutely organicist explanations." His basic assumption, uncontroversial in that age of controversy and in harmony with the Galenic heritage of *De Usu Partium* and *De symptomatibus*, as well as with Bacon's DA IV.1, was that the soul expresses itself through the motions of the body, the only way the human being can express itself. And here we see another difference from Descartes's *Traité des passions de l'âme*, published the same year (1649), wherein the mind is distanced from the body with the whole palette of human expression being attributed to the purported pneumatic mechanism of nerves transporting a fluid from the pineal gland (the alleged seat of the soul) to the muscles, making them expand and shorten.² This type of theory was already shaken as early as the 1660s when Jan Swammerdam (1637–1680) demonstrated that a contracting muscle does not change its volume, and was confirmed for human muscles by Francis Glisson (1597–1677) in 1677 (Cobb 2002).

Richards (1992:18) criticizes the inclination of writers on the history of psychology to automatically assimilate seventeenth-century discourse to modern preconceptions, attributing this to the “question-begging assumption” that if psychology is a bona fide “science,” it must be “traceable to the beginnings of ‘science’ in the Scientific Revolution (hence Bacon, Galileo, Descartes, etc., earn inclusion simply by virtue of being leading figures in that revolution.” Nevertheless, he finds Bulwer (at least in the *Pathomyotomia*) in many ways closer to modern psychology than his more famous contemporaries.

- ▶ The general tenor of *Pathomyotomia* anticipates modern psychology far more closely than that of Descartes’s work. Bulwer is not concerned with the philosophical question of the soul’s relationship with the body, being content to accept that whatever the nature of the soul, its ‘motions’ are knowable only by the outward expression, but neither is he a physiological reductionist. (1992:72)

Richards takes this further:

- ▶ All the major orthodoxies on this matter appear to be seriously flawed . . . by a retrospective ascription to the major philosophers of the period of interests, aims and attitudes analogous to those of contemporary psychologists. . . . On the contrary, it appears that their prevailing interests were either theological or political, and that their statements on psychological matters were invariably manoeuvres within the theological-cum-political arena or [sic] normative moral discourse. (1992:91)

Richards (2004:671b) is right as to the genuine scientific value of Bulwer’s writings. But there is no reason to deny that he was also “concerned with the philosophical question of the soul’s relationship with the body.” And from all indications, he had strong political and theological views (Royalist and ritualist Anglican, see Wollock 2011), but the polemics are fairly subtle and unobtrusively supported by the traditional Aristotelian psychology (as slightly colored by Bacon and Digby) to which he adhered.

Influence

Bulwer had little influence in England in his own time and for a very long time thereafter. In the unsettled

conditions of the civil war and Interregnum, alienated from the main scientific circles in London, he died 4 years before the Royal Society was founded, with no one to champion his legacy, and with a great shift in intellectual style just beginning. Immediately after his death, Cartesian and neo-Cartesian theories of mind and body would come into ascendance for many decades, casting Bulwer’s traditional Aristotelianism in the shadows. Interest shifted to corpuscularianism and other materialistic theories.

These were the same forces that stifled the influence of Bacon himself in psychology, despite the fact that British science saw itself as bearer of the Baconian legacy. The direct Baconian impact on psychological thought in Britain was delayed by over a century (Richards 1992:18), largely due to the influence of Cartesianism. Bulwer on the other hand took Bacon’s idea of a science of humanity very seriously, and we can agree with Richards (2004:671b) that “his works more nearly approach modern psychology in character than those of his illustrious philosophical contemporaries . . . only at the end of the twentieth century did his long neglect as a serious thinker begin to be rectified.”

Bulwer’s influence in the seventeenth and eighteenth centuries was extremely limited. The Cartesian system of emotional expression developed by Charles Le Brun (1619–1690), Louis XIV’s favorite painter, “Méthode pour apprendre à dessiner les passions,” originally presented as a lecture before the Académie Royale de Peinture et de Sculpture in 1668 and first published by his student Henri Testelin in 1680 as *Sentiments des plus habiles peintres sur la pratique de la peinture et de la sculpture*, seems to have been loosely associated in the public mind with Bulwer’s work, but helped only to eclipse it (Cottegnies 2002). Bulwer’s ideas on gesture may have had some influence on rhetorical handbooks such as that of Obadiah Walker (*At of Oratory*, 1659), but if so it was unacknowledged.

In the later eighteenth century, Francis Green (1742–1809) of Boston, the father of a deaf son who was a pupil at the academy of Thomas Braidwood (1715–1806) in Edinburgh, published *Vox oculis subjecta, a dissertation on the most curious art of imparting speech, and the knowledge of language, to the naturally deaf, and (consequently) dumb*. . . . London, 1783, which contains extensive quotes from Bulwer. Green, the first advocate of the oral method

in America, also adopted a version of Bulwer's pen name: "Philocophos."

Nineteenth Century

During the nineteenth century, Bulwer's name was routinely cited, but no more than that, in virtually every potted history of English deaf education. With few exceptions, no serious attention was given to his writings. Thus when, for example, surgeon Charles Bell published his *Anatomy of Expression* (1806) and *Anatomy and Philosophy of Expression* (1824), he did not mention Bulwer, despite the fact that his basic standpoint, that the muscles controlling facial expression were divinely created to express uniquely human feelings, was similar to Bulwer's. In all likelihood, Bell did not know Bulwer's writings. It is easier to understand why Bulwer's work held little interest for the evolutionists later in the century: their philosophy was diametrically opposed to his. For Darwin, in his famous work *The Expression of the Emotions in Man and Animals* (1872), expression is a sign not of the working of the soul or mind, but of the working of natural selection over time (Ekman 2006).

The great neurophysiologist Charles Scott Sherrington (1857–1952), though certainly a Darwinian, would come to realize that this view of causality was overly restrictive. In *The Integrative Action of the Nervous System* (1906), Sherrington stated that "In light of Darwinian theory every reflex must be purposive. We here trench upon a kind of teleology. . . . The purpose of a reflex seems [a] legitimate and urgent . . . object for natural enquiry. . . . And the importance to physiology is, that the reflex reaction cannot be really intelligible to the physiologist until he knows its aim" (1906:235, 236). This is the famous distinction between *adaptation* and *adaptability* in biological causality. As Ragnar Granit, Sherrington's student and a major neurophysiologist in his own right, explained, "The nervous system cannot be understood without reference to its adaptability, its actual function in the life of the individual, its performance relative to the external world" (Granit 1975:262). The expression of emotions, as a form of communication, is an essential part of the day-to-day adaptability of the organism to its environment.

It is precisely adaptability that Bulwer has in mind in considering the purpose, or function, of the muscles of expression. In the dedication to the *Philocophus*

(1648, unnumbered p.), he describes it as his "Darling study to interpret the richnesse of our discoursing gestures . . . [even] to the following of them downe to their spring-heads and original, even to the finding out of their Radicall Derivations and Muscular Etymologies by that thorough progresse of observation . . ." He surely has in mind here the Aristotelian–Galenic doctrine that it is the function (final cause) that defines the organ, not the other way around; that every organ has a principal active part and other auxiliary or helping parts; and that a power is known only through the actions by which it is manifested (Wollock 1997:23 n.49; 99). *Contra* Darwin, expressions are not simply atavistic survivals of utilitarian functions of lower animals, not arbitrary signs to which meanings have been habitually attached, but the most universal and fundamental building blocks of human social communication, and thus of social life itself.

This notwithstanding, in the posthumous second edition of Darwin's *Expression of the Emotions* (1889), in the first footnote to the reprint of the Preface to the First Edition, it is acknowledged that Bulwer's *Pathomyotomia* "gives a fairly good description of a variety of expressions, and discusses at length the muscles involved in each," and that Dr. Daniel Hack Tuke (1827–1895), in his *Illustrations of the Influence of the Mind upon the Body in Health and Disease* (a work first printed in the same year as Darwin's *Expression*, 1872), "quotes the *Chirologia* of John Bulwer as containing admirable remarks on gesture." That this note appears in brackets indicates that it was added by Darwin's son Francis, no doubt at the wish of his father (Darwin 1998:xiii–xv), who knew Hack Tuke and had read his book (see Charles Darwin's letter to Hack Tuke, Dec. 22, 1872).

Two very fine articles were published on Bulwer in mid-century, the anonymous "Bulwer's Muscles of the Mind," in *Fraser's Magazine* 32 (October 1845), pp. 341–349; and another anonymous article, perhaps written by editor Winslow L. Forbes, "A Medical Psychologist of the Seventeenth Century," in the *Journal of Psychological Medicine and Mental Pathology* 13 (1860), pp. 294–314. These remain among the very few that deal with Bulwer's work specifically from the viewpoint of psychology.

In 1885, pediatric neurologist Francis Warner (1847–1926) published *Physical Expression: Its Modes*

and *Principles* (London, Kegan Paul, Trench, 1885), which accords Bulwer a prominent position in the history of the subject and quotes him extensively. Warner was already aware of Bulwer by 1882, when he published “Visible Muscular Conditions as Expression of States of the Brain and Nerve Centres,” in the neurological journal *Brain*, in the twelfth installment of which (vol. 4, p. 204), he devotes a paragraph to the *Pathomyotomia*:

- ▶ [Bulwer] expresses his opinion that every motion of the mind is indicated by a corresponding motion of the muscles. This is the same idea that Camper expressed later, and as is now well known to the physiologists, that all postures and movements are the result of changes in nerve-centres. To study the conditions of the mind it is necessary now, as in former times, that the postures and movements of the body should be largely observed In all cases, after describing the expression of a state of mind, Bulwer endeavours to explain which muscles take part in the act.

Warner was a Darwinian and held Darwin’s *Expression of the Emotions* in high regard. He certainly did not speak, like Bulwer, in terms of the soul of Aristotle and Galen, or of the body as its instrument of expression. Yet Warner was clearly impressed with Bulwer’s *Pathomyotomia* because, as a clinician, he greatly admired his forerunner’s detailed observations on expression and gesture as visible signs of muscular actions. As he emphasized from Bulwer, all expressions of the feelings, of the mind, particularly those of the face, are produced by muscles under the brain’s command.

Mrs. Alexander Graham Bell (Mabel Gardiner Bell), a teacher of the deaf, saw Bulwer from a different perspective. Having lost her hearing as the result of a childhood disease, Mrs. Bell was a highly accomplished lip-reader and a great admirer of Bulwer. Her insights into the psychology of what she preferred to call “speech reading” are a valuable supplement to Bulwer’s own theories. She published an article on Bulwer in the Proceedings of the fourth summer meeting of the American Association to Promote the Teaching of the Deaf (Bell 1894), followed more than 20 years later by another on the same subject in the *Volta Review* (Bell 1917), which was widely distributed as a reprint.

Relevance to Modern Theories

In the late nineteenth and early twentieth century, psychologists began again to take up questions not unlike those that attracted Bulwer’s attention. In explaining infant speech acquisition, James M. Baldwin (1894) defined imitations as “circular” reactions” or “motor processes that tend to reproduce their own stimuli” (Baldwin 1894: 133, specifically referring to infant speech; cf. 367–398). To this, Josiah Royce (1895:218–219) commented that the intermediate stages – in effect, translations of, for example, auditory impressions to visual, then to muscular, and from one type of muscular action to another – are not “a spontaneous accidental association” but “the gradual and habitual outcome of all the motor processes of [the] careful attention,” which arose from the child’s “deliberate effort to reproduce what he heard.” “This intermediate stage is . . . not itself the result of a function that reproduces its own stimulus, but of a function that produces, in image form, contents which are not those of the stimulus, but which have relations similar to those presented in the regular stimulus” (219). Thus, imitation must entail interpretation.

As educator George B. Germann (1873–1958) wrote:

- ▶ . . . the instinctive character of imitation and the apparent lack of any but the most rudimentary reasoning power, would lead us to conclude that practically all of the infant’s early imitations are probably subconscious or involuntary. He reacts to a copy simply and solely because he cannot help reacting. The constitution of his being compels him to react. . . . we may hint that the educational significance of this imitative tendency of both children and adults is to be found in the fact that imitative reaction if persisted in soon become crystallized into habits. . . . (Germann 1901:56, 57)

Perhaps the most interesting and important field of imitation in the infant is language acquisition, which

- ▶ has received its preliminary impulse through the early . . . babblings of the preceding months. Power to articulate arises and increases through these babblings, and associations are established between the coordinations necessary to make a sound and the sound itself as heard. When this coordination has become

sufficiently matured, it needs but little more than to have an appropriate sound made by another, in order to produce the necessary responses, responses which become easier and smoother through practice. As Preyer³ states, “although philologists may still dispute much over the possibility of the origin of language from other sources, nevertheless sound imitation remains without doubt the first and most important factor in the learning of language by the individual.” (Germann 1901:57–58)

Aside from the narrower understanding of the word “voluntary,” in agreement with modern usage, this is the very problem that baffled Galen, but which Bulwer was beginning to solve as an instance of sensory integration and automatization. Bulwer does not specifically refer to the phenomenon of babbling, but it is briefly described by the Italian physician Luigi Settala (1552–1633) in his Commentary to the Aristotelian *Problemata* xi.27 (Wollock 1997:127–128). However, Bulwer does emphasize that the imitation of speech sounds by motions of the mouth is a totally natural phenomenon (1648:156; cf. 38–41).

As developmental psychologist George Butterworth (1947–2000) notes (1994:120), it was Sherrington who first addressed the question of neonatal imitation (especially puzzling when it involves parts of the body the infant cannot see) by way of his distinction between *proprioception* and *exteroception* (1906:130). The integration of these two processes is the root of bodily self-awareness, and thus the key to imitation (Butterworth 1995:88, 98). Neonatal imitation, for example, depends on proprioceptive aspects of visual perception. These perceptual systems provide information not only about one’s own body, but also for the equivalence between self and other. It was Sherrington (1907, p. 472–473) who first demonstrated that the proprioceptive circuit is influenced by the exteroceptors, noting that “the reactions produced by the receptor organs of the deep field (proprioceptive) are results primarily due to the stimulation of the organism by itself, but secondarily due to the stimulation of the organism by the environment,” that is, as perceived through the exteroceptors. “Imitation, therefore,” concludes Butterworth (1994:121), “seems to be based on the mechanisms of perception. Perception carries information for self and

for the external environment and can be considered as if it were a phase of action, just as action can be considered as if it were a phase of perception.”

The trained body, starting from a given set of conditions, “knows how” to move, and this very movement is perceived to correspond to the mental imagery from which it originated. In other words, the coordinative structures are controlled by vestibular/proprioceptive and external sensation coordinated by the central sense power (cf. Sherrington 1953:244–245). Is this not what Bulwer refers to as the “necessary junction between those words seene and the habit of moving the vocall Musculs...”? (1648:145)

In the late 1990s, a new type of nerve was identified – mirror neurons. These mirror neurons, first discovered as closely related to the grasping mechanism in monkeys, have been shown to be the basis of human imitation, a response that replicates prominent gestalt features of its own stimulus.” It has been suggested that this is the principle of human empathy and through that, of human society and culture, of which imitation is the foundation (Arbib 2006). In other words, imitation is a natural response, it is not based on reasoning; but perception of difference between the imitation and its object is the very foundation of reasoning.⁴

Conclusions

Bulwer was, in the style of his day, both a scientific investigator and a philosopher. The larger issues he grappled with continue to confront modern researchers, who are only now beginning to recognize him as a pioneer in their field. We realize that he was in fact the first to take a scientific approach, consciously in the spirit of Francis Bacon, to many psychophysical issues of human communication that are of great interest today, whereas his philosophical insights are drawn from the whole history of the subject, emanating particularly from Aristotle and Galen (whose psychological acumen is today recognized as timeless) and their late renaissance interpreters like Scaliger (1620 [1537]) and Marinelli (1615). If Bulwer was ignored for so long, we can say in hindsight that this is not because he is unimportant, but because it has required a long historical perspective to understand that he was “ahead of his time.”

Bulwer made a valuable contribution to the science of his day – but a contribution that was very little noticed and was immediately submerged by the great changes in intellectual style introduced in France by Cartesianism and in England by the corpuscularian science of the Royal Society. With a few exceptions, it is little more than half a century since the pioneering nature of his contributions has begun to be appreciated. Still, this is only a historical injustice. The question remains, has Bulwer a positive contribution to make today?

Bulwer's key insight – that gesture is closer to the expressive impulse, with spoken words acting as a sort of commentary on the gesture (1644a:4) – is backed up in recent scientific findings by, among others, the late William Stokoe (2001), David McNeill (2005), David Armstrong, Sherman Wilcox (Armstrong and Wilcox 2007), and Adam Kendon (2005, 2007, 2008). In addition, the whole approach to learning that Bulwer represents, with its integrative and interdisciplinary vision of psychology and language, remains of great scientific and philosophical importance. It is the “cognitive” disciplines, especially cognitive psychology, cognitive linguistics, and cognitive semiotics, today, that especially need to hear Bulwer's voice, and with his guidance, begin to recover the classical tradition of inquiry in the psychophysiology of language and semiotics of which Bulwer was one of the last exponents.

Notes

1. “Galen understood this flow of power as equal to the transmission of some quality which provokes metabolic changes in the substance of the nerve. He compared this doctrine with the concept that heat and light rays issuing from the sun merely transmit the qualities of heat and light but leave the substance of the sun unchanged” (Siegel 1968:194). See also Wollock (1990:18; 1997:115, 130).
2. Descartes further distances the mind from the body by claiming that the signs of our passions are purely arbitrary, that they are connected with certain emotions by mere habit. A consideration of the universality of many of these basic expressions would reveal this as highly dubious (Ekman 1994, 2006). In the nineteenth century this was incorporated in Darwinism, because the concordance to humans of

these responses in lower animals introduced no philosophical problems if the whole phenomenon was considered merely physical.

3. William Thierry Preyer (1841–1897), English-German physiologist whose two-volume work *The Mind of the Child (Die Seele des Kinds)*, 1882, based on observations of his own son, was the first detailed study of childhood mental development.
4. As Kempf (1918:22) already understood early in the twentieth century, the reflex discoveries of Sherrington may be the mechanism for understanding the behavior of others – that is, by miniature forms of reflex reproduction of the movements of others. The proprioceptors, by giving the appropriate kinesthetic sensations, enable the personality to become aware of the significance of the posture and movements or behavior of others. Children, spontaneously and unconsciously, learn by imitation; they imitate sounds, the movements of animals, a speaker, teacher, playmate, machinery, when they are trying to get the full significance of the thing observed. We tend to reproduce another's movements when we describe conduct, adults often imitate facial expressions to understand faces of others, our facial muscles tend to reproduce the facial expressions of our associates. The more clearly we are able to reproduce another's behavior or facial expression the more accurately we understand its significance. (Edward J. Kempf (1885–1971) was an early American contributor to psychoanalytic literature who published three books and 32 papers between 1913 and 1965.)

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Psychology and Antisemitism

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Introduction

Origin and Definition of the Term Antisemitism

The term was first accredited to Wilhelm Marr who, in 1879, used the term to provide a racial scientific basis for his ideological hatred of Jews. Given the direct linguistic connotation and the associated racial connotation of the term, *Semite*, some Arabs have claimed that they cannot be guilty of antisemitism, because they speak a Semitic language and are, themselves Semites (Laqueur 2006, pp. 21–22). In a cultural context, however, the term is never used to refer to Arab peoples or Muslims, and throughout the Western world and the Middle East the term refers exclusively to hatred of Jews. Accordingly, it is more appropriate to eliminate the confusion between hatred of Jews and hatred of all so-called Semitic people by using an uppercase A and combining both terms in one word, “Antisemitism.” And this spelling will be used henceforth. The original hyphenated spelling is used only when it is in accord with the usage of a particular author.

A dictionary definition of antisemitism is “prejudice and hostility toward Jews in general.” Minor exceptions are made by people who hate Jews, and may even like a few Jewish acquaintances, but regard them as atypical, and not at all like the rest of the Jews. This behavioral stereotype comprises both cognitive and behavioral components:

- (a) Antisemites judge the behaviors of most Jews by a different standard than they apply to members of other groups. Mannerisms, transgressions of social norms, and crimes committed by some Jews are judged by a more severe standard than when committed by members of other religious, ethnic, and/or nationality groups.
- (b) Antisemites make more generalizations about Jews, primarily negative, than they make of other

groups. They believe that what some Jews do is an inherent trait of Jews in general. If Jews are successful in business, it is because they are avaricious and that they accumulate their wealth at the expense of others. The classic example of this stereotype is Shylock, the Merchant of Venice, a despicable, cruel Jew, interested only in accumulating wealth by maximizing his money lending profits. This type can be found repeatedly in Western literature and persists to this day.

Other racially inspired notions based on documented sources are listed below in rough historical sequence:

- (a) Jews are dishonest and lie whenever it furthers their interests.
- (b) Jews are loyal to Jews and not to the country in which they reside.
- (c) Jews regard themselves as “the chosen people,” are clannish and exclude others, and consider themselves superior to all other people.
- (d) Jewish women are lascivious and try to corrupt the moral standards of the society in which they reside (e.g., Egyptian soldiers justified killing women tourists in Sinai because these Jewish women reportedly danced nude in their presence; a Jordanian soldier killed teenage girls for the same reason at a ceremony to celebrate peace between the two countries).
- (e) Jewish men exploit the innocence of God-fearing, racially pure young women (e.g., Nuremberg trials of Jewish men for purportedly making sexual advances to Aryan women).
- (f) Jews control the press and the government in the Western democracies or persist in efforts to achieve control.
- (g) Jews conspire as a group to overthrow the established order and to control the world.
- (h) Jews promulgate the myth of the six million Jews killed in the Holocaust to make Europeans feel shame and guilt in order to extort undeserved reparations from them.
- (i) The extent that Jews were killed during World War II was not disproportionate; they were not singled out for death any more than the millions of Polish and Russian civilians who perished.
- (j) The provocative behavior of Jews in Europe elicited in large part the frustration and rage that ultimately led to the murder of Jews during the War.
- (k) The Zionists collaborated with Hitler in killing European Jews in order to justify the establishment of a Jewish State (e.g., the doctoral dissertation in 1982 of Mahmoud Abbas, current President of the Palestinian Authority).
- (l) The destruction of the Twin Towers and the other attacks on 9/11 was engineered by the Mossad (Israel’s Secret Service) to incite the West against Islam; Jewish workers were told not to report for work that day.

Economic Disparity

Prager and Telushkin (1985) demonstrate that resentment of Jewish success and affluence relative to economic standards prevailing in the non-Jewish majority in any given society among whom Jews reside does not explain antisemitism. First, because economic disparity exists within lower and middle class Christians or Moslems in their own societies without class-related massacres. Second, the hatred of the lower or working class toward the middle class or the aristocracy has never been universal or as intense as the hatred of all of these classes toward economically successful Jews. Economic disparity or economic depressions exacerbate the latent animosity already present toward Jews and cause it to erupt, but do not explain why the targets for this animosity are the Jews to begin with.

Xenophobia

The same caveat and conclusion apply to people harboring ethnic prejudice, hatred, and even murderous intentions toward others. Xenophobia, the collective term used for this phenomenon, takes the form of fear, antipathy, contempt, and/or hatred of those who are different from the rest of us. This phenomenon has always existed between different ethnic groups (Greeks and Persians, English and French, Europeans and Asians, the list is endless). Xenophobia has declined in recent years because of the relative ease of relocation (temporary or permanent, of people who wish to tour, study, or work in other countries). Moreover, recent technological advances in mass communication have created the one world or global village in which we live today.

Mass Communication

On the other hand, these same technologies have created the means through which hatred can be communicated worldwide (Milburn and McGrail 1992). The United States Holocaust Memorial Museum in the 2009–2010 annual report stated the following:

- ▶ The Holocaust did not begin with murder, it began with hate. ...and something unique to the 20th century – the development of mass communications with the ability to exploit people’s hopes and fears. How were the Nazis able to win elections in one of the most highly educated nations in the world? In a democracy with a free press? They knew not only the power of propagandas, but also how to marry it to the most advanced technologies. In our day the Nazis would be on Web sites, Twitter, Facebook, and cell phones. And that is precisely where the haters are – no longer isolated but forming communities. (p. 3)

As a consequence, it becomes easy in democracies that have known hatred of Jews in the past for some individuals to express antipathy, if not hatred of Jews, and to boycott with loathing Israel, the Jewish State, especially if they substitute the word Zionist for the word Jewish. Hatred of the Jews may exist where no Jews ever lived in substantial numbers (e.g., Japan) or where Jews no longer live (e.g., Poland, Egypt, and other European, Asian, or African countries).

Religious Bigotry

Religious bigotry per se has been proposed as a generic cause of violence and conflict for hatred of Jews. The conflict between different religions, different religious belief systems, and different religious ways of life has existed from the dawn of the polytheistic and later of monotheistic religions. Pagans have killed Christians and Christians have killed members of other Christian sects (e.g., Roman Catholic, Lutheran, Protestant, Mormon, and Christian Scientist). Within Islam Sunni and Shiite continue to fight, but all Moslems share animosity toward other religions (e.g., Bahai, Christians, and Buddhists). However, as Tom Lehrer, the Jewish Harvard-trained mathematician and pre-Bob Dylan folk singer, asserted in one of his satirical songs, “Everybody hates the Jews.” Those who hate Jews may themselves be atheists or agnostics and they may hate Jews who have

converted to other religions or Jews who no longer profess or practice Judaism.

Source of Blame for Adverse Events

Prager and Telushkin (1985) assert that the causes for Antisemitism must be selectively universal and account for the repeated eruption of intense hatred against Jews in different countries and under different circumstances. Consider the circumstances surrounding the massacres of Jews during the Black Death (1348–1349). Local citizens were trying to cope with their fear, sense of helplessness, and grief over the loss of loved ones. They may have noted that while many Jews also died from the plague, fewer Jews succumbed to the plague. The local citizens might have asked if Jewish religious practices – kosher food preparation, personal and family hygiene, household cleanliness, and removal of all rodents from the home – provided protection against the plague. They might have noted that residing in ghettos afforded Jews limited contact with the general population and provided protection against rat infestation. Had they asked, and drew cause-and-effect conclusions, they might have adopted similar practices. Instead, they chose to believe that the Jews caused the Black Death by poisoning the wells from which only Christians drank. Why did they insist on Jewish malevolence?

Similarly the depressed economy in Germany and the smoldering sense of defeat and betrayal may have brought about the rise to power of the Nazi party. These circumstances do not explain why the Nazis (and citizens within Germany and within every country they conquered) hated Jews. Nor do they explain why they allocated enormous resources in manpower and transportation to expedite the final solution, at a time when these resources were indispensable to the conduct of the War and to the defense of Germany. It would appear that success in the War against the Jews was more important than success in the defense of the Fatherland.

Does Something About Jews Trigger Hatred of Jews?

If hatred of Jews is universal and unique, it would appear that some abiding distinctive features of the Jewish people over the past 2,500 years must be considered as relevant to Antisemitism, even if today many,

if not most Jews in Western countries do not exhibit these features. More important, historically the distinctive features discussed below were the norm for Jewish communities in Europe, Africa, and Asia, and were a basis for the climate that bred hatred of Jews then and continues to do so now.

Some Evidence-Based Selective, Universal Causes of Antisemitism

Religious Features of Jewish Monotheism

The three pillars of Judaism – moral monotheism, life style, and nationhood – have been perceived as an affront to others from time immemorial. The Jewish belief in one God insulted and infuriated those people who believed in many Gods. So-called pagans (e.g., Greeks, Romans, and all who adopted a Hellenist way of life) were tolerant in religious matters. Others would honor your Gods, your idols, and your religious practices if you would reciprocate by honoring theirs. In addition, the Greek and Roman Gods were themselves poor examples of moral behavior. They could commit incest and adultery without guilt or remorse. In effect, they were children with the magical powers of superheroes and were lacking in respect for law, order, human equality, and the consequences of their immoral behavior. By contrast, the Jewish God was a moral God. The Jewish God presumed to interfere with one's life, wishes, and behaviors. This God proclaimed a series of do's and don't's, enshrined them in the Ten Commandments, and honored the interpretations and implications prepared over time by learned Jewish scholars and leaders. God punished those who transgressed from these commandments and honored those who abided by them.

While all monotheistic religions, however – whether Jewish, Christians, or Moslem – are by their basic assumptions intolerant of the belief in many Gods, the Jews were the first to arrive on the scene and to bear the brunt of pagan antagonism. Moreover, Judaism as the first of the monotheistic religions was not only a threat to the pagan religions, but was an even more dangerous threat to the great monotheistic religions that followed. The hostility of Christianity and Islam to one another and their shared animosity toward Judaism are well known, but the theological

and historical basis for their hatred of Judaism and the Jews are not always understood and are discussed briefly below.

There were too many things common to Judaism and Christianity for the latter to ignore them. Christianity was originally a sect within Judaism and when it broke away, Christianity had to deal with these features. Jesus Christ was a Jew, a pious one at that, and a member of the branch within Judaism that generated Rabbinic law and the Rabbinic way to live an authentic Jewish life. All of Christ's original disciples who dined with him at the last supper, a traditional Passover meal, were Jews. The Church fathers achieved theological integrity and consistency by breaking these connections and by delegitimizing Judaism. First, Jesus Christ was not in essence Jewish or even human for that matter. He was the son of God. He died on the Cross and joined God the Father as part of the Holy Trinity. On the other hand, as a descendent through his earthly father, he was in the messianic line from the House of David. These were beliefs that traditional Jewish theology could never accept, and their early rejection of Christianity created still other problems.

The Chosen People

In Jewish theology, the Jews are declared to be God's chosen people. The Bible clearly states that God has chosen the Jewish people to receive the Torah (the Holy Book of Book in the well-stocked Jewish theological library). Jews were commanded to study and practice its commandments, to transmit these laws and the ethical principles upon which most are based to their children, to spread the belief in a single moral God throughout the world, and to make the world better and fit for God's kingdom. Maimonides, the greatest religious authority of the Middle Ages, confirmed this interpretation and indicated that being chosen did not mean being better than others, but rather being chosen to accept awesome responsibilities that were not incumbent on others. Maimonides stated that if non-Jews observe the seven laws of Noah, they are righteous and will enjoy the blessings of this life and life in the world to come. The laws attributed to the biblical overlap with the Ten Commandments in Jewish scripture and include prohibitions against idol worship, murder, theft, sexual immorality, blasphemy, causing undue pain to animals killed for human consumption,

and the positive commandment to establish courts of law.

There are strong theological reasons to believe that the Jewish claim that they were chosen by God contributed to the justification of persecution of Jews thereafter.

Christian leaders declared that Israel had surrendered its status as the chosen people by committing a heinous crime, the killing of Christ. As a direct consequence, the Temple was destroyed, thousands of Jews were killed by Roman soldiers, and the survivors were expelled from the land of Israel. This series of events confirmed that God had withdrawn His Grace from the Jews and bestowed it on the new Israel, the Christian Church and its followers.

Islam had other theological problems with Jewish theology and the Jewish people. The two religions had a common progenitor, Abraham, with Ishmael as the progenitor of the Arab people and Isaac of the Jewish people. In Islamic theology, Ishmael was the favored son and not Isaac, while Abraham, Isaac, Jacob, Moses, David, and the other Jewish prophets were holy men and prophets, but Mohammed himself was the last and the greatest of the prophets. According to Islam, Allah had a special positive relationship with the Jewish people, the Jewish homeland, and their beloved Jerusalem, but when the Jews transgressed His laws, their favored relationship to Allah ended and they became a despicable and despised people. Moreover, Islam was an expanding and conquering religion that first offered Jews and Christians alike the choice of conversion to Islam or death, and then became more tolerant and designated all non-Moslems as second class citizens who were forbidden from flaunting their own religion or community and were required to pay special taxes and suffer forms of social humiliation. Many of these discriminatory practices were operating and sporadic massacres of Jews took place well into the twentieth century until Jews emigrated from Moslem countries after the establishment of the State of Israel.

The Distinctive Features of Jewish Life Style

The Jewish life style has rules about what can be eaten and what cannot be eaten and under what circumstances can kosher animals be slaughtered. The rules effectively prevent Jews from accepting the invitation to

dine with others. It prohibits intermarriage unless the non-Jew converts to Judaism and observes Jewish law scrupulously, including circumcision for male converts. Praying three times a day and observing the Sabbath and the other holy days are mandatory and require the presence of ten religiously observant men; consequently, even when orthodox Jews are free to reside wherever they want, they prefer to live in Jewish communities and walking distance from a synagogue. Jewish law places special emphasis on the Sabbath as a day of rest, religious study, and spiritual assessment. Moreover, the Jewish way of life, while clearly patriarchal, placed limits on the man's authority in the home, in matters of marriage and divorce, and in custodial authority over minors following divorce that the other monotheistic religions did not accept until recent times if at all. Biblical law protected slaves against the baser appetites and behaviors of their masters and it prohibited rape during war. The many strange aspects of this way of life were not conducive to friendly relations with their non-Jewish neighbors and were open to hostile interpretation.

Distinctive Features of Jewish National Identity

The third issue, Jewish nationhood, raises the use of dual loyalty and placing loyalty to Judaism and the Jewish homeland above their loyalty to the country in which they are residing. Jewish theology regards the Holy Land, Jerusalem, Hebron, and other sites as part of the Jewish heritage. When Jews pray, they turn in the direction of Jerusalem and recite prayers in which references to Jerusalem are a dominant motif. The problem of dual loyalty only arose when the nation states of Europe expanded the rights of citizens residing within their borders and had to decide what to do with the Jews.

In the United States, some aspects of the separation of Church and State permitted Jewish and latter Catholic immigrants to enjoy the rights of the Protestant founders. In France, Jews were offered an interesting choice: To receive emancipation as Frenchmen and to enjoy the rights and privileges of other Frenchmen. Jews in 1789 were required to abandon the national aspect of their Jewish identity; as a nation, they would receive nothing. The logic was simple: There cannot be one nation within another nation. Many Jews in France and Germany accepted this challenge. They modified

Judaism by downplaying or eliminating altogether the categorical implications of Jewish nationalism from Jewish prayer and ritual. They became, for example, Germans of Mosaic persuasion, and adapted their religious services to the style of their Christian neighbors.

Proliferation of Racial Theories and the Jewish Race

The sources for the racist theories that dominated Western thought were many. To cite a few, Spain found it necessary to create social status based on race, with pure blooded Spanish people at the top; Jews, Moslems (Moors), and mixed breeds at the bottom; and in some instances conversos were in the middle. These were Jews who had converted to Catholicism, and were now in the upper ranks of the clergy, the merchants, and other members of the educated classes. Spain passed the statute of (*pureza de sangre* or purity of the blood) in the sixteenth century. The logic was that even when Jews became devout Catholics, there was something morally inferior in the Jewish racial character (Laqueur 2006, p. 92).

When racial theory emerged in the late nineteenth century in Western Europe, it was speculative at best and self-serving at worst. Its proponents came from the fields of economics, biblical and oriental languages, historian and philosophers and their camp followers. The inferior traits of Jews were the preferred target because they lived and even prospered in Western society and identifying their racial character was more consequential than that of the black, brown, and yellow races that were regarded by all Europeans and also by North Americans as inferior races. Racial theory became a convenient, effective way to incite the passions of voters and members of growing political, ethnic, or cultural movements. Once it became established in people's mind that Jews were a race, it was not difficult to generalize from a few Jews to all Jews and to place in the same camp capitalists in the West, communists in the East, and radicals of any persuasion who challenged the existing order if they were carriers of Jewish blood and its consequent racial impurity. There was now fertile ground to promulgate ZOG (Zionist Occupation Government), the conspiracy theory that Jews throughout the world, regardless of their diverse religious identity from atheist to devout, wish to control the world by establishing puppet

governments in their respective countries and are becoming successful in doing so.

Disproportionate Representation of Jews in Selected Occupations

The number of Jews or people of mostly Jewish ancestry who were recipient of the Nobel Prize was 181 accounting for 22% of all individual recipients worldwide between 1901 and 2010; in sheer numbers Jews constitute a mere 0.2% of the world's population. Higher percentages were noted in recipients who were citizens of the United States. It is not difficult to show that in the United States, the number of politicians in Washington, physicians in the hospitals, lawyers in the courts, students in the prestigious universities all exceed 2, the percentage of Jews in the country. What is the explanation?

- (a) The first is the extent of literacy among Jews for over 2,000 years. Simon ben Shetach, who was active in public affairs during the rule of the Maccabean kings in the century before the Common Era, founded public schools or yeshivot in the larger cities of Judea to be funded by the respective communities and to be entrusted with instructing young boys in the Holy Scriptures as well as in the traditional Oral Law; some 80 years later Joshua ben Gemala formalized community responsibility and educational regulations to ensure that all Jewish males were literate in Hebrew (Greenberg 1966). As a consequence, Jews literate in Hebrew found it easier to read and write other languages long before literacy became common in Europe, Africa, or Asia. Jews had an enormous advantage when they were permitted to enter the fields of international commerce, regional financial affairs and businesses, or served in positions of authority under the King. The view that Jews engaged in banking out of avarice ignores several realities: There were successful Christian and Moslem men with the requisite abilities to serve as bankers and many did so, despite the prohibition against usury. Similarly there was a large supply of qualified Jewish bankers and where permitted to serve in this capacity could be expected to be loyal to their employer whose protection was essential for their livelihood and their very lives.

- (b) Jewish success in recent times was due in part to their international residence. Jews resided in many different countries, and were exposed to the scientific, literary, academic, and occupational opportunities available to them. Had they resided in a single country, especially one lacking the intellectual and cultural substratum necessary for achieving success in fields recognized by the Nobel Prize Committees, there could have been few, if any, Noble Prize recipients of Jewish ancestry.
- (c) A relatively stable family structure existed among Jews until recent times. The relatively low rates of alcoholism, divorce or desertion, and family violence were favorable for offspring acquiring the abilities to enter the universities and the free professions.
- (d) A special aspect of the phenomenon of assortative mating was a contributing factor. It was common practice in Europe, Africa, and Asia for the upper class to marry with families of similar status. It is common practice today for people of similar social status and education to travel in the same circles, to meet and to marry (Argyle 1992, pp. 194–223). This was common practice among Jews as well, but social class was based not only on wealth or renowned ancestry, but also on literacy of a particular kind, the ability to read, comprehend, and acquire the intricate reasoning associated with the study of Talmud, the vast compendium of what has been called the Jewish Oral Law. This cognitive talent became a basis for assessing the status of a potential bridegroom, regardless of his humble origins. A young Jew, with special gifts in his Jewish studies would be matched with the daughter of a great Jewish scholar or the daughter of a successful businessman. This phenomenon meant that wherever this talent was found anywhere in Jewish society, it was identified, honored, and matched in matrimony. This phenomenon over centuries is calculated to produce extremely talented animals or humans, depending on the trait that is rewarded. It is not surprising that many secular Jews came from a lineage of Jewish scholars that stretches back over centuries. One optimistic, democratic implication of these explanations is that making opportunity in all fields available to the youth in democratic countries

permits outstanding individuals to come from any ethnic (or so-called racial) group and to achieve outstanding success. Asian students, for example, born and educated in the United States as well as Asian students who immigrated are accumulating an impressive record and constitute a large percentage of students in the most prestigious universities.

Disproportionate Representation of Revolutionaries of Jewish Ancestry in Attacks on the Established Order

Alienation is a worldwide phenomenon. Some people become alienated from their families, ethnic groups, religious identification, and nation-states. Some of the more prominent radical Jews who challenged the established order by word, pen, demonstration, or military action include Karl Marx, Leon Trotsky, and the majority of the original Soviet politburo (Russia); Bela Kun (Hungary); Rosa Luxemburg (Germany); Emma Goldman, Jerry Rubin, Abbie Hoffman, Herbert Marcuse, and Noam Chomsky (the United States), and countless others. Other Jews whose egregious actions threatened existing institutions would include Michael Milkin, Bernard Madoff, and other financiers. While very few Jews are radicals and threaten the established order in any society, the number of Jews among the radicals is disproportionately high (Praeger and Telushkin 1883).

The prominent and visible role played by Jews who wished to abolish all religions and all nation-states provided evidence for the radical right and the radical left alike of a worldwide Jewish conspiracy to control the world. The non-Jewish radical right wished to sustain the existing order and its institutions and they perceived the Jews as threatening their cherished beliefs and traditions. The radical left wished to destroy the established order and targeted Jews as an immediate, vulnerable threat to their plans (Jewish capitalists, Jews who defended and were loyal to their country, moderate Jews who advocated changing existing society, but not destroying it). The non-Jewish Jews, who espoused the goals of the radical left and were admitted to its rank and file and even to its leadership, abhorred their own Jewish stain and wished to expunge it everywhere. They hated all religions, but especially Judaism, and all nation-states, but especially the Jewish nation-state.

The prominence of Jews in revolutionary movements provided the match for igniting the devastating forest fires of hatred of Jews in times of severe drought.

The Proposed Psychological Causes of Antisemitism

One of the earliest books on Antisemitism in the twentieth century came from James Parkes (1946). In chapter, *The Psychology and Sociology of Antisemitism*, he highlights the worldwide antipathy of majorities to discriminate against the minorities that dwell within their borders (e.g., the Roma in Europe, the Chinese in Thailand, Beduins and Christians in Arab countries, Hindus in Sri Lanka, the Nisei on the West Coast of the United States, the aborigines people of Japan, Australia and elsewhere). He strongly identified with Jewish suffering and supported Jewish claims for a national homeland in Palestine over Palestinian counter claims as answering the greater need of the Jews and inflicting the lesser hardship on the Palestinians. He indicted antisemitism as an enemy of the people and gave this title to his classic book on the topic (Parkes 1946). He suggested that this enemy could be fought, not by making antisemitic propaganda illegal, but by pressuring the Christian churches to rectify their biased presentation of Judaism to their congregants, and by bringing together representatives of the Jewish and the Christian communities.

The most widely read book on the psychological causes of antisemitism was written by an existentialist philosopher (Sartre 1960) in the aftermath of World War II. He argues that the Antisemite is the epitome of the frightened man who fears reason, consciousness, freedom, responsibility, and any change in society and the world. Jews become the epitome of evil against whom he vents his frustrations, instinctive passions, and his conviction that, at long last, he has found somebody whom he regards as somehow inferior to him. The choice of the Jew as the scapegoat is an incidental, historical accident.

- ▶ The Jew is the Antisemite's invention. . .the Jew is one whom other men consider a Jew. . .It is the Antisemite that makes the Jew. . .It is neither their (Jewish) past, their religion nor their soil (Israel) that unites them. The sole tie that binds them is the hostility and disdain of the societies which surround them. (pp. 13, 67. 91)

Presumably Antisemitism and the Jews themselves would disappear when Jews and non-Jews chose to espouse an existential mode of being. The reader might well argue both with Sartre's depiction of the Antisemite and of Judaism and the Jews.

A classic text by Hannah Arendt (1973) argued that Antisemitism in the late nineteenth century and in the half century that followed was due to the loss of essential economic opportunities due to Jews who were wealthy without working. In effect, she, like Sartre, ignored 2,000 years of the historical roots and offshoots of Antisemitism and focused solely on economic injustice, specifically as practiced by some Jews. This was a major concern for a doctrinaire socialist who considered religion and nationalism as irrelevant anachronisms. One wonders what she would say today (a) about the outstanding contributions by Jews to society, and (b) about the rise of militant fundamentalism in Islam, widespread attack on the legitimacy of the Jewish State to exist, and the resurgence of Antisemitism in many parts of the world.

There is a voluminous important literature on Antisemitism by sociologists, anthropologists, and other disciplines, such as biologists and social scientists. This section examines primarily the theories and research of psychologists.

Psychology Prior to World War II

One theory that focuses specifically on Antisemitism is that of Freudian psychoanalysis. The book entitled *Moses and Monotheism* was published in England after the rise of Hitler's Third Reich and the explicit threat it posed to the Jewish people (1939). In his last publication, Freud applies the classic concepts of levels of consciousness, the desire to kill the father, and collective neurotic manifestations of the defense mechanisms (e.g., repression, repetition-compulsion, projection) to assert that religion in general is a collective neurosis and that hatred of Jews stems from their preeminent role in originating monotheism. He argues that the promulgation of monotheism by Jews elicited two phenomena: (a) divinely imposed instinctual renunciation and with it the experiences of intrapsychic sin, guilt, remorse, confession of sin, and the projection of these experiences on the Jews; (b) the Jewish belief that the Jews were "the chosen people" and with it the rejection of this claim, the insistence that God cursed the Jews

and mandated their permanent suffering, their racial inferiority, and under some circumstances, their extermination. Freud's psychoanalytic theories are engrained in our culture, but the proposal that Antisemitism is a universal phenomenon has received less acceptance, and the mythological underpinning of Antisemitism has received even less.

Racial generalizations by psychologists about intellectual and personal-social traits were common and fairly unchallenged in the latter half of the nineteenth century and the first half of the twentieth century. These phenomena were prominent in Germany well before Hitler's rise to power and became policy in German universities and professional psychological organizations from which Jews were subsequently expelled. Some German psychologists, such as Koffka and especially Kohler, who shared the racial prejudices of the upper middle class toward Jews, made consistent efforts to help Jewish colleagues throughout this period, and wholly rejected legally enforced discrimination and the final solution that followed (Mandler 2002).

Quotas designed to reduce the number of Jewish students admitted to American universities and schools were common and gradually disappeared by 1950 following the temporal juxtaposition of Antisemitism and the Holocaust. During this period, men of the stature of Saul Rosensweig, Seymour Sarason, and David Shakow had to make their early important contributions to psychology when employed in non-university positions. Jewish émigrés who fled Nazi Germany, like David Rapaport and Heinz Werner, found themselves in the same situation when they arrived in the United States (Harris 2009).

The Antisemitic scandal that erupted in 1944 put an official end to this practice in Clinical Psychology even as the new profession became professionally consolidated after World War II. When Frederick Thorne, the founding editor of the *Journal of Clinical Psychology*, announced that public acceptance of the new profession would be jeopardized if Jews were overrepresented in its ranks (Thorne 1945), he stated:

- ▶ While disclaiming racial intolerance, it nevertheless seems unwise to allow any one group (the code name in this scandal for the Jews) to dominate or take over any clinical specialty, as has occurred in several instances. The importance of Clinical Psychology is

so great for the total population that the profession should not be *exploited* in the interest of any one group. (p. 13, italics added)

Psychology After World War II

American psychology adopted a strong position in advocacy, practice, and research in the years that followed. It rejected the use of quota for any minority and it made vigorous efforts to ensure that racial discrimination was not practiced. It also initiated a large-scale program of theoretical and empirical research on ethnic discrimination and conflict in the national and international arenas. The earliest theories of Antisemitism were proposed by Allport (1954) and Adorno et al. (1950). Both wrote classic texts that made no distinction between prejudice against Jews and prejudice against other targets, and both asserted that prejudiced people were abnormal. Allport was optimistic that human nature would ultimately reject violence and war in favor of living in peace with others, and proposed a contact hypothesis that under certain conditions (equal status between the groups in conflict, common goals, intergroup cooperation, and the support of authorities, law, and/or custom) reduces prejudice (Pettigrew and Tropp 2006).

Adorno and his colleagues labeled this abnormality "the authoritarian personality." This kind of person is characterized as rigid and close-minded, obeying authority figures without question and showing contempt toward groups they consider inferior to them. More recent research indicates the authoritarian personality prefers simplified explanations for complex phenomena, is more dogmatic, intolerant of ambiguity, has a strong need for order, structure, and cognitive closure, and is lacking in integrative complexity (Jost 2006; Kruglanski 2004). By implication, these overlapping concepts – conservative, authoritarian, and right-wing – characterize an entire segment of the population that is potentially fascist and Antisemitic.

Numerous theories about the nuances of interethnic conflict have been confirmed: Conflict appears intractable when a given group feels threatened by another (Pettigrew 2003); or when a group has little intergroup contact, but high pre-existing prejudice and high intergroup anxiety (Blair et al. 2003). These theories tend to ignore two relevant factors in ethnic hatred in general and in hatred of the Jews in particular: the

historical and current contexts during exacerbation of conflict, and the role of malevolent political and religious leadership that incite pre-existing prejudice in otherwise normal people against convenient scapegoats and ultimately escalate prejudice into violence, war, and mass murder. An educational approach proposed by Parkes (1946) is that hatred of the Jews may satisfy aggressive instinctual gratifications and reassuring convictions of one's self-esteem and the esteem bestowed by others (compared with a despised race).

Conclusions

Psychologists are of their own time and possess their own unique personality traits. They are students of the nature of human nature, and essentially optimistic that the world is improvable. They are also theorists who base their theories on fashionable and wisely accepted assumptions and scientists who select topics for research, use research designs, and make recommendations about peace-promoting policies.

Some regard hatred of the Jews as one instance among many of prejudice due to differences in religion, socioeconomic status, skin color, and presumed racial differences. Many psychologists wish to downplay the extent of Antisemitism over the centuries because it implies continued hostility and war. Others, chiefly Jews, are concerned about their personal security. Finally, still others regard hatred of Jews as an archetype, in Jung's terminology. It is a ubiquitous, complex phenomenon that will not disappear on its own.

The violent manifestations of Antisemitism may be reduced by social engineering and creative education. Its more subtle manifestations require the concerted effort of politicians, social scientists, and psychologists to acknowledge that we are dealing with a destructive phenomenon within society.

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Psychology and Religion

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Introduction

Appraising the relationships between Psychology and religion is a complex task, and we need first to identify

the various kinds of problems giving rise to this. Most fundamentally, the very phrase “Psychology and religion” is a misleading oversimplification, these clearly not referring to two unitary, mutually independent, camps, let alone camps of the same logical status. On the Psychology side, its sheer internal diversity in subject matters, methods, and goals renders any general statement about its relationship to religion impossible. On the religion side, not only is its internal diversity in some respects even greater than Psychology’s, but it is a logically different kind of phenomenon. While the status of Psychology is not unproblematic, at least it is unambiguously an academic discipline engaged in knowledge creation and application, and most academic experimental psychologists accept and assert that it is some kind of natural science. Religion, by contrast, is vastly broader, knowledge creation being, ironically, one of the few things with which it is not centrally concerned. Religions supply broad frameworks of meaning within which followers can live their lives. They are cosmic in range, a view of humanity’s relationship to the cosmos being vital if they are to provide such a framework. In a nutshell, being a psychologist is a profession or career, being a religious believer is a way of life. It is necessary to stress that religions are not simply comprised of sets of empirical beliefs, but encompass major rituals which structure social life, provide sources of solace, and facilitate artistic creativity, among much else. What religion *does* share with Psychology is that both propose views, theories, or images of human nature in general and human individuality, or “personality,” in particular. From this it would appear that perhaps all one can address are relationships between specific religions, religious denominations, or religious thinkers and some equally specific fields of Psychology, or individual psychologists.

A second problem is that the kinds of relationship between the two can also be of several different varieties. To list briefly, (a) psychologists may be interested in religion as a part of their own subject matter, human behavior, and attempt to “explain” it (hence the subdiscipline “Psychology of Religion”); (b) individual psychologists’ attitudes to religion may, if sufficiently strong (as either believers or opponents), affect both their modes of theorizing, their fields of specialization, and to some extent even their methods; (c) some in each camp see themselves engaged in a conflict or contest with

the other, their work will thus reflect this; (d) the role and character of religion in its host societies can also determine the kind of Psychology practised therein, indeed this is inevitable at a deeper cultural level.

A third difficulty is that, in the light of their overlapping concerns with human nature and personality, the boundary between Psychological and religious texts can become blurred. This is especially evident in some theological works (e.g., Paul Tillich’s), while in the case of psychotherapy and counselling, the two occasionally verge on outright fusion.

Fourthly, Psychology being a western cultural product, “religion” is, for our purposes, effectively synonymous with Christianity, along with a sometimes discernible Judaist strand. And even within Christianity, we are primarily concerned with the mainstream west European Protestant and Roman Catholic traditions, its other branches being variously hostile or indifferent to Psychology. This, we will see, raises some problems regarding how Psychology can relate to non-European religions, particularly Islam, Hinduism, and Buddhism.

A final issue is that in addressing the topic we are somewhat hampered by its longstanding neglect by historians from both directions. Only relatively recently has this begun to be rectified. The most notable current workers in the field are US historian of Psychology and psychotherapist Hendrika Vande Kemp and the Catholic psychologist Robert Kugelmann ([in press](#)), plus historians of Psychology of Religion David M. Wulff (1997), Netherlands-based scholar Jakob Belzen (2000), and US historian Robert C. Fuller (2006). J.M. Nelson (2009) is a further very recent addition. Even so, the focus of these writers has often primarily been on the subdiscipline Psychology of Religion rather than the broader topic concerning us here. There are, however, a number of works on individual psychologists in which the part played by religion in their professional work and careers has been explored. The cause of this relative neglect is, to oversimplify, a combination of two factors. Prior to c.1980 historians of Psychology were primarily concerned with chronicling the discipline’s emergence as a natural science, often in a somewhat celebratory fashion. This reflected the perennial anxiety of academic and experimental psychologists to locate themselves within modern natural science, or at the very least as a branch of secular scholarship. Any religious dimension thus

tended to be air-brushed out, or at best seen as of only incidental interest, irrelevant to the main story. Post-1980 more critically oriented historians, although concerned with contextualizing events (as had happened earlier in History of Science), also largely ignored religion. Quite why appears to be a mixture of personal animosity toward, or lack of interest in, religion and the fact that more immediate issues related to, e.g., Psychology's roles in social governance, its treatment of women and minorities, and its "individualist" bias in orientation were higher on their agendas. Beneath these lay a fairly uncritical acceptance of what may be termed the "secularization" plot of twentieth century history. In this image, Psychology was a proactive secular project which simply rolled back the social significance of religion as an authority on psychological matters. The cliché of the psychologist replacing the minister or priest tended to be accepted without much demur. Given religion's resurgence from the early 1990s, this already sounds somewhat dated.

With these preliminary observations out of the way, we may turn to a number of specific aspects of the topic which illuminate how profound the part played by religion in the history of Psychology has actually been. But from what has been said, a perspicuous general answer to the question "what is and has been the relationship between Psychology and Religion?" is clearly impossible.

Psychology's Origins

The "heroic" image of Psychology's origins as a "natural science" in the late nineteenth century is of it emerging first in Germany in the work of Gustav Fechner (in his 1860 *Psychophysics* wherein he described three basic experimental designs) and Wilhelm Wundt, credited with establishing the first Psychology laboratory at Leipzig in 1879. Hot on the Germans' heels the post-1859 rise of Darwinian evolutionary theory, fervently backed by Herbert Spencer and Francis Galton, then provided an integrating theoretical framework in which a variety of separate disciplines concerned with aspects of human and animal behavior could be seen as strands within the overarching project of creating a scientific Psychology. By the late 1880s, the canonical US pioneers were getting into their stride, and forging what came to be termed the "New Psychology" (a term subsequently used at

various times in rather different contexts). Meanwhile, other European national traditions of Psychology were rapidly becoming established. Religion, as already mentioned, barely figures in this received story.

Had Psychology represented only a further advance in the irresistible progress of the natural sciences, as this account rather implies, we may then wonder why it was not greeted with fervent religious opposition, especially as it was apparently concerned with issues so centrally shared with religion. It is still often claimed that the two camps are antagonistic. Yet while some in each camp have undoubtedly seen the other as an enemy, any "warfare" literature has been surprisingly sparse until very recently. There is clearly then something missing from the "heroic" "celebratory" version.

Closer investigation soon brings to light some important reasons for the lack of confrontation during Psychology's pre-1914 founding phases. As Hendrika Vande Kemp has been especially prominent in bring to light, the religious had no major grounds for serious apprehension that Psychology would pose the kind of threat which, say, Geology, Astronomy, and then evolutionary biology, had done to the Biblical physical cosmology. They had good reasons for assuming that their own "Psychological" expertise would be able to withstand, and indeed contribute to, the new discipline. Whereas there were no "Biblical Geology" or "Biblical Astronomy" in place when these disciplines emerged, there were three major, longstanding, strands of Christian "Religious Psychology."

Within Roman Catholicism, the complex and sophisticated account of human nature elaborated by Thomas Aquinas had created a tradition of Scholastic "Thomist" Psychology-cum-Philosophy. The longstanding "Rationalist" strand in European philosophy had in many respects developed from this from the seventeenth century onward, while theologically orthodox Thomism continued to reign in Catholic universities, even if largely intellectually moribund by the nineteenth century. Concerned with the marginalization of Catholicism within the sciences, in 1879 (coincidentally with Wundt's Leipzig laboratory being founded), Pope Leo XII issued the encyclical *Aerterni Patris* reasserting the authority of Thomist Scholasticism as the church's official philosophy and the need to reinvigorate this tradition. This remained the Vatican's position until the Second Vatican Council (1962–1965).

His challenge was most effectively taken up by the Belgian, Father (later Cardinal) Desiré Mercier, who now sought to create a “Neoscholasticism” in which the legitimacy of natural science could be maintained without challenging core religious doctrine. One key feature of this was a differentiation between a “Rational” and an “Empirical” Psychology. The former adhered to Aquinas’s model of the structure of the human mind and soul, arrived at by purely logical rational analysis. The latter however was free to investigate the empirical facts of human behavior and experience in a natural scientific fashion. Hence it was that Mercier founded the first Belgian Psychology laboratory at the University of Louvain in 1891, beating the British by 6 years. The substantial contribution of Catholic psychologists, particularly a US-based Neoscholastic School, into the mid-twentieth century (but dissipating after the Second Vatican Council) was thoroughly reviewed in Misiak and Staudt (1954). Ironically, this invaluable work played into the conventional story by being pitched (as I read it) toward reassuring US psychologists that they had nothing to worry about since only the “Rational” Psychology aspect had a religious character, Catholic psychologists being able to undertake “empirical” Psychology in a way indistinguishable from that of anybody else, religious or not. In fact, the book’s contents rather subvert this claim since it is clear that their religious faith had fairly profound effects on the kinds of Psychology Catholic psychologists produced, while the very distinction itself was a Thomist one. More recently, Robert Kugelmann (*op. cit.*) has been exploring the broader picture of Catholicism’s engagements with Psychology and psychotherapy, clarifying the complex internal politics in which Catholic psychologists became engaged in order to maintain their position against the more fiercely antimodernist factions within the church itself, particularly after Pope Pius X’s 1907 encyclical *Pascendi Dominici Gregis* “on the Doctrine of the Modernists” and Pope Benedict XV’s issuing of the *Code of Canon Law* (1917) in both of which modernism was wholeheartedly condemned.

A second, less prominent but nonetheless covertly influential strand was “Biblical Psychology.” This sought to identify the “Psychological” model or image of human nature and its composition implicit in the Biblical text. The origins of this project are somewhat

hazy, Franz Delitsch (1867), one of its leading exponents, tracing it as far back as some theological writings of the Renaissance anatomist and theologian Bartholinus. In the early nineteenth century, the method used centrally involved Hebrew linguistic scholarship, the American George Bush, author of *Scriptural Psychology* (1845) being a Professor of Hebrew at New York University. What emerged was a “tripartite” model in which the three components were the Soul, the Spirit, and (in Delitsch) the “I” or “Ego.” The first two were in essence, respectively, external and internal aspects of the same thing, while the I/Ego was the most profound center of our being (clearly a different usage of the term Ego to that which became common in the twentieth century). This may be read as in some respects preparing the ground for later Psychological divisions of levels of consciousness. It was additionally significant just for the simple reason that it helped put the term “Psychology” into popular circulation.

Third, and ultimately most influential in anglophone cultures, was the Protestant tradition known in the United States as “Mental and Moral Philosophy.” Rooted in the pious Scottish “realist” or “common sense” philosophical tradition of Thomas Reid and Dugald Stewart, this had been eagerly adopted in many US universities and colleges, particularly after the Scottish emigrant minister John Witherspoon’s appointment as President of Princeton University (then the College of New Jersey) in 1768. This served as a counterweight against student revolutionary radicalism during and after the French revolution, and also against the reductionist and materialist tendencies of British associationist philosophy (exemplified in David Hume). It quickly became routine for university and college presidents to teach mandatory courses in Mental and Moral Philosophy in which they sought to demonstrate that philosophical and, increasingly, scientific study of human nature was consistent with and could only strengthen or rationally authenticate Protestant religious belief (usually, if not always, of a Presbyterian Calvinist hue). Of the very numerous authors of textbooks and treatises of this kind, we should note Thomas Upham, Noah Porter, and, another Scottish Princeton President, James McCosh. Porter’s *Human Intellect* (1868) was a remarkably thorough textbook, citing numerous contemporary

European developments (including Wundt's early work), but explicitly aimed at legitimating the need for religious faith, even while purporting to promote the development of "mental science." McCosh's work became increasingly transitional in character, if no less devout, through the 1870s and 1880s, including books on both *The Emotions* (McCosh 1880) and *Psychology: the Cognitive Powers* (1886, rev. 1894).

Almost all the first generation of US psychologists had studied Mental and Moral Philosophy as undergraduates, several being in effect protégés of Mental and Moral Philosophers (e.g., J.M. Baldwin, G.S.Hall and G.T.Ladd in relation to McCosh, the University of Wisconsin's John Bascom and Porter, respectively). What is clear is that these pioneers took much of the Mental and Moral Philosophy agenda and attitudes with them and were, institutionally, able to take over its academic niche when the tradition itself faded in the 1880s and 1890s. To give just one example of continuity, the claim that religious belief was the natural outcome of healthy child development, spelled out quite explicitly in Porter's *Human Intellect*, was endorsed by all three of those just cited. Even as they affected secular scientific modes of theorizing and research, many of the first two generations of American psychologists remained personally devout. William James, though not conventionally religious, was always respectful of religious belief and of course authored *The Varieties of Religious Experience* (1902), while his mature Pragmatist philosophy held the door firmly ajar for the acceptability of religious belief. The topic of the "authenticity" of religious experience has remained a contentious leitmotif ever since, often seen as the central issue, and is currently under renewed attention as a cognitivist and evolutionary Psychology approaches have entered the fray (see below). It is though too convoluted an issue, philosophically, conceptually, and empirically, to do justice here.

A covert, largely unconscious, plot may perhaps be discerned here in which, pre-1914, American liberal Protestantism saw in Psychology a route for scientific self-legitimation and "naturalization," holding out the further promise that as scientific culture globalized so might their version of Christianity as it piggy-backed, so to speak, on that culture's scientific Psychology strand. In northern mainland Europe, where liberal Protestantism was also flourishing in league with

movements for social and political reform, there was also widespread sympathy for, and interest in, Psychology. Martin Kusch (1999) has also argued that the split in German Psychology between the Wundtian "Leipzig School" and the "Würzburg School" in part reflected a difference between their respective Protestant and Catholic cultural settings.

In short then, not only did the major Christian religious denominations fail to oppose Psychology, they were actively involved in its origins and development. Only in Britain were the canonical early pioneers, Alexander Bain, Herbert Spencer, and Francis Galton, all adamant unbelievers (Fechner's own motivations were, indeed, centrally religious, if idiosyncratic). Even in Britain, however, the religious were not entirely absent; the Unitarians W.B. Carpenter (author of the highly successful textbook *Principles of Mental Physiology*, 1874, 6th ed. 1888) and his friend the theologian James Martineau (e.g., J. Martineau 1885) were of more significance than is often acknowledged, and the Society for Psychical Research signified a widespread concern with what was really a religious issue as well as pioneering research methods (as its sister American society also did), one prominent member being F.W.H. Myers, first to cite Freud in English (F.W.H. Myers 1893), co-organizer and secretary of the 1892 International Congress of Psychology in London, and author of *Human Personality and Its Survival of Bodily Death* (1903).

Aside from their existing religious beliefs, attitudes, and assumptions, a further factor mitigated against psychologists opposing religion. Every scientific discipline needs an applied market if it is to thrive. For the early psychologists, this lay in the contributions they could make to managing the psychological problems facing urbanized industrial societies. More specifically, there was, by the 1890s, a widespread demand in northern Europe, Britain, and north America for professional expertise in the fields of (a) education and child rearing, (b) mental distress, (c) crime, (d) industrial productivity and relations. Religion had long been involved in the first three of these. Schools were widely run and managed by various religious charities and organizations, while pastoral care of the mentally distressed and "feeble minded" was one of religion's longstanding charitable tasks, as was rehabilitation of the criminal. Taking the first, as demonstrating the

point most effectively, we may briefly consider the British situation.

The British Child Study Association (B.C.S.A.) was founded in 1894, supported by James Sully (Professor of Psychology at University College, London) who became its first President. Two years later, a Childhood Society (CS) followed, originating in a Committee on the Mental and Physical Condition of Children which had begun work in 1888 and in 1895 published its *Report on the Scientific Study of the Mental and Physical Conditions of Childhood* (F. Warner 1895) claiming to have studied 100,000 children between 1888 and 1894. In both of these we find representatives of the Christian churches playing very prominent roles. In the case of the B.C.S.A. (London Branch), a particularly prominent figure was the Methodist minister, the Rev. John Scott Lidgett, who has been described as “the greatest Methodist since John Wesley.” His involvement stemmed directly from his leading role in the Bermondsey Settlement, in London’s impoverished East End, a religious project aimed at helping children who had additional connections with Oxford Anglican Evangelicals. Other ministers identifiable as active members include Rev. T.W. Sharpe, also active in the CS, and Senior Chief Inspector in the Education Department at this time, Rev. J.C. Bevan (occasionally Chair of meetings), and Rev. W.J. Adams (who became President in 1902). As well as Sharpe, the CS founding Committee included Rev. George Bell (Headmaster of Marlborough College), Rev. J.C. Weldon (Headmaster of Harrow), and the Catholic Cardinal Vaughan (Archbishop of Westminster). The religious beliefs or sympathies of other members of these societies cannot be so easily ascertained, but inferences might be made. Even Sully himself had begun training as a nonconformist minister in his early years.

As this indicates, religion was central to the cultural ambience in which British Psychology was first attempting to market its expertise beyond academia. A good case could be made that education and child rearing provided the singlemost important route by which it initially achieved this. Regarding crime, “idiocy,” and mental distress, religious figures were ubiquitous in the official and philanthropic bodies variously responsible for managing, monitoring, providing resources, and overseeing treatment as any list of witnesses before Royal Commissions and Parliamentary Committees on such matters from this period

would demonstrate. One might actually speculate how far this religious constituency acted as a brake on the “scientific” eugenicist and degenerationist lobby, but that is beyond present concerns.

So, if Psychology was to create a place for itself in the world at large, it had carefully to negotiate its relationship with religious constituencies. Conversely, to the extent that it succeeded, the religious would in turn endorse the value of Psychological perspectives on such matters. And although this is a British example, the same analysis would apply, perhaps with even greater force, to the United States and much of mainland Europe. Educational Psychology itself was substantially an earlier European creation in which religion had played a major role, being central for pious pioneers such as both the German protestant Friedrich Froebel and the Italian Antonio Rosmini Serbati (a Catholic priest) (on Froebel, see G. Richards 1992, Chap. 4). Concern with the child and education should be viewed not only as something which Psychology could use for its self-promotion, but as a very significant factor driving the actual emergence of the discipline. It was in the literature related to this, both secular and religious, that proto-Psychological ideas had been being promulgated ever since the late eighteenth century and arguably as far back as the sixteenth. Insofar as these were religious in character, they therefore played a role in Psychology’s origins.

To conclude, the rise of modern Psychology was promoted and facilitated rather than opposed or hampered by a combination of religious factors: (a) a preexisting variety of religious “Psychologies,” (b) the religious motivations behind their choice of vocation of many of its pioneers, and (c) the need to elicit the sympathy and support of religious denominations, institutions, and charities in order to market its expertise and establish a cultural niche, particularly in relation to child rearing and education, but also (d) to a lesser extent in relation to other issues such as mental distress, “idiocy” and crime which were assuming ever greater importance in northern European and north American societies.

Psychology of Religion

The most overt engagement between Psychology and religion has been the subdiscipline Psychology of Religion. The fullest review of this is D.M. Wulff’s

monumental *Psychology of Religion: Classic and Contemporary* (2nd ed. 1997). Although never a major strand, it has maintained a presence almost from the outset, albeit with very varied fortunes and sometimes on the brink of disappearing. It should be noted however that while national differences in theoretical and research styles are evident in most fields of Psychology, this is especially so in the present case. To consider the anglophone first, this originated in the United States in the 1890s with the Edwin D. Starbuck's *The Psychology of Religion* (1899) and then, having been dramatically boosted by William James's classic *Varieties of Religious Experience* (1902), rapidly expanded in a succession of works by E.S. Ames, J.B. Pratt, G.A. Coe, G.M. Stratton, and the Swiss emigré James Leuba, of which Pratt's and Leuba's (on Leuba see D.M. Wulff, 2000) have proved the most enduring. Institutionally and organizationally, its major promoter at this time was G. Stanley Hall, founder of the *American Journal of Religious Psychology and Education* (1904) which, with a slight title alteration in 1912, lasted until 1915. It was under Hall's aegis at Clark University that both Starbuck and Leuba undertook their first research, and a little later he published his two-volume *Jesus the Christ in the Light of Modern Psychology* (1917). Religion also figured in his two-volume *Adolescence* (1904). After 1920, however, this early American school began to run out of steam, and by 1933, A. Cronbach's *Psychological Bulletin* review was, in effect, announcing its demise. In truth, its agenda had never been entirely clear, and its research methods had failed to develop in the more "scientific" direction which the times were demanding of Psychology at large. In the light of the previous section, we may read the motivation of many, but not all, of its exponents as utilizing Psychology to legitimate the authenticity and value of some variety of Protestant Christianity (Leuba was a major exception, his 1922 *The Psychology of Religious Mysticism* being particularly skeptical regarding the "authenticity of religious experience" question). Even so, as well as the "authenticity of religious experience" question, they addressed a variety of issues such as the origins of religion (often from an evolutionary perspective and drawing on anthropological and comparative religion evidence), conversion phenomena, the social psychology of religious practises such as revival meetings, and the child's religious development. A few, such as Leuba,

were explicitly critical of religion in its present forms. Interestingly, in the UK Psychology of Religion never really took off, the only significant early works being R.H. Thouless's *An Introduction to the Psychology of Religion* (1923) and B.H. Streeter's strongly pro-religion *Reality. A New Correlation of Science and Religion* (1927). As we will see later, the British relationship between the two camps during this period took rather different forms.

If at a low ebb, US Psychology of Religion nonetheless continued on a rather narrower front. It now tended to concentrate on using the new attitude questionnaire techniques being developed in Social Psychology and personality research to explore religious attitudes plus both the roles and types of religious belief in the context of individual personality. One of the very first pieces of psychometric attitude research was indeed L.L. Thurstone & E.J. Chave's *The Measurement of Attitude: a Psychophysical Method and Some Experiments with a Scale for Measuring Attitudes toward the Church* (1929). In personality research, I.A.M. Nicholson (2002) has shown how the affirmation of the central importance of religion was the primary goals of G.W. Allport's co-foundation of the "Personality Theory" field in the 1930s (Allport 1937). While generally covert, this was explicitly spelled out in *The individual and his religion* (1950). Throughout the 1950s–1980s period, Psychology of Religion primarily assumed the form of a fusion of social psychological and personality research centered on psychometric techniques, with several scales being devised specifically for this purpose, most successfully the Allport-Ross Religious Orientation Scale (1967). Michael Argyle's *Religious Behaviour* (1958) was a somewhat isolated British example. We will return to the "personality" issue below. From the 1980s onward, there was a slow revival of the field as a broader project, accelerating in the late 1990s and post-2000 period. Why this was so will be considered later.

Psychology of Religion's fortunes in mainland European countries followed rather different trajectories, while the subdiscipline itself often differed somewhat in character (partly due to the more clear-cut division between Catholic and Protestant regions). One major figure was the Würzburg School-trained Estonian Karl Girgensohn, who, with the school's leader Oswald Külpe, cofounded a society for Psychology of Religion and a journal (which still survives)

Archiv für Religionspsychologie in 1914. From 1927, his follower Werner Gruehn took over directorship of the society. Girgensohn adopted a rigorous “experimental introspection” methodology in his research. This soon came to be challenged by the Zurich-based pastor Oscar Pfister’s psychoanalytic approach and the two were often at loggerheads, although common concerns eventually led to a rapprochement. Neither of these Protestant schools declined after 1930, one of Pfister’s major works appearing in 1944 (1948 in English). Religion also figured centrally in the German personality theorist Eduard Spranger’s work (see E. Spranger 1928). In the Netherlands, as J. Belzen (2000) has recently detailed, Psychology of Religion did not even manage to get off the ground until the 1950s due to religious opposition. When Carl Jung’s ideas on the nature and importance of religion rapidly acquired an ever-widening circulation during the 1930s, the nature of the issue underwent a major transformation, *Modern Man in Search of a Soul* (1933) being especially influential in this respect. (Though Jung himself was not of course an orthodox religious believer in any sense.) In Catholic countries, the presence of the strong Catholic tradition in Psychology initiated by Mercier inhibited the emergence of anything directly resembling Protestant Psychology of Religion. This did not mean religion was never addressed – one might note Henri Joly’s *The Psychology of the Saints* (1898) in France as an early example. Rather, its presence in Psychology texts would typically take the form of expounding the doctrinally orthodox neo-Thomist position. One important exception was the Italian agnostic S. De Sanctis’s *Religious Conversion: A Biopsychological Study* (1927, 1st Italian 1924).

As indicated earlier, only in the last two decades has anglophone Psychology of Religion succeeded in achieving the revival it long hankered after during the mid-twentieth century. This revival has owed no small debt to the extensive journal papers of Hendrika Vande Kemp and David M. Wulff’s magisterial work cited earlier. D. Fontana (2003) and J.M. Nelson (2009) are more recent major contributions. What might, though, be queried is whether this new Psychology of Religion is really a revival or a new project with the same name. This is for two reasons. Firstly, evolutionary psychologists and cognitive scientists have, since the late 1990s, begun turning their attention to the topic. This

generally involves applying their general theoretical frameworks to the topic as one among many others on their agendas, and, these being quite recent developments, the character of the Psychology of Religion they yield is fundamentally different from that it originally possessed. Secondly, on a different front, it has now become closely interwoven with psychotherapy and counselling, whereas initially the Psychology of Religion and religious involvement with psychotherapy represented rather distinct genres. It is to the latter we next need to turn.

Psychology, Religion, and Mental Distress

One area of common interest between Psychology and the mainstream churches has, since the outset, been the nature and management of mental distress, with Psychiatry of course being a third party in this. With “pastoral counselling” always being one of the tasks of church ministers and priests, the growth of secular ideas regarding mental illness and neurosis offered new resources for undertaking this. The earliest formal example of this in the anglophone world was probably the Boston-based Emmanuel Movement. The history of the Boston-based Emmanuel Movement, which lasted from 1906 to 1929, though was most prominent up to c.1914, has been tackled by Sanford Gifford (1998) to which I refer readers seeking a more detailed account. Three figures are primarily associated with it: the founder, medically qualified Rev. Elwood Worcester (1862–1940), psychiatrist Dr Isador H. Coriat (1875–1943), who had moved to psychoanalysis by 1914, and Dr. Samuel McComb (1864–1938) “a witty, talkative, Anglicised Irishman” (Gifford, p.60). The major account of their fairly eclectic approach, in which “suggestion” and hypnotism prominently figured, is R. Worcester, S. McComb, and I.H. Coriat (1908, 1920). It was, however, an eminent physician, Joseph H. Pratt (1872–1956), who had actually set the ball rolling in 1905 by conducting what was in effect group psychotherapy (which he termed “the class method”) with tuberculosis sufferers at the Emmanuel Church. The long-term influence of the Emmanuel Movement was to introduce the notion of medical psychotherapy to the country, including the first psychiatric outpatient clinic, and pioneering small group psychotherapy method. The extensive

development of US pastoral counselling after 1920 has been summarized down to 1970 by Vande Kemp (1984, 1986, 1996). For other overviews of the field, see W.R. Clebsch & C.R. Jaekle (1964) and H.J. Clinebell (1966). A major mid-century figure in promoting this was Seward Hiltner, author of two books and numerous journal articles, most importantly S. Hiltner (1949).

Turning to the UK, after 1918, there was a surge of religious interest in using the new psychotherapeutic approaches for pastoral counselling, especially psychoanalysis (and related schools) and various “suggestion,” “autosuggestion,” and hypnotic techniques (notably those of Emil Coué and the “New Nancy School” of hypnosis associated with Charles Baudouin, both French). (See Richards (2000a, b, 2011) for more on this and the interwar British situation in general). Young ministers who had, as padres, experienced the horrors of the Western Front and other theatres of the Great War were especially receptive to the “New Psychology,” as were many Christian doctors. In addition to selectively adopting the new psychological and psychotherapeutic concepts in their pastoral work, they also became closely involved with institutional innovation. To summarize a complex story, three figures emerged as particularly prominent in this. Hugh Crichton-Miller, whose wartime service had been in Alexandria, who founded the Tavistock Clinic in 1920; Leslie D. Weatherhead (a padre in the grim Mesopotamian campaign), a popular Methodist minister and writer who founded the City Temple Psychological Clinic in London (1936); and the academic psychologist and psychotherapist William Brown who keenly supported these projects. A number of Christian psychologists such as J.A. Hadfield and R.H. Thouless, along with psychiatrists like David Yellowlees were also involved in various capacities. The psychotherapeutic methods employed were typically, as indicated above, an eclectic blend of “suggestion,” hypnosis, and critical but sympathetic use of psychoanalytic techniques. As awareness of the differences between Jung and Freud grew, by the 1930s, Christian therapists were increasingly using a Jungian rather than Freudian theoretical framework. In the background however often lay the more traditional religious notion of “spiritual healing,” especially in Weatherhead’s case.

Other clinics established in the 1930s included the Whitefield Clinic of Pastoral Psychology and the

London Clinic for Religious Psychology. At a different level were the foundings of the Jung-oriented Guild of Pastoral Psychology (which Jung addressed at least once) in 1936 and the Marriage Guidance Council (by the Rev. Herbert Grey) in 1938, and a number of other religious societies and committees concerned with the issue. The much older Guild of Health (originally set up in 1904) also seems to have been greatly revitalized at this time.

After 1945, momentum was resumed during the late 1950s with the reopening of Weatherhead’s City Temple Clinic and Frank Lake’s foundation of the Clinical Theology Association (now the Bridge Foundation). This culminated in the 1970 opening of the Westminster Pastoral Foundation (WPF) by Methodist minister Bill Kyle, which assumed and expanded the role of Weatherhead’s clinic, which had by then closed. In 1971, Fr. Louis Mateau founded the Catholic Dymyna Institute. What is most significant is that these, and other uncited, religious psychotherapy projects provided the institutional basis for the subsequent expansion and development of professional counselling and non-Freudian psychotherapy during the 1970s and thereafter. The WPF was central in the creation of the British Association of Counselling and formally accredited training courses. While, after 1980, the field rapidly became secularized (and the Tavistock had effectively disengaged from religion during the 1930s), it is clear that the religious involvements with psychotherapy and counselling sketched here were crucial in both their institutionalization and popularization beyond metropolitan intellectual circles. This implies some adjustment to the widespread image of their current popularity being simply an after-effect of 1960s alternative culture fascination with the various “Growth Movement” therapies which mushroomed during that decade. But where did these come from? We now need to return to the US situation during the later 1940s and 1950s.

Among the leading figures in the post World War 2 “Growth Movement” were Abraham Maslow, Carl Rogers, and Rollo May. What is especially significant for our purposes is that there is a clear linkage between each of these and the New York-based Union Theological Seminary (UTS). In particular, there is a lineage from the Hassidic German philosopher Martin Buber (whose 1923 *I and Thou* was enormously influential)

into the thought of his fellow ex-Frankfurt School friend Paul Tillich and the American Reinhold Niebuhr, both eminent UTS professors at this time. All three of those just mentioned were in various ways associated with UTS at some point in their careers and were familiar with the ideas expounded by Buber, Niebuhr, and Tillich. These centered on (a) the prime importance of treating others compassionately and empathetically as fellow human beings rather than (in the therapeutic situation) simply medical “cases” and (b) on the authenticity and, indeed, necessity of what might be called “spiritual striving” for self-fulfilment, as opposed to simply the “cure” of neuroses. It may be noted that Rollo May subsequently authored a biography of Tillich (R. May 1973), while Rogers did a filmed interview with Tillich (now available on-line). An additional figure in this was Harvard-based Gordon W. Allport, a devout Episcopalian. He is, as mentioned earlier, best remembered as cofounder of the Personality Theory subdiscipline during the 1930s, but as emerges from his *The Individual and His Religion* and Nicholson’s biography (both cited earlier), he saw the achievement of mature religious belief as the culminating stage of personality development. He also regularly gave sermons in the Harvard Chapel. Since Tillich moved to Harvard in 1955 (and similarly preached there), a further linkage may be discerned. In short, while it cannot be fully elaborated here, the central “Growth Movement” founders may be seen as emerging from a specific intellectual milieu, centered on New York and Harvard, in which the underlying values of their ostensibly secular therapies were being forcefully articulated by Protestant UTS theologians. The association between the UTS and Psychology was further reinforced by its close physical proximity to Columbia University, with considerable academic traffic between them.

Contemporary psychotherapy and counselling are primarily secular in character, at least on the surface, but what is noticeable is the extent to which religious concepts of spirituality, sin, and the like have become common currency. Religious-type concerns perhaps inevitably arise in dealing with mental distress, especially when, as has happened over the last half-century, their professional treatment has become normalized beyond the traditionally conceived psychiatric mental illnesses.

Finally, one might remark that taking the religious input into account challenges the simplistic but widespread image of a historical secularization trajectory in which psychotherapists straightforwardly assumed the mantle of ministers and priests in tackling mental problems. On the contrary, their established pastoral-care role rendered them particularly sensitive to the insights offered by early twentieth century psychological ideas. Moreover, this mythical “secularization” story overlooks the extent to which psychologists themselves have often been devoutly religious and keen to collaborate with religious professionals. This point is given added force when we turn to other issues.

Religion, Education, and Child Development

The involvement of religion in educational and child-related matters did not fade out at the end of the founding phase. Given the widespread engagement of religious bodies in running and managing schools, it was to be expected that they should continue to endorse the view that belief was a normal outcome of healthy child development, and also that they would monitor and selectively adopt the new ideas on teaching methods and assessment that Educational Psychology had to offer. One area of immediate concern was, unsurprisingly, how religion should be taught. Books on this appeared, if not frequently, at least regularly, into the 1970s, while it had often figured – as its title suggests – in the *American Journal of Religious Psychology and Education*. Over 30 book titles specifically related to religious education are listed in Vande Kemp and Maloney’s 1984 bibliography for the years 1909–1964, over half being published in the United States. The British Psychological Society’s cofounder, Sophie Bryant’s 1924 *Moral and Religious Education* should be added to this list. This is undoubtedly deceptive since it does not include journal papers or pamphlets and many relevant works fell outside Vande Kemp and Maloney’s remit. Books on child care and parenting also sometimes carried Introductions or Forewords by religious figures (E.G. Braham 1936 and T.F. Metcalf 1939, being two British examples, opened, respectively, by Leslie Weatherhead and Rev. E.S. Waterhouse). One should also note that in the United States, The Religious Education Association (REA) had been founded in 1903 by William Raney Draper (and

remains active) and had launched the journal *Religious Education* (still published) in 1906 while, interestingly, the philosopher John Dewey was at one time associated with it. The REA was, more directly, involved with promoting the famous H. Hartshorne & Mark A. May “Character Education Inquiry” which produced the *Studies in the Nature of Character* (1930), still famous for its first volume *Studies in Deceit*. The affiliations of the authors of these religious educational works were variously Protestant (including evangelical Baptist), Catholic, Ecumenical (as was the REA), and, occasionally, Jewish. Mainland European religious educationists, especially in France and Germany, also published numerous works (often Catholic in commitment) during this period. One point to be remembered about the entire genre is the frequent blurring of the line between “religious” and “moral” education. The latter of course was of concern to educational psychologists generally. This topic is, however, so broad in scope and complex in detail that it cannot be further developed here.

Religious Influences in Psychological Theory

Leaving aside the explicitly Neoscholastic approaches of Catholic psychologists, such as R.E. Brennan (see R.E. Brennan 1941), religious influences on Psychological theory, as opposed to psychologists’ personal career motivations, are usually not obvious on the surface. Dig deeper however and interesting religious dimensions can emerge. J. Piaget, S. Freud, and G.W. Allport are three cases in point. These cannot be explored in depth here, but, taking them in turn: the embeddedness of Piaget’s Psychology in Swiss liberal Protestantism has been shown by F. Vidal (1988); the precise role of Judaism in framing Freud’s thought remains a matter for debate in detail, but, ever since D. Bakan’s classic and provocative study (D. Bakan 1958), it has generally been acknowledged that it *did* play a part; I.A.M. Nicholson’s biography of G.W. Allport has, as mentioned earlier, revealed the extent to which his concept of “personality” and his own personality theory were underpinned and motivated by his High Church Episcopalian (or Anglican) religious convictions (as emerges most clearly in G.W. Allport, 1950). In C.G. Jung’s thought, Psychological and religious concerns were inextricably interwoven from the outset. Although never an orthodox believer, his fascination

with symbolism and mythology, which he believed to be the profoundest products of the human “psyche,” drove him ever more deeply into engaging with religious issues at both a personal and theoretical level.

There is though a deeper level of “influence” perhaps pervading the discipline as a whole and hinted at at the outset, which is that as a product of western culture, imbued with Judæo-Christian values and attitudes, even the most secular psychologist’s thought is likely to be in some way affected by these in ways of which they are unaware. This is likely to be especially true of the United States, where secularization has never been as thorough-going as in most European countries where Psychology has flourished and where, even if church attendance saw a decline over the twentieth century, what is now being called “unchurched spirituality” remained commonplace. This “unchurched spirituality” continues to accept most of the organized Protestant churches’ moral and social values. In many respects, US Psychology has, in the main, never ceased to be guided by what the present writer has elsewhere called the “moral project” of its Mental & Moral Philosophy progenitors (G. Richards 1995). In the final analysis, it is perhaps impossible to disentangle specifically “religious” influences on psychologists’ theories or research choices from the broader role of general social, cultural, and historical factors.

Religion and Personality

One enduring component of the Psychology of Religion agenda has, as we saw, been the study and theorizing of religion’s role at the level of individual personality. Is there a “religious” personality type (or perhaps several)? What underlies peoples’ commitment, or not, to a religious belief? Is there a universal “spiritual” or “religious” striving which deeply motivates all of us whether or not it is consciously recognized? What are the correlates of religious belief with regard to social attitudes (e.g., political leanings) in general? What roles do their religious beliefs play in believers’ lives? Such questions have long attracted psychologists’ attention.

Regarding religious typology, one of the earliest distinctions was that made by William James, in *The Varieties of Religious Experience*, between “once-born” and “twice-born” believers. The former devoutly retained the religious beliefs in which they were raised

throughout their lives, undisturbed by crises of faith, the latter, whether previously believers or not, had acquired their religious convictions as a result of a profound personal experience, typically conversion or as the resolution of a crisis of faith. In 1914, the German psychologist Edouard Spranger proposed six “ideal types” of personality differing according to which was their dominating “value”: theoretic, economic, aesthetic, social, political, or religious. However, the “religious” value had a somewhat different logical status than the rest, since, although strictly referring to two types of “mystical” value orientation (immanent and transcendent), it could also combine with the others to yield distinct modes of religious expression or idealized attitudes. So the “theoretic” attitude for example might focus on theology and rational justification of belief, the aesthetic attitude on artistic expressions of faith such as painting or music. Wulff has described Spranger’s position as “existential-interpretive,” and G.W. Allport was much taken with Spranger’s approach at one point. In his theory, however, as explained in *The Individual and His Religion*, religion is conceived as an overarching integrating system of values, the ideal end product of individual psychological development. Even so, Allport was also interested in developing more psychometric approaches to the study of religion’s place in the individual’s personality, collaborating in devising the Ross-Allport Religious Orientation Scale cited earlier (ROS). This sought to differentiate “intrinsic” from “extrinsic” motivation in religious belief. For those in the former category, religion is the “master motive” and determines their whole way of life, for the latter religious belief is ultimately subordinated to practical, instrumental ends. Another popular instrument was E.L. Shostrom’s *Personal Orientation Inventory: An Inventory for the Measurement of Self-Actualization* (Shostrom 1966) (POI). The British social psychologist Michael Argyle also attempted to correlate personality variables and social attitudes with religious belief in his *Religious Behaviour* (Argyle 1958).

These moves initiated what became an ongoing research tradition amongst psychologists seeking to pin-down the varieties of religious belief at the personality level. More recently, a differentiation has been made between “religiosity” and “spirituality” to take into account the fact that nonbelievers may nevertheless

appear to have strong “spiritual” values, while practising religious believers are not always particularly “spiritual” in character. This has yielded a 2×2 matrix of High/Low Religiosity versus High/Low Spirituality, hence four types “Traditional Integrated” (High/High), the majority in the United States, “Spiritual Seeker Individualistic” (Low relig./High spirit.), Cultural Dogmatic (High relig./Low spirit), and “Uninterested or antagonistic” (Low/Low) (see J.M. Nelson 2009, p.11).

The psychometric approach as such, it is fair to say, was nonetheless bedevilled with difficulties. It was extremely hard to devise questionnaires which did not implicitly assume that those taking them were (whether believers or not!) operating in relation to one specific religion (usually Protestant Christianity). Wulff has a very useful discussion of the shortcomings of both the ROS and POI. While it seems intuitively obvious that some people are temperamentally inclined toward religious belief and/or practise, while others are not, efforts at identifying a psychometrically clear-cut and universalisable “religiosity” dimension have so far proved unsuccessful. In attempting to do so, researchers have had to confront the sheer variety of functions which religious belief can serve for different people, suggesting perhaps that Spranger’s approach was abandoned a little prematurely. Turning to social and political attitudes, it is no surprise that strong correlations can be found between specific religious allegiances and positions taken on contemporary sociopolitical issues. What is also clear though is that these are highly variable over time, and that whether religious belief “causes” the attitudes or the attitudes determine which religious allegiance is most congenial is undecidable in any general way.

The universality of “spiritual striving” also remains contentious. In some form or other, it is itself an article of faith for many in the psychotherapy field, but as an empirical proposition rather than a moral injunction, it is difficult to see how it could be confirmed. Surely the high level of sheer cynical wickedness in the world rather suggests otherwise? For a recent optimistic however see J. Bering (2010).

Psychology and Non-western Religions

Psychologists concerned with religion have, for the most part, always displayed a certain interest in non-

western religions, while remaining primarily concerned with Christianity and, to a lesser extent, Judaism. During the heyday of US Psychology of Religion, they invariably figured in discussions of the origins of religion and mysticism for example, but the stance taken was almost always that Christianity was the most evolved or “highest” form of religion. During the post-1945 period, and into the 1960s, there was a surge of interest in Buddhism (especially Zen Buddhism) and Hinduism which more positively sought to redress the perceived imbalance in prevailing occidental Psychology by incorporating the insights of these. Jung had always been fascinated by the symbolism of oriental religions and endorsed such works as Richard Wilhelm’s (1960) translations of the *I Ching* and *The Secret of the Golden Flower*. In the United States, it was Zen Buddhism which initially attracted most attention, Erich Fromm, for example, coauthored *Zen Buddhism and Psychoanalysis* (Fromm et al. 1960). Lao Tzu’s *Tao Te Ching* also enjoyed popularity in new translations. It is though hard to disentangle the specifically psychological interest in these faiths from their vogue in the broader cultural – and counter-cultural – climate of the times. Nonetheless, it is a fair generalization that many “Growth Movement” psychotherapists took the Buddhist and Hindu ideas and techniques for achieving self-knowledge seriously and found them insightful.

Since around 1990, the situation has changed significantly due to the increasing globalization of Psychology and the recent emergence of Postcolonial Psychology. This has resulted in numerous works bearing titles such as *Heart, Self and Soul: The Sufi Psychology of Growth, Balance and Harmony* (R. Frager 1999), *Islamic Psychology: Emergence of a New Field* (A. Husain 2006), and *The Positive Psychology of Buddhism and Yoga* (Levine 2000). There were also several earlier works of a similar character. As Psychology globalizes, so those in non-western cultures naturally seek to incorporate their own indigenous, usually religious, psychological wisdoms into the discipline, offsetting its western biases and assumptions. This raises an important problem for which there is no easy resolution. Whatever its internal diversity, western Psychology is, unambiguously, a discipline embedded in the western academic tradition, including both the sciences and the humanities. Whatever their disagreements its

practitioners are at least agreed on one thing – they are engaged in some kind of knowledge-generation activity. That is to say there are active frontiers at which they labor and their work continually challenges, changes or expands on existing knowledge. Psychologists have trouble enough maintaining a sense of unity, but on this at least there is a consensus. If however we add Hindu, Buddhist and Islamic “Psychologies,” this is necessarily challenged, for while such religions contain elaborate and sophisticated accounts of the psychological, they are not, by their very nature, engaged in generating new knowledge. Their task is to teach and spread the knowledge they already have. In the west only Catholic Thomist “rational Psychology” is similar, and that, as we saw, managed to adjust to Psychology by deploying the empirical versus rational distinction (itself a religious doctrine in their case). Note that the globalization of the physical sciences faces no similar problem, there are no currently active religious rivals, no Buddhist geology or Islamic physiology.

Psychology is thus in a dilemma, as yet not fully appreciated, regarding what to do about these Psychologies. It cannot simply reject them as “unscientific” since to do so would be to endorse western Psychology’s hegemony, with all its cultural biases, but to incorporate them is also impossible without sacrificing the notion of the discipline as a knowledge-generating project. Psychology’s current internal divisions are of three kinds: those pertaining to subject matter (yielding subdisciplines), those pertaining to theory (behaviorism, cognitivism, social constructionism, etc.) and those pertaining to methods (laboratory experimentation, field studies, discourse analysis, etc.). But non-western religious Psychologies are not definable in any of these terms. They are not even “theories” in the orthodox sense since they are total religious belief-systems, and do not generate testable hypotheses, etc., in the way Psychological theories do (or can be criticized for not doing). The momentum of the developments generating this conundrum is probably unstoppable, and the conundrum itself is no argument against it. In the end, one supposes, each non-western faith will have to travel the same path as Christianity has done and find its own way of adjusting to the presence of Psychology. Neither the religions nor Psychology will remain unchanged in the process.

Current Cognitive and Evolutionary Psychologies of Religion

This entry being about the relationships between Psychology and religion, rather than psychological theories of religion, these two recent trends (their significant presence dating back only to the late 1990s) can only be dealt with very briefly here. For our purposes, they are significant as representing a renewed attempt to produce a Psychology of Religion rather different from those of the past. One major contrast is that their keenest advocates tend, with varying degrees of qualification between authors, to offer reductionist scientific accounts of religion rather than, as previously tended to be the case, accounts motivated by a desire to demonstrate the compatibility of religious belief with scientific psychological theories. The second is that while earlier approaches were by and large eclectic in the psychological ideas they drew upon, both of these are concerned to show how a single specific theoretical framework can comprehensively “explain” religion. Only the initial psychoanalytic critiques of religion were so ambitious (though G.B. Vetter, 1958, was a behaviorist exception). Ironically, it may be only now, when sympathetic treatments of religion and “spirituality” are reappearing on the discipline’s psychotherapy and clinical wing, that something like a classic “science versus religion” contest is finally surfacing in these theoretical camps.

Even so, neither approach (and they have overlaps) is internally homogenous, with considerable variation in the extent to which their proponents espouse reductionist or antireligion positions. This is very apparent in the wide-ranging, 50-chapter, collection of essays *The Evolution of Religion. Studies, Theories and Critiques* (J. Bulbulia et al. 2008). It might though be noted that anthropologists greatly outnumber psychologists among the contributors (along with representatives of several other disciplines). Leading figures include, on the cognitivist side, P. Boyer (2010), S. Guthrie (1993), and H. Whitehouse (2004), and on the evolutionary side, J.L. Barrett (2004), L.A. Kirkpatrick (2005), J.P. Schloss and M. Murray (2009), and R. Sosis and C. Alcorta (2003). J.M. Nelson (2009) has a useful, if brief, critical resumé of their theoretical concepts and hypotheses. Evolutionary Psychology itself, based primarily on the sociobiological model, is of course vulnerable to numerous conceptual

criticisms. These cannot be explored here (see G. Richards 1987, Rose 2000 for instance), but one point should be made. Many writers, including the cognitivists, still tend to view religion as comprising a set of (usually “irrational”) empirical beliefs. This is surely misleading, as mentioned in the opening paragraph. Nor is “irrationality” self-evident, there was indeed a time in the seventeenth and eighteenth centuries when atheism was widely considered a form of madness, and William Paley’s “Argument from Design” was widely accepted as irrefutably logical by many scientists in the early nineteenth century (e.g., the authors of the *Bridgewater Treatises*). One cannot, by scientific fiat, simply differentiate the rational from the irrational as natural psychological categories.

Despite the increasing number of publications on religion from these two schools, especially since 2000, they have yet (in 2010) to achieve a powerful academic presence within the discipline as a whole, though this could change.

Conclusion

As we have seen, the relationships between Psychology and the religions (primarily Christianity) in its host societies have been of a variety of kinds. While psychologists have sometimes tried to “explain” religion away in theoretical terms as a quasi-irrational pathology (psychoanalysis, behaviorism, evolutionary psychology), they have also cooperated with it (numerous psychologists especially in the pre-1914 period), integrated it into their theories (G.W. Allport, Carl Jung), co-opted its insights in secular terms (“Growth Movement” psychotherapists), sought psychological correlates of religious belief in descriptive fashion (e.g., M. Argyle 1958), focussed on specific religious phenomena (notably religious experience and conversion), and simply accepted its underlying values in applied fields (notably “moral education”). The religious for their part have, while occasionally opposing Psychology, more typically sought to incorporate its concepts into their own psychotherapeutic and counselling practises, formulated theoretical reconciliations with it (e.g., Oscar Pfister), used it as a resource for reformulating and modernizing their doctrines (many of the more pious early psychologists of religion as well as more recent theologians), and, in the early days, welcomed it as a potential route for validating religious belief. More profoundly, it is

clear that, both consciously and unconsciously, psychologists' work can be deeply affected by their own religious backgrounds and motivations as well as, more obscurely, the religious characters of the societies in which they live (e.g., the "individualist" orientation of mainstream US Psychology in relation to its prevailing Protestant culture).

Explanations are attempts at resolving puzzles, and psychologists have found religion puzzling in numerous respects which the religious in turn may either dismiss as misunderstandings, share, or consider irrelevant. One common puzzle for psychologists is not anything about religion as such, but how their own favored theory can account for it, another is its perceived "irrationality" (as apparently disclosed by these theories), which as noted previously is a highly problematic accusation. Others may be puzzled, or at least curious, regarding the way religious belief correlates with social attitudes, or focus on more extreme varieties of religion such as cults. For personality theorists, the question is how religious belief functions in believers' lives. Yet others may just be concerned to ensure that their religious moral values can continue to guide their practise as educational psychologists or other fields of applied Psychology.

As Psychology globalizes, most of these issues are likely to become more acute as it has to negotiate its relationship with non-western religions (each with its own regional variants and branches), notably Islam, Hinduism, Buddhism, and various indigenous African religious concepts. Ultimately, the issues we classify as "religious" remain matters which we can only resolve at a personal level, albeit in the light of the public knowledge, ideas, and information available to us (including Psychological theories and findings) in combination with our individual experience and temperament. But even saying that perhaps reflects only the unbelieving author's Protestant cultural background.

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Psychology in Modern India

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The history of psychological thought in the Indian subcontinent may be divided into three distinct periods: *first*, a multi-millennial span from antiquity to the founding of the British empire in the mid-nineteenth century; *second*, about a century of British colonial times up to independence attained in 1947; and *third*, bit over half a century of the independence era. The first period is covered in a separate entry in this volume (see Pre-modern India and Psychological Thought). This entry covers the 2nd and the 3rd periods.

Psychology in the British Colonial Period (1857–1947)

The British East India Company adopted a policy of funding only European-style education within its territories several years before the subcontinent was formally accessioned to Queen Victoria's empire in 1857. The aim of this policy was to produce a class of Indians who would be brown in color but English in their thinking. The success of this policy was enormous; its results were at least twofold. While on the one hand the vitality of the indigenous intellectual tradition was reduced to a great degree, Indian intelligentsia became exposed to European thought and modern science. Education in colleges and universities was modeled after Oxford and Cambridge. Modern psychology was introduced at Calcutta University with the starting of a separate department of psychology in 1916. Dalal

(2002) has given an excellent overview of the history of psychology since that time onward. During nearly a century that has passed since, Indian psychologists trained abroad as well as those trained in India almost exclusively followed the Western brands of psychology. Their theoretical contributions will be discussed in a later section. But first let us take a look at psychology as it developed on the foundations laid by India's own intellectual tradition.

The tradition of spiritual self-development which gave psychology in India its most distinctive character continued to flourish despite the Anglicization and modernization of various aspects of the Indian culture. Numerous lineages of teachers and disciples (*guru, śiṣya*), that are recognized as distinct "sects" which followed their own brands of theory and practice, continued to proliferate and flourish. One of the many well-known pairs of teacher and disciple in the modern times was Ramakrishna Paramahansa, the great saint of Kolkata, and his disciple Swami Vivekananda. He is widely recognized as the first Indian monk whose lecture at the world conference on religions in Chicago in 1883 became a landmark in introducing Indian thought in the USA. The importance of his work for psychology follows from the fact that the Swami made a deep impact on William James and his ideas about the higher states of consciousness (Taylor 1988).

With the increasing prevalence of the distinctive Western world view promoted by Anglicized higher education and the inevitable influence of science, there was a great need to interpret traditional ideas in light of modern concerns and concepts. Among the important pioneers in interpreting Indian thought in the context of Western philosophy two names may be mentioned: Krishna Chandra Bhattacharyya (1875–1949) and S. Radhakrishnan (1888–1975). In terms of articulation of the basic principles and theories for psychological theory and practice, we may note the work of B.G. Tilak (1856–1920), who interpreted the Path of Action described in the *Bhagavad-Gītā* in light of post-Kantian philosophy and Darwinian thought. But beyond doubt the most important contribution to psychology in the Indian tradition was made by Aurobindo Ghose (1872–1950), widely known as Sri Aurobindo.

Sri Aurobindo was a genius. Educated from childhood in England, young Aurobindo mastered French,

Latin, and Greek, and learned enough German and Italian to enjoy Goethe and Dante in the original, before graduating from Cambridge University. He started his adult life as a freedom fighter and journalist, but spent later years as a poet, sage, and a yogi. Psychology was one of the important topics in his voluminous writings. He was not formally trained in psychology; he was a sage in the Indian tradition who wrote on psychological topics on the basis of his profound experience as a yogi. Prominent in his contributions to psychology is his work called *The Synthesis of Yoga* (Aurobindo 1949/1999) in which he brings together the essence of the three basic varieties of yoga, namely the paths of Knowledge (*jñāna mārga*), Devotion (*bhakti*), and Action (*karma*). Having mastered the Sanskrit language, which he learned as an adult, Sri Aurobindo wrote commentaries on the principal Upaniṣads as well as the Vedas. In this work, he gives symbolic interpretations of several hymns of the Vedas explaining the psychological significance of the parables therein.

Turning now to the academic psychology that was transplanted from the West, we may note two pioneers: Narendra Nath Sengupta of the Calcutta University, who was trained in experimental psychology with Hugo Munsterberg at Harvard, and his successor Girindra Shekhar Bose, who became a self-taught psychoanalyst to be admitted by Freud to membership of the International Association of Psychoanalysis (see Vahali 2011 for details). Thus, both Western experimental and clinical approaches were imported, and since then numerous psychologists trained abroad have continued to bring Western trends into psychology in India. Of these two strands of Western psychology, the experimental model flourished, while psychoanalysis lagged far behind. As to psychology of the Indian tradition mentioned in the first part of this essay, its theoretical side became a small part of philosophy courses in universities, while the applied aspect was completely sequestered away from the academe. With the exception of Indra Sen (1986), few psychologists recognized the great contributions to their discipline by Sri Aurobindo.

Mahatma Gandhi (1869–1948) is universally known as a saint, a freedom fighter, social reformer, and a great thinker, but not as an academic – let alone a psychologist. However, it is necessary to recognize his

contribution to what may be called “applied social psychology.” Seeped in traditional Indian thought and culture, Gandhi emphasized the principle of nonviolence (*ahimsā*), and developed *satyāgraha* (the word literally means insistence on truth) as a technique for nonviolent resolution of social conflict. Gandhi’s style of leadership demonstrates his deep understanding of what modern psychologists have called “group dynamics.” He may be legitimately considered an applied social psychologist par excellence. Gandhi’s work reflects the *practical* orientation of psychology in India. It is neither abstract theory-building nor empirical validation of propositions that take central stage in the tradition of psychology in India; the primary goal of human sciences is to devise ways that help in successfully dealing with problems of living.

Dalal (2002) quotes the following observations made by a prominent contemporary psychologist Ashis Nandy: “[T]he usual encounter between an ancient culture with its distinctive culture of science and an exogenous science with its own distinctive culture fractured the self-definition not only of Bose but of many others involved in the similar enterprise” (Dalal 2002, p. 83). Nandy’s words would convince anybody who has noted that, in the case of many Indian psychologists in recent times, their world view as quapsychologists seemed to be completely divorced from their world view as members of the Indian culture. This historical background is necessary to understand how and why the development of psychological theory in later years split into two loosely linked and yet rather distinct streams, one following the Indian tradition while the other remaining Western in style and spirit. In the mainstream, however, the Western impact continued with the choice of British, American, and Canadian Universities as preferred destinations for higher learning. The first generation of academic leaders in most of the Indian universities, therefore, were products of Western training and psychology modeled after natural science remained the dominant voice.

Psychology in Independent India (1947–)

Soon after India gained independence from the British rule, psychology witnessed an explosive growth with departments of psychology opening up in old

universities as well as in a continually widening circle of new universities and institutes of technology and management. There was a similar explosion in the number of research publications in Indian as well as international journals. Despite all the exceptional growth of the field, there has been acute restlessness about the significance of the accomplishments.

Dalal (2002) complains about the

- ▶ growing disillusionment with applicability of western theories and their mindless testing in India. Their failure to resolve inner conflicts of cherishing Indian cultural values at the personal level and maintaining western orientation at professional level was reflected in their methodologically sophisticated but socially irrelevant research. Western psychological theories and research were not effective in understanding the Indian social reality. As a result, Indian psychologists became increasingly marginalised in society. (p. 95)

Regardless of such restlessness, psychological research has continued at an ever-increasing pace. As far as theories are concerned, there are notable contributions that have followed both traditional Indian as well as a few Western models. A brief overview of the more important contributions is in order.

Theoretical Contributions Following the Traditional Indian Lines

A natural reaction to finding the cultural misfit and redundancy of imported models is to turn to the rich intellectual heritage of one's own culture. A clarion call in this direction was given by Durganand Sinha (1965) asking for the integration of modern psychology with Indian thought. In a national conference in 2002 well over 150 psychologists proposed the "Pondicherry Manifesto of Indian Psychology" (The full text of the Pondicherry Manifesto of Indian Psychology is available on the following link on the Internet: www.infinityfoundation.com/mandala/i_es/i_es_corne_manifesto_frameset.htm) which repeated Sinha's call in following words:

- ▶ By Indian psychology we mean a distinct psychological tradition that is rooted in Indian ethos and thought, including the variety of psychological practices that exist in the country... Indian models of psychology would have enormous implications for health

psychology, education, organizational management and human and social development. Emphasis on Indian psychology would provide a comprehensive foundation and a refreshing new and indigenous orientation to all other branches of psychology.

Two rather distinct but related lines of development in "Indian Psychology" can be identified which signify elements of resistance and protest. The first one mainly involves interpretation of traditional approaches in light of modern perspectives. In such works, attempt is usually made to explain the relevance of traditional concepts and methods with explanations given in currently popular idiom. Foundational issues underlying theory building in terms of ontological and epistemological issues are discussed in Rao et al. (2008) and Cornelissen et al. (2011a).

There is a wide range of studies that explain how insights of traditional Indian origin contribute to the understanding of specific psychological issues. Notable in this context are publications in the fields of consciousness (Rao 2002; Cornelissen 2001), self (Paranjpe 1998), emotion (Paranjpe and Bhatt 1997), and perception and cognition (Rao 2011).

Aside from such theory building efforts based on traditional foundations, there are efforts toward the empirical validation of theories with the use of Western-style tests and measurements. Several measures have been developed to assess personality typology based on the Sāṃkhya concepts of the three strands of Prakṛti, the principle of materiality. A remarkable effort was made by Pande and Naidu (1992) to empirically examine a set of propositions from the theory of acting without attachment to results of one's action described in the *Bhagavad-Gītā*. Then, they developed and validated a measure for an attitude of nonattachment, and correlated the strength of such attitude with various indices of mental health.

The dominant approach to psychological knowledge in the Indian tradition is, however, grounded in a different world view in which focus on self and self-development is valued, and the success of a theory is judged in terms of the usefulness of applications in existential benefits and spiritual progress. With the divorce of religion and science in the history of Europe typified by Galileo's inquisition, spirituality was driven into the religious camp, and it became an anathema for

the “science” of psychology in the West. Most Indian psychologists simply followed this trend. But things have changed more recently; research on meditation has become common in contemporary psychology, and yoga has become a household word. In this context, theories and methods of traditional Indian origin are being recovered and critically examined and articulated in the contemporary context.

First of all, there is a burgeoning body of literature on various techniques of meditation and the measurement of their success. A review of this literature with specific reference to Indian approaches may be found in Rao (2011) and Salagame (2011). Paranjpe (2008) has adopted a case-study approach; he has examined the life history of a modern sage, Sri Ramaṇa Maharshi, to see how the traditional Advaitic method of meditation is modified and practiced in modern times, and the kind of transformation it can lead to. Similarly, he (Paranjpe 2011) has examined the life history of B.G. Tilak, a modern exponent of the Path of Action (*karma yoga*) and tried to assess how and how far he brought into action the principles he preached. Such use of case studies for validation of theories fits the distinctive character of the Indian tradition where a personal application of psychological models is crucial. The worldwide popularity of Yoga and meditation indicates the relevance of the Indian approaches where similar goals are valued. Patañjali’s theory of Yoga provides the backbone of an ambitious and continuing program for the assessment of psychosomatic benefits of Yogic practices. Literature reporting the results of numerous studies is available from the website (See http://www.svyasa.org/research/research_publication.asp) of the Swami Vivekananda Yoga University, which has become the hub of research on Yoga. Another similar source of information about ongoing research focused on psychological theories of Indian origin is the website of the Indian Psychological Institute, which is closely associated with Sri Aurobindo Ashram in Pondicherry (See <http://ipi.org.in/>).

Theoretical Contributions Following Modern Western Lines

Since the growth of knowledge is socially conditioned, the developments of psychology in India including its theories and concepts need to be appreciated in the local and global historical and sociocultural matrix

in which the country has been positioned. Being a developing country with millennia-old culture, a richly diverse society, and a two-century-long colonial past, India is currently aspiring to emerge as a self-reliant and economically strong nation. Faced with the challenge of socioeconomic transformation, the country has been engaged in efforts toward industrialization, modernization, and globalization. Navigating through this difficult terrain has been a complex challenge and has shaped the developments in the academic disciplines also.

India has been engaged with rapid growth of higher education and rapid expansion of professional institutions to meet the increasing demand for trained personnel in various service sectors like health, administration, banking, police, military, and management. The cultural complexity of India due to diversity in ecology, language, religion, family structure, and uneven introduction of technology has put a challenge before the planners to ensure social welfare through democratic processes. This context has shaped the course of higher education in general and psychology in particular.

The challenge to relate India’s past and modern psychology was a main concern in the early period and continued since then. In fact, the search for a distinct identity for psychology in the Indian context has remained a key issue. Theoretical innovations came from the real world as well as the difficulties faced in applying psychological knowledge to the diverse problems faced in the Indian conditions. In the course of the disciplinary journey, the theoretical–conceptual ambience of the works of Indian psychologists has undergone several shifts in themes, alignments, and emphases.

The teaching and research in modern psychology began largely as an extension of the Euro-American tradition in the British period. Its initial emphasis was not so much on questioning and doubting the Western concepts and methods, but on preserving the essential configuration of the discipline and keeping it as similar to the one in the Western world, as possible. We also note that there existed a tradition of British psychoanalysts who tried to offer interpretations of the Indian psyche to justify the British rule. (Citing Christine Hartnack’s work Vahali (2011) has discussed at length how early British psychoanalysts tried to create

universal psychoanalytic conceptualizations that explain away Indian experiences of selfhood, or view them as essentially inferior, less worthy or simply pathological, or otherwise deficient. It acted as a tool to justify social oppression and colonial rule).

In the mainstream critical paradigmatic questions of ontology and epistemology were sidelined to give space for the newly emerging positivist scientific enterprise. We find that the Western model of research and teaching provided the initial necessary direction to Indian psychologists. Dependence on Western thought was deemed legitimate owing to unexamined theoretical suppositions about the universality of psychological knowledge. It was largely in the 1970s that many psychologists raised the issue of insufficient and inadequate attention to social-psychological problems. The Indian psychologists realized that they had been indifferent to the vast and rich collection of knowledge inherent in the Indian texts. However, the commitment to scientific inquiry was venerated and debates related to the philosophy of science and related arguments could not receive due attention until the 1980s (Mukherjee 1980; Misra and Gergen 1993; Varma 1995). Also, there has been a constant pressure for problem solving and application in the social world (Sinha 1986).

A scrutiny of the published literature suggests that the theoretical endeavors of Indian psychologists have taken many forms (for details, see Misra and Kumar 2011; Pandey 1988, 2004). They have been more interested in the use of theory as a heuristic device for problem solving in relation to the changing features of the social reality (e.g., technology, economy, media, environment, migration, and education) rather than formal theorization. The mismatch between western theories/concepts and Indian reality has led not only to the introduction of new concepts but also to the modification of constructs in vogue to accommodate newer aspects of reality as applicable in the Indian milieu characterized by a mix of factors demanding a balancing act between the age old traditions of oral culture, cosmological worldview, and hierarchical social order on the one hand and modern influences which emphasize more on technology, social and geographical mobility, secularism, and materialism, on the other. There are growing attempts to test the assumptions and predictions of psychological theories in the

Indian context. While culturally informed studies are on rise, full scale reconceptualization or indigenous theorization has been limited.

Early Efforts

Keeping in mind the colonial background of modern learning in India, the mandate of initiating scientific psychology in the prevalent Wundtian tradition and subsequently in the behaviorist tradition was a natural choice. The eagerness to attain an independent identity for the discipline constituted the package of academic delivery consisting of empirical work, positivist metatheory, a universalistic stance, and the presumption of cultural immunity of psychological concepts and theories.

In terms of the institutional structure, psychology was earlier a part of philosophy departments. Separate psychology departments were started largely between 1940 and 1960. In order to maintain a separate identity, the teaching and research practices opted to fashion themselves as differently as possible from the parental discipline of philosophy and similar to the physical and natural science disciplines. To this end, they over-emphasized experimental psychology and psychometry – the distinctive features of the new science – and made them the core of psychology curricula which continues till today. Indeed, empiricism and quantification made possible the flourishing of an empiricist-positivist brand of psychology aimed at generating and testing nomothetic laws as objectively as possible.

However, it will be a mistake to ignore another feature of the academic prowess of the first generation of Indian psychologists. They were also cognizant of their cultural roots and tried to address the academic as well as nonacademic audiences. In a pioneering work entitled *The Science of the Emotions*, Bhagwan Das (1908) presented a rich account of the Indian science of affect. G. S. Bose wrote about the Upanishads and mythology in Bangla language and had an academic fascination for psychoanalysis (see Dalal 2002). Early researchers did attend to the theoretical issues and noted the importance of traditional knowledge but did not reject modern theories.

It is interesting to note that even during the early part of the development in India, many indigenous lines of inquiry were also prevalent. Examples that

highlight this trend include Asthana's (1950) work on Sāṃkhya theory of personality and Indra Sen's (1986) elaboration of the integral psychology of Sri Aurobindo. E.G. Parameshwaran started research on the Triguṇa (*sattva*, *rajas*, and *tamas*) theory (Uma et al. 1971) which has been followed by several studies (see Salagame 2011). We also find works on the Indian typology of personality (Krishnan 1976/2002) and tantra (Mukerji 1926). Some notable works were undertaken from the Western tradition for further study. For instance, Asthana (1960) proposed that perceptual distortion is the function of the valence which an object acquires from the field structure in which it exists. In this way he tried to resolve the differences between gestalt and learning theories and incorporated Lewin's field theory. In the area of learning theories, the S-R theory was challenged by Kothurkar (1968).

Thus, we see a dual focus of the researchers. One set of works was focused on the study of phenomena pertaining to sensation, perception, psychophysics, and reaction time in the natural science tradition with the spirit of creating a universal theory which would be modern in its texture. Another set took a theoretically relevant initiative to interpret various Indian phenomena in the light of Western theories and constructs and vice versa, while also trying to develop theories based on traditional Indian concepts. The scholars were cognizant of the possibility of indigenous knowledge resources but considered scientific enlightenment as more important. The coexistence of the two traditions which had some overlap but maintained separate identities was gradually replaced by a move that led to a greater gap between the Indian ethos and the academic pursuit of psychology. The assumptions of universally shared computational notion of the mind/brain and strong empiricism were very powerful in creating the boundaries of the discipline and furnishing the criteria of inclusion and exclusion.

Under the prevailing academic culture, Indian psychologists' theoretical engagement remained confined to attempts at enlarging the scope of a set of explanatory (independent) variables that may enhance predictive power in accounting for a set of chosen (dependent) variables. Thus mapping quantitative variations in psychological variables was the main research strategy. Other theoretical and methodological approaches (e.g., Indian, spiritual, qualitative, and

discursive) were marginalized on account of their doubtful scientific status and consequently underrated as knowledge claims.

Against this backdrop, it was natural that testing (western/universal) psychological ideas on Indian samples or creating the Indian version of Western tests/tools/concepts became a major preoccupation. This led to proliferation of adaptation and adoption of tests in different areas like intelligence and personality. The practice of psychology remained Western in content and orientation, and used Western academic developments as standards for comparison. This was done as an authentic and legitimate academic practice and got reflected in teaching programs and choice of research topics. The traditional Western models from behaviorism, schema theory, Gestalt school, Pavlovian theory, and information processing theory were popular. Similarly, theories by Cattell, Eysenck, Erikson, McClelland, Piaget, and Herzberg served as some of the dominant frameworks of Indian psychologists for conceptualizing psychological issues and explanations. The researchers were dominated by the mindset that psychological characteristics are stable and reliable dispositions subject to quantification. On the other hand, cognitive processes were handled in terms of concrete and manipulable entities. The positivist methodology was dominant and critical determinant of the choice of problems, variables, processes, and practices. Theory was treated as a copy or map of reality. A strong correspondence between the two was emphasized. There was explicit and implicit endorsement of biology as the ultimate, and reductionism became a strong belief. Affective and social phenomena were mere derivatives of biological and cognitive processes which were foundational. All this was going on in terms of an image of science and scientific practices that did not bother about the dynamic nature of social reality and social conditioning of knowledge. The "basic problem", as Nandy and Kakar (1980) have observed, involved "dependence on conceptual frameworks which are not intrinsic to the experience of society" (p. 159).

A Socially Relevant Psychology

In the 1980s, several lines of investigation across many domains of social psychological processes showed that many of the phenomena reported in Western research literature required different explanations rooted in the

Indian cultural milieu. Examples of this kind are found in the areas of social cognition. Thus predictions from attribution theory with socially and culturally specific causal categories were tested for understanding achievement, health, and other aspects of human behavior (Dalal 1988). The change took place when psychologists found the applications of Western theories/methods to be either ineffective or irrelevant in real life situations in India. A selective overview of some of these developments in key areas is presented below.

Human cognition: Researches on attention, emotion, and consciousness (see Srinivasan 2011), by using multiple methods and approaches, have shown cross-cultural aspects of emotion as well as of meditation, in terms of underlying neurophysiology. There are also researches on philosophical aspects of cognition that view cognition and other mental phenomena as central to the functioning of all living beings. To put it another way, the fundamental principles governing cognition run from a single cell to human societies.

Planning is a key intellectual function. Extending the earlier work on PASS (Planning, Attention, Successive, and Simultaneous Processes) theory, Das et al. (2000) have brought out its significance in various cognitive functions. Srivastava and Misra (2007) have developed an indigenous conceptualization of intelligence and termed it integral intelligence. It has four dimensions: cognitive competence, social competence, competence in action, and emotional competence. The analysis of creativity has been undertaken from a culturally informed position (Misra et al. 2006).

Sinha (see Misra and Tripathi 2004) was perhaps the first one in India to emphasize the role of sociocultural context in understanding cognitive development. Following this tradition, R.C. Mishra (1997) has been investigating the ways in which basic cognitive processes like perception and memory get shaped and manifested under diverse eco-cultural settings. Pirta (2011) has investigated native cognition in Himalayas and has endeavored to develop a bio-ecological framework integrating ecology, biology, and behavior.

Attitude and social cognition: With the political independence of the country in 1947, the highest challenge was that of the problem of communal tension arising out of partition. This led to studies of conflicts, prejudice, stereotypes, discrimination, and violence. Since then it has remained a productive area of

research. These studies were directed toward measuring attitudes, stereotypes, and cognitions and relating them to a number of contextual and dispositional variables. Also, there was the challenge of social and national development of reality and psychology played the role of identifying the facilitators of, and resistances to, the process of development.

In interesting rumor studies, Prasad (1935) examined the responses to an earthquake in Bihar, and published a comparative analysis of earthquake rumors which provided basis for cognitive dissonance theory.

Ashis Nandy's *The Intimate Enemy* (Nandy 1983) and *Illegitimacy of Nationalism* (see Nandy 2004) and Sudhir Kakar's *The Colors of Violence* (Kakar 1995) have touched on the cultural-historical aspects of selfhood and intergroup relations, indicating the need to attend to macro aspects to capture and understand the psychosocial systems. Further, such works encouraged psychologists to employ other methods to understand human behavior. A major programmatic and cross-cultural work based on studies in the Netherlands and India is by De Ridder and Tripathi (1992) recognized the prominence of group norms in intergroup behavior. They pointed out that norm violation by one group leads to a chain of negative reactions by both groups and, if this sequence continues, it is likely to escalate violent behavior.

Singh (2011) has systematically examined judgment and decision-making within the framework of information integration theory. His work spanning over a period of more than 3 decades has found that Indians use averaging, subtracting, multiplying, and dividing rules and their combinations. Such cognitive algebra, however, represents causal beliefs and not mathematical calculations.

Research in the area of distributive justice has focused on principles of distributive justice. L. Krishnan (2005) has analyzed the Indian notion of *dāna* (charity) and has drawn attention to its nuances with respect to deservingness in the Indian tradition.

The above works demonstrate a significant shift in research thinking and execution, where the psychologist seeks a realistic appraisal of the problems in the Indian context. This socially relevant focus helps in understanding everyday social issues, caste, and religious identities, intergroup behavior, justice, and nation building. The need for Indian psychologists to

be rooted within the sociocultural and historical contexts was and is repeatedly emphasized.

Psychology of poverty and deprivation: The study of poverty and deprivation has been an important area of research where researchers in different parts of the country (e.g., Rath at Bhubaneswar, A.K. Singh at Ranchi, D. Sinha at Allahabad, L.B. Tripathi and G. Misra at Gorakhpur) moved in many directions and have mapped the diverse effects of poverty, social disadvantage, and deprivation (for a comprehensive review see Misra and Tripathi 2004). Most of these studies have situated deprivation in the experiential-environmental context and have traced its detrimental influences back to aspects of development. The detrimental effects of poverty are accentuated by the unfavorable proximal environment of the child. Thus, intervention should address not only the cognitive-attentional drawbacks of the children but also the conditions prevailing in the family and school settings. They should be planned to create in the people a sense of empowerment to effect change in their life conditions. Unfortunately, the planning rooted in the Western model of development often ignores the traditional attitudes, beliefs, and values, and considers them antithetical to development ideology. There is growing evidence that social-psychological problems of Indian society are now being increasingly addressed by psychologists.

The challenge of achievement: The economic and social development was an important concern for a developing country like India. The theoretical analysis by McClelland underscored the significance of achievement motivation (n-Ach) as a driving engine for development. The lack of emphasis on individualistic and competitive spirit and independence were identified as the main causes of underachievement. This became the basis for a major intervention program at Kakinada in Tamil Nadu, as reported in *Motivating Economic Achievement* (McClelland and Winter 1969). It provided impetus for promoting entrepreneurship. The relevance of achievement motivation theory was, however, Indian challenged (e.g., Sinha 1968). The perceived value of various achievement goals is determined by the expectations of significant others. The concepts of “extension motivation” (Pareek 1968), “dependency proneness” (Sinha 1968), “achievement value” (Mukherjee 1974), and

“dissatisfaction-based achievement motivation” (Mehta 1972) are important contributions.

Organizational behavior: Rapid industrialization in the 1960s led to recognition of the need to study the labor-management relationship and organizational effectiveness. Chakraborty (1995) has brought into focus the critical role of values in managerial transformation, as well as ethics in management. R. Gupta (2002) emphasized the need to go beyond the American and Japanese models of organizational behavior, and develop models specific to the Indian conditions.

The concept of “nurturant task leadership” proposed by J.B.P. Sinha (1980) was an innovation showing the need for developing a theory relevant to culture-specific aspects of organizational behavior. It emphasized nurturance, dependency, personalized relationship, and status consciousness from the Indian cultural context and combined them with the contingency approach and the principle of reinforcement.

Individualism-collectivism, self, and identity: Indian scholarship has shown that the elements of Indian selfhood are complex and it is difficult to categorize it as either individualist or collectivist. Sinha and Tripathi (1994) see that there is the presence of individualist as well as collectivist aspects of self indicating a kind of “coexistence of opposites.” Mascolo et al. (2004) have demonstrated multifacetedness of the representation and experience of Indian self. They propose four ways of conceptualizing selfhood: independent, interdependent, relational, and encompassing. In addition, there are text-based, theoretical, in-depth, and extensive analyses – like the ones on the Indian views of self and identity (Paranjpe 1984, 1998), concept of self in the Sufi tradition (Beg 1970) – which offer insights to selfhood and identity embedded in the Indian traditions in which higher or “spiritual self” occupy important place.

Sinha and Pandey (2007) have proposed that Indian people function with diverse mindsets in different contexts. Thus, they manifest a materialist mindset in multinational organizations, and dependence prone or collectivist mindset in family owned, bureaucratic, and/or traditional organizations. They noted that Indians are holistic in terms of combining excellence in work, personalized relationships, abstract thinking, emotionality, rationality, and spirituality in those

organizations that valued both performance and people. Materialistic mindset was associated with manipulative behavior, and a holistic mindset with a proactive stance that manifested in innovative and extraordinary performance under inspiring superiors; both materialistic and holistic mindsets were instrumental to success at work, in different organizational contexts. The use of mindset varied depending on the cultural context.

Cultural psychology of emotions: In this area, certain indigenous concepts with culturally specific implications such as *lajjā* (shame) (Menon and Shweder 1994) and *bhakti* (devotion to God) (Paranjpe 1998) have been recovered and elaborated. At another level, depersonalized, transcendental and transformative aspects of the *rasa* experience have been delineated (Paranjpe and Bhatt 1997).

Health, human development and well-being: The Indian ideas and concepts like *ahamkāra* (Salagame 2011), *anāsakti* (Pande and Naidu 1992) have been explored, as are implications for health of various issues particularly relevant for the Indian context, for example, experience of crowding (Jain 1987), notions of health and well-being (Dalal and Misra 2005), and Hindu parents' ethno theories (Saraswathi, and Ganapathy 2002). Neki (1973) has tried to build therapeutic interventions for the promotion of mental health and well-being using yoga and has come up with a model called *Guru-Chela* therapy which involves the teacher-disciple relationship developed in the Indian tradition. Kakar's *Shamans, Mystics and Doctors* has become a classic which talks about indigenous healing practices. It clearly indicates the role of traditional healers in maintaining mental health in traditional societies. In *The Inner World*, Kakar has tried to present the interplay of the universal processes of development and the specific aspects of Indian social reality. He comprehensively tries to weave the story of development, health, passion and relationship by drawing from various sources including religious ideals, traditions, and institutions that constitute a society (see Kakar 1996; Vahali 2011).

These dimensions of psychology are leading psychologists to develop theories and concepts which do not take from any Western thought, but derive entirely from Indian traditions of thought.

Move Toward Indigenization

The indigenous thought systems remained neglected because there was a strong aversion toward them owing to doubts regarding their scientific status, contemporaneous relevance, and ontological suppositions (see Gergen et al. 1996). Psychological theories and constructs were taken as intrinsically biological, materialistic/objective in content, and quantitative in methodological approach. Therefore psychology, like other natural and physical sciences, was thought to be culture and psychological processes as distributed/shared uniformly across diverse cultures and sub-cultures.

This spurred the need for a radical change in cross-cultural psychology's universalist stance, and its almost exclusive focus on the discovery of panhuman patterns of behavior. "There was an implicit assumption that the definition of... concepts and their measurement as proposed by the Western research workers will also hold good in our cultural context" (Mukherjee 1980). The signs of efforts to outgrow the alien frame were noticed in the 1970s. The search for a new identity became a major question. Culture-specific concepts, and a search for culturally appropriate methods and tools were emphasized and the relevance of culture was realized. In this context, the interaction with cross-cultural and cultural psychologists has provided important impetus. Gradually, blending scientific ways with indigenous concepts emerged as an important academic agenda (Sinha 1997). Ramanujan (1990) has emphasized context sensitivity as the key feature of Indian way of thinking. Critical reflections (Misra and Gergen 1993; Nandy 2004; Varma 1995) have drawn attention to the limitations of natural science-based approaches and to new possibilities. It was realized that an understanding of Indian social reality would benefit from indigenous psychological knowledge and the discipline should contribute to the programs of socioeconomic development.

Rao (2002, 2011) has discussed human cognitive processes from the perspective of *Sāṃkhya-Yoga* system. According to this system, there are two principles that govern our existence – *puruṣa* (consciousness) and *prakṛti* (matter). *Puruṣa* is pure consciousness and has no quality or characteristics of its own; it is inert and formless. *Prakṛti*, on the other hand, is the material basis of our being. In *Yoga*, *citta* denotes the functional

mind, which comprises of not only the cognitive processes, the ego and the senses, but also contains instinctual tendencies (*vāsnās*) inherited from previous lives and the effect of past actions in the present life (*samskāras*). They influence our cognitions and predispose us to behave in certain ways.

In Yoga, *citta* controls our actions. Information processing in *citta* may take place at three levels that is, *buddhi*, *ahamkāra* (egoic self), and *manas*. *Manas*, the central processing unit, selects information provided by the sensory system and processes them. *Ahamkāra* (the emotional self) appropriates the processed information from *manas* and considers it as required by the perceiving person. And, *buddhi* decides and plans the actions and reactions in an appropriate manner.

The above discussion indicates the gradual inclination of Indian psychologists to move from Western theories, models, and modes of research toward an indigenous approach to theories and methods. We note the continued use of Western theories; yet they are consistently being tested in the Indian context. A beginning toward cultural sensitivity in the form of culture-based concepts, theories, and methods has been made. Today an Indian psychology is emerging which promises a broad theoretical foundation for the exploration of human consciousness (Yoga), and radical psychological transformation. Its applications are found in modern areas like organizational behavior (Chakraborty 1995; Gupta 2002). Accounts of the states and contents of mental functions regulating responsible human conduct available in vast Indian texts and practices is being rediscovered in a more contemporary context. It emphasizes a kind of perspective which is practical path or life ways that allow pursuit of balanced living and enjoying well-being and equanimity through self transformation and personal growth. The universal consciousness and transcendence requires methods that combine sensory, mental and spiritual tools and innovative theoretical paradigms. The recent publications on Indian psychology (e.g., Cornelissen et al. 2011a, b; Gupta 1999; Joshi and Cornelissen 2004; Misra 2011; Rao 2011; Rao et al. 2008; Salagame 2011) clearly indicate a serious move in the direction of creating and using *samvada* (dialogue) for better understanding. The conceptual network is being extended. The current theoretical developments

such as feminism, subaltern studies, critical theory, and post modernism are providing new ways of engaging with reality. The life world is being appreciated in newer ways and options are generated. There have been enabling moments that have helped Indian psychologists to go beyond the constraints. Promising elements of critique as well as reconstruction are seen.

Concluding Observations

Indian psychology in the twenty-first century shows that the initial emphasis on the replication of Western studies has given way to socially relevant research, and that there is a shift from experimental work (micro) toward understanding the psychocultural contexts (macro) using qualitative approaches.

Academicians have come to appreciate the depth, wisdom, and insightfulness of Indian thought traditions, and that it is possible to develop a scientific psychology based upon them. There are small but definite steps toward changing the content and quality of Indian psychology. Indian psychology endeavors not only to study the person and the causes and consequences of his/her behavior, but the process of transformation of the entire self, its growth and well-being. It is being realized that the psychological world is an intentional world that evolves in the matrix of the culture. Therefore, we need to look at psychological processes within cultural contexts, holistically. With these directions and prospects, the move toward indigenous psychology holds promise for the future of the discipline. The journey toward an indigenous psychology is in progress.

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Psychology in Pre-Modern India

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Indian cultural and intellectual tradition is a living tradition; it has continued in an unbroken form from hoary antiquity to the present. Psychological phenomena were an integral part of systematic inquiry and investigation in numerous schools of thought in this tradition.¹ The vitality of this tradition was reduced during British rule from 1857 till independence in 1947 as its world view and sciences were denigrated in an Anglicized educational system. During the British rule, Western psychology was introduced in the Indian

subcontinent, where it took roots and continues to flourish. Traditional approaches, which were pushed to the back seat for long, are currently getting attention and being introduced to the world. Since the cultural context in which these approaches developed is distinct from the European background of modern psychology, it is necessary to first explain certain substantive and stylistically distinctive features of Indian approaches to psychology.

The Historical and Cultural Context of Traditional Indian Psychological Thought

Foundations of psychological thinking in India were laid in the ancient texts called the *Vedas*, the first of which was composed about two millennia BCE. But more specific concepts can be traced to a set of texts called the *Upaniṣads*, which are dated around 1500–600 BCE. Yearning for spiritual uplift was a dominant feature of the Upaniṣadic sages. This yearning has continued to dominate the thought and practices of not only the “orthodox” schools that accepted the authority of the *Vedas*, but also the many schools of Buddhism, Jainism that rejected it. Although the two main branches of Buddhism, namely, Theravāda and Mahāyāna, originated in India, their influence in the Indian subcontinent nearly ended around the eighth century CE. Thereafter, the Buddhist traditions flourished outside India. Psychology in Buddhism is a vast field in itself; it deserves separate treatment of its own. Here reference to Buddhist concepts will be restricted to their dialectical relationship with few of the “orthodox” schools of thought. In the fourteenth century compendium called the *Sarvadarśana-saṁgraha*, Śāyaṇa Mādhava (14thc./1978) outlined over a dozen schools of thought, including orthodox as well as unorthodox. Within the limited scope of this essay, distinguished contributions of only the Advaita Vedānta, Sāṁkhya-Yoga, and Nyāya will be emphasized.

A major concern for several such schools of thought was spiritual uplift by means of self-knowledge. However, for millennia, the Indian culture advocated and encouraged the pursuit of four major goals of human life: fulfilling one’s social obligations and doing one’s duty (*dharma*), acquiring wealth and power (*artha*), fulfilling natural desires including sex (*kāma*), and

radical liberation from the fetters of living (*mokṣa*). Although some of the most distinctive Indian contributions to psychology arose from the spiritual quest for liberation, psychology flourished in other areas as well. Systematic study of experience and behavior in worldly pursuits is evident in highly regarded works such as Vātsyāyana’s (n.d./2002) *Kāma Sūtra*,² a treatise on sexuality, and Kauṭilya’s *Arthaśāstra* (n.d./1992), which deals with state craft and group conflict, and Bharata Muni’s *Nāṭya-śāstra* (n.d./1996), a comprehensive work on dramatics, which deals with the expression and transformation of emotions. As well, the indigenous system of medicine called *Āyurveda* deals with certain issues in health psychology.

There is a wide range of psychological topics on which sophisticated theories developed in India. Important among these are consciousness, self, person, cognition, action, emotion, the experience of art, language, nature of suffering and pathology, positive mental health, and varied technologies for self-transformation and self-realization. The material available is vast; discussion of theories of specific topics such as consciousness or cognition warrant volumes. Given the international scope and audience of this encyclopedia, emphasis will be on those aspects of theories that are distinctive or complementary to their more commonly known Western counterparts.

Some Distinctive Features of Conceptualization and Analysis

Since the historical development of Indian thought proceeded on distinctive lines, it is necessary to explain some of its unique stylistic features. Insofar as the ancient texts were preserved in an oral tradition where entire texts were meticulously memorized and passed on to the next generation, it was important to condense ideas in aphorisms to minimize the burden of memorization. In an attempt to make the most succinct statement of a given system of ideas, a specific genre of texts called the *Sūtra*, which literally means aphorism, evolved around a couple of centuries before and after the beginning of the Common Era. The *Vedānta Sūtra* of Bādarāyaṇa, Patañjali’s *Yoga Sūtra*, and Gautama’s *Nyāya Sūtra* are examples of well-known texts of this genre.

Further development of systems of thought in India proceeded through a series of glosses (*vivarāṇa*) and commentaries (*bhāṣya*, *vyākhyā*) on important texts, and commentaries on commentaries (*tīkā*). Over the centuries, many of the commentators explained and elaborated ideas of the original texts of the originators of their specific school of thought. In this process, they often critiqued ideas of rival schools in a way that would first state the position of a rival school (called *pūrva pakṣa*), which they refuted (*khaṇḍana*) by giving contrary arguments and evidence. Thus, the authors often stated their own thesis (*siddhānta*) by proving that the antithesis was false. There are several instances in history where eminent scholars toured the land challenging proponents of rival schools in open debates (*śāstrārtha*). It is important to note the development of systems of Indian thought through dialogues and debates, for it is through the development of theses and antitheses that rich and elaborate theories developed.

The system of logic that guided the development of theories was distinct from Aristotelian logic, which guided Western thought for over a millennium. Contrary to Aristotle's law of the excluded middle, which denies the rationality of a position between extreme affirmation and extreme negation, the Buddhist philosopher Nāgarjuna (second century CE) adopted a position midway between opposite extremes. The difference between these two approaches to logic is complex and the matter is controversial; and we need not examine this issue. But we may simply note that the distinctive and profound contributions to logic made by Buddhist, Nyāya, and the more recently (twelfth to thirteenth century CE) by Navya Nyāya traditions are widely recognized. The development of the Nyāya system is particularly important in providing guidelines for a disciplined inquiry. This system is sometimes known as *Ānvīkṣikī*, or science of inquiry. Nyāya is known for developing rules on how argumentation should proceed, and hence known as the science of reasoning (*tarka vidyā*). Since it also developed rules for debate, it is sometimes referred to as the science of debate (*vāda vidyā*). This is clearly an important aspect of the Indian tradition; it laid an essential framework for the development of sciences in the sense of systematic inquiry in various fields. The point is that psychological thought developed in India within the context of rigorous logic demanded by these traditions.

Ontological Bases and Epistemological Guidelines for Psychological Theorizing

Over the centuries, varied schools of thought evolved, and the fundamental issue of what constitutes the world was a central issue for most of them. A wide range of ontological doctrines developed as part of their inquiry. The Advaita school, for instance, held that there is a single principle of reality that is essentially indescribable, but can be generally characterized in terms of Being (*sat*), Consciousness (*cit*), and Bliss (*ānanda*). In contrast, the Sāṃkhya system proposed two principles of reality, one characterized by pure consciousness (*Puruṣa*) and the other by materiality (*Prakṛti*). On the opposite end of the spectrum, the Loakāyata school of Cārvāka insisted that matter is the only constituent of reality. The nature of psychological phenomena as conceived within such radically different views of reality was bound to be different. However, despite such highly divergent ontological doctrines, mind was more commonly conceived as fundamentally material in nature. Interestingly, mind and matter were not viewed in dichotomous terms as in the Cartesian scheme, and “mind–body problem” typical of Western thought did not arise in Indian thought. As will be explained later in this essay, a most distinctive feature of Indian perspectives was the concept of pure consciousness that transcended the processes and contents of the mind. Pure consciousness is thought of as having an ontic status beyond mind and matter.

Complex epistemologies developed as scholars criticized rival theses through logical argumentation (*tarka*) and adumbrated their own theses by citing specific evidence in their support (*pramāṇa*). The discussion of criteria for the validation of knowledge claims (*pramāṇa carcā*) is a very significant aspect of the development of theories in Indian thought. An important part of this discussion is the concept of valid cognition (*pramā*) as a proposition that remains unfalsified (*abādhitā*) in face of contradictory arguments and evidence. By and large, empirical statements are considered as having only provisional truth value; they remain open to revision. In the Indian tradition, testing knowledge claims through serious attempts at their falsification has been an integral part of testing theories centuries before Popper popularized the concept of falsification in modern philosophy of science.

Psychological theories are integral part of systems of Indian thought called the *darśanas*. The word *darśana* means a vision, and Sāyaṇa Mādhava's compendium of the principal schools of thought are alternative perspectives on life. Although it is common to consider the *darśanas* of Indian thought are systems of philosophy, whether they present philosophy in the Western sense, or constitute a unique Indian form of thinking called *Ānvīkṣikī*, is a matter of controversy. Whatever be the nuances in ways of thinking in Indian and Western styles, the *darśanas* nevertheless offer broad perspectives on a wide range of issues such as the nature of self, person, cognition, volition, and so on, which are important issues of modern psychology. Even as there are differences in Indian and Western styles of dealing with philosophical issues, there are distinct styles of psychological theorizing. Thus, while in contemporary psychology what matters most is empirical verification of theories, what matters most in the context of the Indian tradition is the application of a theory at experiential and behavioral level as part of a lived reality. As we shall see, Indian theory building commonly proceeds from whole to part, abstract to concrete, and not the other way around. Aside from such "stylistic" differences, there are differences in the assumptive framework adopted in theory building.

Key Concepts of the Assumptive Framework

Foundations for systematic thinking were laid in Indian thought in the *R̥g Veda*. There are two basic concepts from the earliest Vedic period that provided firm foundations for later developments. The first, called *ṛtam*, implies fixed and repeatable pattern of events, and the truth inherent in that pattern. The second called *satyam* implies absolute truth. The recognition of fixed and recurring patterns of events implies that the universe is a cosmos, not a chaos. Such a basic and axiomatic assumption implies the lawful relationship among events, and it is a necessary precondition for all systematic inquiry. A clear instance of lawfulness of behavioral events is the notion of *karma*, or action and its lawful consequences. The *Bṛhadāraṇyaka* Upaniṣad (4.4.5)³ declares that "According as one acts, so does he become... The doer of good becomes good, the doer of evil becomes evil." This is basically consistent with the Biblical

notion "as you sow, so you reap." Although the emphasis here is on the morally lawful consequences of action, in the course of history this basic idea led to a comprehensive view of lawfulness of events in physical, mental as well as moral spheres. The basic idea here is not fundamentally different from the notion of universal laws in science,⁴ except that the Law of karma extends far beyond the physical domain and beyond the scope of "value free science." The domain of truth uncontaminated by values was not unknown to the Upaniṣads, however. In the *Kaṭha* Upaniṣad (2.14), for instance, the young inquirer Naciketas insists on knowing that which is beyond good and bad, beyond right and wrong. As is widely recognized, with the lone exception of the school of the materialist Cārvāka and his followers, all schools of Indian thought, of Upaniṣadic as well as Buddhist and Jain persuasion, accept the Law of karma. This is particularly relevant for psychology insofar it deals with behavior and its consequences.

In later *pramāṇa*-based epistemologies, the concept of *ṛtam* mentioned above has a connotation of truth insofar as the truthfulness of a statement can be affirmed through the observation of a repeatable pattern of events. There is in the *Vedas* the notion of a higher order truth (*satyam*), meaning absolute truth that remains unfalsified at all times (*trikāla-abādhyam*). This does not imply apodictic statements that are open to rational proof and immune to empirical considerations as Kant suggested. Rather, *satyam* implies Truth inherent "in reality" or "in its own existence," and as such is open to direct experience in a trans-cognitive state of consciousness. This idea of a higher order truth is particularly significant for psychology insofar as it is based on a distinctive view of states of consciousness and their noetic significance. It involves a significant contribution of psychology in the Indian tradition, and will be discussed at some length in the remainder of this essay.

Consciousness

The idea of consciousness in the Indian tradition is traced back to the *R̥g Veda*. In it there is a hymn called the *Nāsadiya Sūkta* wherein a sage speculates on what may have happened at the time of the origin of the universe. He first suggests that perhaps it all began with some single undifferentiated entity devoid of basic

distinctions such as existence vs. non-existence, death vs. immortality, day vs. night; open air vs. the void beyond, and so on. That something, he speculates, somehow became *aware* of its lonely existence, and a desire (*kāma*) arose in it for becoming many. This primordial desire was the “seed of the mind” (*mānso retaḥ*), it suggests, from which the universe evolved. From the point of view of psychology, it is important to note that in this world view, such things as awareness, desire, and mind are taken for granted as *primordial*—and not in need of explanation as products of something else such as matter or evolution of life.

In the *Māṇḍūkya* Upaniṣad, we find an explicit account of four states of consciousness: wakeful, dream, deep sleep, and a fourth one simply called the Fourth State (*turīyā avasthā*). These states are distinguished in terms of being outer directed, inner directed, or directed in neither way. Although both deep sleep and the Fourth State are somewhat similar in not being directed in either outer or inner manner, the Fourth is much different from sleep; it has many extraordinary features. It is described as transcognitive, ungraspable, unspeakable, peaceful, and benign. Most of all, it is said to be the basis of experience of the Self, the unchanging basis of self-sameness underlying the continually changing images of the self. This extraordinary state of consciousness has been held in very high esteem throughout the Indian tradition, and many alternative paths have been suggested for the attainment of self-realization through the experience of such a state of consciousness. We will take up two of the most prominent trends in this direction. The first one is in the Advaita tradition, and the second in Sāṃkhya-Yoga.

In the Advaita tradition, the *Māṇḍūkya* Upaniṣad is followed by Gauḍapāda’s commentary on it in the eighth century CE. Gauḍapāda’s student Govinda passed on his interpretation to his famous disciple Śaṅkara (commonly called Śaṅkarācārya). Śaṅkara (788–822) proposed a strictly monistic ontology that takes pure consciousness experienced in the Fourth State as the single ubiquitous principle of reality (called *Brahman*). His approach is called Advaita, meaning non-dual, since it is based on the noetic value of the Fourth State in which the subject–object duality is transcended. It is also called the Vedānta system since it is founded on the Upaniṣads, which were composed

toward the end (*anta* in Sanskrit) of the Vedic era. A competing system called the Sāṃkhya finds its initial expression in some of the later Upaniṣads. Based on this lead, Īśvarakṛṣṇa wrote a treatise called the *Sāṃkhya-kārikā* around the second century CE. This system proposes an elaborate conceptual framework with two ontological principles: *Puruṣa*, which involves pure consciousness, as apart from Prakṛti, the principle of materiality. It declares the radical removal of suffering as its goal. This goal is attained, it claims, when a person realizes that the true Self is pure consciousness, and not the body or any other objective manifestations with which the self is commonly, but mistakenly, identified. The Yoga of Patañjali provides clear guidelines for the attainment of self-realization as explained and promised in Sāṃkhya.

Yoga: The Psychology of Higher States of Consciousness

Yoga is a generic term that connotes a theory as well as a wide range of techniques aimed at the removal of suffering and the attainment of bliss and spiritual development. Bodily postures and breathing exercises with which the currently popular image of Yoga is identified are only a small part of a branch of Yoga called the *Haṭha* Yoga. The origin of some of the Yogic practices is probably pre-Vedic. An iconic representation of a person in the lotus position found in the ruins of the ancient Indus civilization (about 2500–1900 BCE) is often cited as evidence of the antiquity of Yoga. The use of Yogic practices in spiritual development was well established in Buddha’s times, i.e., in the sixth century BCE. Patañjali, who composed the famous Yoga aphorisms (see Woods 1914/1972) around the second century BCE, did not invent the system; he explained the already established methods within a conceptual framework of the Sāṃkhya philosophy. Patañjali’s Yoga is concerned with controlling one’s stream of consciousness (*citta nadī*) so as to help discover the true Self in the state of pure consciousness. As such, the subject matter of Patañjali’s Yoga is clearly psychological, and the tradition avers that it is the most predominant system of psychology that originated in India.

Patañjali’s lists of eight means, or steps, leading to its goal are widely known. They include (i) a set of restraints, (ii) a set of observances, (iii) postures,

(iv) breathing exercises, (v) withdrawing of senses from their objects, (vi) concentration, (vii) contemplation, and (viii) a set of higher states of consciousness called the *Samādhi*. Patañjali mentions stability and comfort as the only two criteria for an adequate posture to help stabilizing the mind without being distracted by pain or discomfort. Important from a theoretical point of view are psychological concepts developed in Patañjali's tradition and detailed descriptions of experiences encountered in the progress of practitioners proffered by his followers. Historically important in this context is the work of a series of scholars who wrote glosses and expository commentaries on Patañjali's aphorisms, namely: Vyāsa (second century CE), Vācaspati Mīśra (ninth century), Bhojarāja (eleventh century), and Vijñāna Bhikṣu (sixteenth century), among others.

The Concept of Mind and the Technology of Restraining the Mind

Patañjali's Yoga aphorisms and the works of many of his commentators are a virtual treasure trove for Indian concepts of mind and higher states of consciousness. The core of Patañjali's system is the concept of the *processes* of mind (*citta vṛtti*) such as thinking, imagining, recollecting, doubting, determining, desiring, and so on. Patañjali's commentator Vyāsa uses the term mind-river (*citta nadī*), which recognizes the flowing character of mental processes as does James's expression the *stream* of consciousness. The idea of *flow* implies the recognition of continuity in mental states from past through present to future. Patañjali's system suggests that every mental event leaves behind its trace (*saṃskāra*). These traces are thought to be like seeds which get stored in the mind (*citta*). They sprout under appropriate conditions giving rise to experiences and behaviors similar to the original experiences and behaviors that left the trace behind. The *saṃskāras* are thought to remain dormant for indefinite periods of time. Remembering is cited as an example of sprouting of a seed sown previously within the same life cycle. And when an individual is prompted to feel or do something without an apparent connection to events since birth, it is attributed to *vāsanā*, a concept similar to drive in modern psychology. *Vāsanās*, like drives, are thought to originate from events prior to the beginning of the present life cycle, implying the concept of rebirth

and continuity of life across life cycles. *Saṃskāra* is an important concept in Indian psychological theories in that it is used to connote various cultural devices – such as teaching and rituals – that are designed to shape individual's behavior in a culturally desired direction.

The idea of the *flow* of thoughts in the stream of consciousness has a special significance in Indian psychology. Patañjali's Yoga aims at the attenuation and eventual arresting of the flow of thoughts by deliberate and systematic design. This is accomplished by two principal means: relentless practice (*abhyāsa*), and the cultivation of dispassionateness (*vairāgya*). Postures and breathing exercises are minor aids to ensure that discomforts do not distract the practitioner. A Yogi is supposed to first slow down the flow of thoughts, and then hold attention steadily onto a single thought. Then attention is withdrawn inward from the objects of thought, and taken successively into the inner domains of the mind. Attention is said to pass through meanings and mental images on which the meanings rest, and further inward till it rests firmly at the center of awareness. In this process, an adept is said to experience a graded series of higher states of consciousness called the *Samādhi*.

Attaining Higher States of Consciousness

Samādhi is an important concept suggestive of a series of successively higher states of consciousness. Patañjali describes two major types of Samādhi that arise in succession. In the initial set of states called the *Samprajñāta* Samādhi, the contents of consciousness are retained in experience. When one attains mastery on this state, one obtains the *Asamprajñāta* state, which is devoid of all content. During the course of this progression, the connotative and denotative meanings are dispelled from the mind. Insofar as meanings are added onto the input provided by the senses, what remains in experience are only the sensory images on which the meanings foisted. When even the sensory content is also shed, what remains is only the center of awareness. Finally, attention is made to rest firmly on the center of awareness, thereby providing a direct experience of pure consciousness which reveals the unchanging inner Self.

The central thesis of Yoga is that, while in common wakeful state the sense of self remains identified with

the ongoing thought, the true Self is experienced when the mind is emptied of all content. To put it in Sāṃkhya terminology, when attention is completely withdrawn from objects in the material world as well as from objects of thought, the true Self (*Puruṣa*) is experienced in its nascent form as pure, or content-less, consciousness. The experience of *Samādhi* states does not persist for long periods of time, and a yogi regains normal wakeful state. However, with repeated experience of *Samādhi* states, a complete personal transformation takes place. One no longer feels identified with the passing thought, feeling, or activity, and stops being tossed from elation to depression with successes and failures of mundane life. The person's experience becomes firmly anchored in an unchanging and blissful Self, thereby experiencing a non-diminishing inner calm and peace.

Yoga is not the only system offering a theory of mind; other systems also offer their own theories of mind, and distinctive ways of dealing with the mind. In the Advaita system, for instance, the word *manas*, rather than *citta*, is used to designate the mind's activities. However, the Advaita proposes a distinct technique for dealing with the mind which does not emphasize slowing down the flow of thoughts as in Patañjali's Yoga. Instead, in the Advaita, the mind (*manas*) is defined in terms of the twin processes of cognitive integration (*saṃkalpa*) and cognitive differentiation (*vikalpa*). The Advaitic technique of meditation accordingly focuses on the use of these two mental processes. Thus, it encourages a practitioner to first generate all possible alternative propositions in relation to a belief (*vikalpa*) such as varied self-definitions, and then choose the correct one among them (*saṃkalpa*) according to a specific criterion, namely, the true self is that which remains unchanged (*nitya-anitya viveka*). In other words, the logical principle of agreement (*anvaya*) and difference (*vyatireka*) is employed to put all self-definitions into two separate categories: those that are open to change vs. those that indicate permanence. The search for the true self thus follows a strict process of reasoning (*tarka*), and as such, this approach to self-knowledge is called the path of knowledge (*jñāna mārga*). The journey on this path ends when one discovers that pure consciousness is the only thing that remains unchanged, and hence reveals one's true identity (see Dharmarāja 1972).

A most important feature of the typical Indian view of mind is that the process of thinking is not equated with consciousness. While the ongoing mental processes are recognized as having a conscious character, they are viewed only as part of a broader spectrum of consciousness that includes pure consciousness. This stands in sharp contrast with the Western tradition where the Cartesian equation of consciousness with cogito is taken for granted. Also, unlike Brentano and his followers who insist that consciousness is always intentional, or directed to some object or other, in Indian thought the occasional occurrence of non-intentional states is taken for granted. In the West, there is tendency to consider non-intentional states as either impossible, or as "mystical" and unworthy of attention. But what proof does Yoga offer in support of its claims? According to Vyāsa, the chief commentator of Patañjali's aphorisms (#3.6), Yogic claims can be verified by *doing* Yoga. This is no different from the scientists' approach: their claims can be verified by anyone by replicating the experiment as specified.

Self and Identity

In the history of Indian thought, the self has been conceived of in terms of various aspects of selfhood. That selfhood often manifests itself in terms of the sense of "me" and "mine" with the attendant feelings of pride, and egotism (*garva*) is expressed by the concept of *ahamkāra*. The connotation of this term is similar to that of ego in modern psychology insofar as both indicate the sphere of self-love and its boundaries. That the individual's sense of belonging and attachment is usually spread over different spheres is expressed in Advaita by the concept of person (*jīva*) as multilayered entity represented by five concentric "sheaths" or layers like those in an onion. The outermost layers are (i) the bodily self ("made of food": *annamaya kośa*), followed in sequence by (ii) physiological functions driven by the life force (*prāṇamaya*), and by (iii) mental (*manomaya*), and (iv) higher cognitive (*vijñānamaya*) layers, with (v) blissfulness (*ānandamaya*) as the innermost core. To put it in contemporary terminology, what it means is that the sense of self manifests in the identification of the "I" with the body, with the functions and conditions of the body such as yawning in tiredness or feeling fresh and

energetic, with one's auditory, visual and other sensations, with ongoing thoughts, and with innermost feelings such as bliss.

A parallel conception of the manifestation of the self in one's thoughts, feelings, and actions is expressed in the Advaitic idea of the person as a knower (*jñātā*), enjoyer/sufferer (*bhoktā*), and agent (*kartā*). Paranjpe (1998a) has shown how such conceptualization has selective parallels in modern perspectives in psychology such as those of William James, G.H. Mead, Cooley, and others. But the most distinctive concept of self in Indian thought is that of *Ātman*, which, to put it simply, implies a *transcendental self* at the center of awareness. The *social* nature of the self is implied in the portrayal of important characters of the epics *Rāmāyana* and the *Mahābhārata* as players of multiple roles within the immediate family, as members of an extended kin group, and as players of political, military, and other roles in kingdoms spread across the subcontinent and beyond.

Aside from the concepts mentioned above, the concept of *Ātman* is an important concept regarding the nature of self as conceived of in Indian thought. It is somewhat similar to William James's (1890/1983) concept of the Pure Self, by which he means "the inner principle of personal unity" (p. 324). But unlike James who concludes that the ultimate inner principle of selfhood is just the passing Thought of a given moment and nothing beyond, the *Ātman* implies pure consciousness experienced when the mind is emptied of all Thoughts. The *Ātman* is one of the central concepts of the principal Upaniṣads, and the active search for the essence of selfhood is arguably the core of Upaniṣadic psychology. The central thesis is that the core and essence of selfhood is "pure" consciousness experienced in higher states such as the *Samādhi* explained before. The intricate relationship between self and pure consciousness centers around the question of what, if anything, accounts for the unity and sameness of self amid the many, varied, and continually changing images of the self one experiences throughout the life cycle. That the self is simultaneously one and many, same and yet changing is a paradox. It is a conundrum with which some of the greatest minds of the world have struggled. It has been called the "problem of identity." The Advaita position adumbrated in a medieval text called the *Dṛg-dṛśya Viveka* (n.d./

1931) is that the principle of unity and self-sameness is the self-as-subject as opposed to self-as-object. In other words, the *Ātman* is that which experiences, and not anything that is experienced whether in the form of sensation, thoughts, dreams, or feelings.

The thesis that self-as-subject is the foundation for, and the essence of, selfhood is one of the central features of the Indian tradition. As noted earlier, according to the *Ṛg Veda*, consciousness is the *primordial* principle of the universe; it is from the *awareness* of the original One of its lonely existence that the entire course of evolution started. And according to the Upaniṣads and its Advaitic followers, whatever exists (*sat*) is but a manifestation of Consciousness (*cit*), the fundamental principle of reality. Human beings, as part of this pervasive principle, have Consciousness at their very core. Besides, this principle is blissful (*ānandamaya*) by its very nature. Advaita, along with Sāṃkhya and varieties of Yoga, have devised spiritual practices that promise to help discover the Bliss at the center of awareness. Indeed, the Divine is often defined in terms of Existence (*sat*), Consciousness (*cit*), and Bliss (*ānanda*).

Although this is one of the dominant views of the nature of self in Indian thought, there is great diversity of opinion on this. Indeed, in the history of Indian thought, there has been an unending debate over it. On one side of the debate is the strong affirmation of the *Ātman* as the principle of the unity and sameness of a transcendental Self in the Upaniṣads, followed by a long tradition of Advaitic thinkers. On the opposite side is an equally strong denial of the Self by numerous scholars of the Buddhist tradition. The Buddha was well aware of the Upaniṣadic claim that there was an unchanging basis underlying the changing images of the self and that it was blissful in nature. According to Dasgupta (1922/1975), "We could suppose that early Buddhism tacitly presupposed some such idea. It was probably thought that if there was the self (*attā*), it must be bliss" (p. 109). However, as Dasgupta points out, Buddha's conclusion was the converse of this idea: "that which is changing is sorrow, and whatever is sorrow is not self" (p. 110). The doctrine of no-self (*anattā*) is one of the central theses of Buddhism. It involves a complex thesis expressed in various ways in writings ascribed to the Buddha, and also in the writings of scholars of many schools of Buddhism. There

is vast amount of literature on just this topic in Buddhism. It is neither possible nor necessary here to summarize what does the denial of self in Buddhism means, and how the doctrine stands in relation to the Advaitic affirmation of the self.

Putting the concept of self in a comparative context, we may note that the debate in the Indian tradition between the denial and affirmation of the self has a Western parallel. Thus, David Hume's famous denial of the self has Skinner (1974) as a follower of sorts in modern psychology, while on the opposite side, Erikson's (1968) view of the ego identity echoes Kantian affirmation of a transcendental ego. The comparisons among such apparent similarities and parallels are tricky. For upon closer examination, one finds that what is denied or affirmed, and on what grounds and to what consequence, is different in each case. A detailed discussion of the similarities, apparent or essential, can be found in Paranjpe (1998b).

Person and Personality Typology

The concept of self must be grounded in that of personhood; it cannot exist in a vacuum. In the Upaniṣadic tradition, the human individual is usually referred as *jīva*, which literally means a living being. All living beings are viewed as conscious, whether at a lower or higher level. In the Advaita tradition, the individual or *jīva* is conceptualized as a knower (*jñātā*), an experiencer of feelings (*bhoktā*), and an agent (*kartā*). In other words, a person has three fundamental capacities: of cognition, affect, and volition. This view clearly parallels the idea of person in John Locke and his followers.⁵

That persons have distinctive and stable characteristics is well recognized. In the *Bhagavad-Gītā* (5.14), for instance, it is suggested that the individual's own character (*svabhāva*) generally prevails, although it is not considered to be fixed and unalterable. The *Gītā* (as the *Bhagavad-Gītā* is commonly referred to) suggests three types of personality following the conceptual framework of the Sāṃkhya system. In it, everything in the material world (Prakṛti), including persons, manifests each of three basic "strands" or components: light or enlightenment (*sattva*), energy (*rajas*), and inertia (*tamas*). Although each of the three components is present in everybody and everything, individuals differ in terms of the relative dominance of the three. There

are extensive descriptions in the *Gītā* of persons in whom one of the three strands or qualities is dominant. In Buddhism, the concept of person is designated by the term *puggala*. An old Buddhist text called the *Puggala-Paññatti* describes various personality types based on their eligibility for spiritual development (Law 1922). The Indian medical system called the *Āyurveda* suggests three types of personality based on the relative dominance of three humors (*kapha*, *pitta*, and *vāta*) that are said to constitute the human body. Each type is described in detail in terms of the features of the body as well as behavioral characteristics, and this typology is used in diagnostics. These typologies are amenable to empirical research, and tests have been developed in this context (Murthy and Salagame 2007; Wolf 1998).

Personality Development and the Ideal Human Condition

A persistent theme of the Indian culture is that, on the whole, suffering exceeds pleasures and happiness. In the epic Mahabharata, the story of Yayāti, a mythical king, conveys that his appetite for pleasures could not be satisfied despite all his wealth and power, and despite borrowing his son's youth in his old age. The point of the parable is that desires are not sated by indulgence; expectations keep growing like fire fed by fuel. Buddha's message was not much different. Despite such rather pessimistic view of the human condition in some important classical sources, the thrust of the culture as a whole is far from kill-joy. In fact, the four goals in life that the Hindu tradition prescribes include not only spiritual liberation (*mokṣa*) and doing one's duty (*dharma*), but also pursuit of wealth and power (*artha*) and the pursuit of sensual pleasures (*kāma*). India is a land in which Lakṣmī, the Goddess of wealth, is unabashedly worshipped, and its culture produced a superb text of sexology called the *Kāma Sūtra*. Moreover, despite the oft-repeated message that the pursuit of pleasures often leads to a negative balance, the assumption has been that it is possible to overcome all common sources of suffering, and attain a state of undiminishing inner peace and bliss. The desired end point is a transcendent state, a stasis, not perpetual progress. Unlike the concept of perpetual progress implied in the currently popular idea of ever-growing gross national product, the ideal of individual and

social life in the Indian tradition is that of a sustained stability. To put it in different words, the ideal of human life is not self-actualization, meaning an expression of unlimited inner potentials manifest through an ever-increasing level of accomplishments – as is implied in Western thinkers from Aristotle to Abraham Maslow. But rather the ideal is self-realization through the inner experience of an unchanging basis for selfhood.

This basic theoretical principle is complemented through a variety of techniques, ways of life, or methods of spiritual development that form the core of applied psychology of the Indian tradition. The conceptualization of person as knower, enjoyer/sufferer, and agent has been used to develop distinct methods for spiritual development. These are based on sophisticated theories of cognition, emotion, and volition, and are, respectively, called as the Path of Knowledge (*Jñāna Yoga*), of Devotion (*Bhakti Yoga*), and Action (*Karma Yoga*). Each of these deserves a brief account.

Cognition and the Path of Knowledge

To properly understand the traditional Indian view of cognition, it is necessary to view it in the context of the distinctive world view in which it is embedded. In his introductory section (called the *Adhyāsa Bhāṣya*) of his famous commentary on the Vedānta aphorisms, Śāṅkara (n.d./1977) conceptualizes all living beings (*jīva*) as individualized centers of awareness reflecting the universal and infinite consciousness of the ultimate reality called Brahman (Rao 2002). In its individualized form, consciousness suffers from the inevitable limitations (*upādhi*) of the capacities of the sense organs and cognitive apparatuses typical of the species to which the individual belongs. Within each species of organisms, each individual may have deficiencies of its own, which characterize the conscious experience of that particular individual.

According to the Nyāya and Vedānta systems, humans are born, like animals, with a capacity for perception devoid of concepts and words (*nirvikalpa pratyakṣa*), but develop the capacity for the use of concepts and words (*savikalpa pratyakṣa*) during the course of development (Datta 1932/1972). Given the intrinsic limitations of the sense organs and cognitive capacities, humans cannot obtain complete knowledge

of most objects, let alone of an entire class of objects. As Śāṅkara explains in *Adhyāsa Bhāṣya*, all new knowledge is “veiled” (*āvāraṇa*) by existing knowledge; the new incoming information is “filtered” and is received only partially rather than fully. Reciprocally, what is known from previous experience is often “projected” (*vikṣepa*) onto what is newly encountered. To compensate for the deficiencies in cognition, and to fill in the gaps in the information available, humans make use of imagination (*kalpanā*). Thus, most human perception is *savikalpa pratyakṣa*, i.e., it involves at least some element of imagination. This added element involves, among other things, concepts and names given to classes of objects; thus, human cognition is mostly “constructed” or fabricated.

Based on this view of human cognition, Śāṅkara draws far-reaching implications for all human knowledge. What we know about the world (*jagat*) starts with intrinsic and inevitable limitations of our cognitive apparatus, and although we keep on adding new knowledge with experience and reasoning, what is incomplete at start continues to be incomplete despite continual improvements. He forcefully suggests that all empirical and rational knowledge based on transactions with the world (*vyavahāra*) is forever revisable and forever imperfect. This view of knowledge, it may be recognized, is basically compatible with the contemporary notion that scientific knowledge is forever revisable. Similarities between Śāṅkara’s and Piaget’s views of cognition and knowledge are particularly striking (see Paranjpe 1998a). Śāṅkara uses the Upaniṣadic term “*avidyā*” to designate the entire domain of rational-empirical knowledge. Following the *Īśa* Upaniṣad (9–12), Śāṅkara mentions a different kind of knowledge, called the *vidyā*, which is transcendental (*parā*), and is unconstrained by the contingencies of empirical knowledge. Knowledge at this higher level reveals absolute Truth (*satyam*), while rational-empirical knowledge reveals empirical generalizations that reflect a repeatable pattern (*ṛtam*) – which is true as long as it remains uncontradicted by a new set of observations or a fresh insight. Such an idea of two levels of knowledge is a matter of epistemology that many psychologists today would happily leave for philosophers to deal with. Nevertheless, the concept of transcendental knowledge should be of interest to psychologists insofar as the method developed for its attainment involves

a psychological technology. The technology relevant here is the same as the Advaitic method for self-realization.

Inspired by the teachings of the *Bṛhadāraṇyaka Upaniṣad* (2.4.5), the Advaitists advocate the following strategy to help discover the true Self hidden behind the changing images of the ego: (1) Study of the principles of Advaita (*śravaṇa*), (2) relentless critical examination of all self-definitions to see if they are open to change or not (*manana, nitya-anitya viveka*), (3) deep contemplation (*nididhyāsana*) of what is thus learned. In the course of critical examination, self-definitions based on identification with things, personal relations, or even values that often appear nonnegotiable change sometimes due to changed circumstances, sometimes by choice. It is gradually recognized that all objective self-definitions are open to change; it is only the awareness that underlies all understanding that remains unchanged. When this understanding sinks in deeply, an extraordinary state of consciousness called *Nirvikalpa Samādhi* is experienced. This is the same as the Fourth State in which the subject–object duality is transcended, and higher knowledge (*parā vidyā*) is attained.

This higher knowledge cannot be expressed in words, but the process of arriving at it can be expressed in cognitive terminology. One way of describing the process is to suggest that, at the beginning of inquiry, the self is accounted for in the form of an autobiography, and an attempt is made to see who its author is. If one compares what one thought of oneself at the age of say 15 and then at 20 or 50 and so on, it becomes clear that the author of the first description is not quite the same as the author of the later accounts; she or he has kept on changing. It is gradually recognized that autobiographical narrative is cognitively and socially constructed, and further that the surface structure of the knower is a set of cognitive structures and processes that are undergoing continual change. What accounts for true identity, i.e., self-sameness, is only the passive witness of the drama of life presented to an indescribable “I” at the center of awareness. In this process, the ego, or one’s view of the self and his/her world is “deconstructed” in a far more rigorous and radical manner than what is suggested in the postmodern idea of deconstruction.

What happens to the person who successfully deconstructs her or his ego? The *Śvetāśvara Upaniṣad* (4.8) describes the situation in a metaphor in which there are two birds perched on top of a tree: one of which is eating and enjoying a fruit while the other one is simply watching. The first one is the ego; it is involved with the world and cyclically enjoys or suffers with gains and losses as life unfolds. Self is the other bird dispassionately witnessing the ups and downs without being affected by them. The trick is to cultivate a dispassionate stance of an uninvolved witness of the drama of life. By doing so, one can experience inner peace and calm in an uninterrupted manner. This method of attaining trans-cognitive knowledge requires capacity for critical thinking and relentless effort in self-examination. It is not found easy by many people, although there are many examples throughout history of sages who have successfully followed the Advaitic strategy and attained self-realization. One way of understanding self-realization thus attained is to view the ego as a region marked by a boundary, a boundary between the self and the surrounding world, between self and the “other.” Repeated self-examination brings home the point that self concept is acquired in the process of socialization, and is continually modified under the influence of various factors. The boundaries between the Me and the not-Me are continually redrawn through interpersonal interaction, gains and losses, and individual will. In other words, ego boundaries are continually constructed and reconstructed. More specifically, they are open to deliberate modification – or “deconstruction.” Constant questioning of the place of Me and not-Me in the course of relentless self-examination, the ego boundaries lose their force, and get ultimately dissolved.

Great saints, who attained self-realization, have described their experience in poetic expressions. For instance, in a famous poem, the fifteenth-century saint-poet Kabir says that being in the world is like a pot in an ocean; there is water inside and water on the outside. Similarly, the modern Bengali saint Ramakrishna Paramahansa (1836–1886) describes self-realization metaphorically; he says that the ego dissolves like a doll made of salt immersed in water. In other words, the Me and not-Me distinction simply goes away. Correspondingly, the behavior of such self-realized

individuals shows a complete transformation of personality. Saint Kabir, for instance, was completely above the Hindu–Muslim divide, which was strong in his days, and taught to view individuals as human beings first, and then in terms of Hindu, Muslim, or other such categories. Ramakrishna is known to have practiced spirituality as taught by Vedāntic, Sufi, and several other traditions, and pointed out the commonalities in their teaching. The limitless compassion of such saints is a clear manifestation of their shedding of ego boundaries. Paranjpe (2008) has examined the biography of a modern sage and saint called Sri Ramaṇa Maharshi (1879–1950) to illustrate how the quest for and attainment of self-realization can manifest in a particular individual.

Emotion and the Path of Devotion

While the path to self-realization mentioned above focuses on the use of one's cognitive capacities to deconstruct the ego, a different way proposed since ancient times emphasizes the transformation of emotions. The key to this approach is to totally surrender one's ego in a strong emotional relationship with the Divine. The tradition of devotion to Lord Kṛṣṇa is traced back some four millennia to the Tamil poetry of Āḷvār saints. A basic outline of this perspective is found in a medieval treatise called the *Bhāgavatam*, which mainly describes the life of Kṛṣṇa as he grew up among poor cowherds in a small village. The hero is shown in endearing relationships with his adoptive parents, playmates, and in particular in amorous relationships with several young milkmaids. The thrust of the story is to show how normal relationships involve innumerable shades of love which have great potential for self-transformation. It is shown how intimate relationships in paired social roles such as parent and child, mutual friends, and especially lovers, offer opportunities to transform the ego by immersing it in a mutual bond of self-giving. When the emotions are exceptionally strong, as in love between man and woman – whether in licit or illicit relations – the ego of the lover can completely merge with that of the counterpart. When love is directed to a divine being, as Kṛṣṇa, the result of total surrender of the devotee's ego is the experience of limitless and unending love. Indeed, the *Bhāgavatam* suggests that even hatred for the divine can ultimately lead to the same result as intense and

unconditional love. The devotional approach to God-realization is explained in a well-known work called the *Nārada Bhakti Sūtra*.⁶ As we shall see, this view of religious devotion was developed in the sixteenth century on the basis of a theory of emotion that had its origin in an effort to understand the transformation of emotion in witnessing dramatic productions.

Understanding the Nature of Emotions and Their Transformation

In the history of Indian thought, a systematic analysis of emotions was provided by Bharata Muni, in a treatise called the *Nāṭyaśāstra* (n.d./1992), meaning the science of drama, composed within two centuries before or after Christ. While writing mainly as a guide for authors, directors, and actors of plays, Bharata deals extensively and in depth with human emotions. He identifies eight basic emotions, which he considers as relatively lasting and common to humans as well as other animals. He also describes 32 relatively transitory emotions along with their facial and physical expressions. A more important theoretical contribution of his work is the concept of *rasa*, which is roughly translated as aesthetic relish or mood. This theory was extended greatly by a great Kashmiri philosopher called Abhinavagupta (ca. 990–1020). There is a long tradition of scholars, which continues till this day, that follows the lead of Bharata and Abhinavagupta in the fields of aesthetics, poetics, dramatics, literary criticism, and various aspects of dance and other art forms.

Scholars in the tradition of Bharata Muni raised a simple but important question: Whose are the emotions that are experienced while witnessing a play? It was reasoned that they do not *exclusively* belong to either the playwright, or the actor (both of whom may not have experienced the pangs of separation which the play portrays), or the character (who could be imaginary), or by the audience (by a honeymooning couple witnessing separation, for instance). The conclusion is that the emotions experienced in a playhouse are *shared* in common. The concept designed to express this idea is the generalization (*sādhāraṇīkaraṇa*) of emotions. Another important observation in this context is the fact that the basic emotions such as sorrow, fear, and disgust are *transformed* in the process of their dramatic or other artistic presentation so as to lose their “sting,” or negative character. They are converted

into aesthetic moods (*rasa*) of respectively pathos (*karuṇa*), horror (*bhayānaka*), and the odious (*bībhatsa*), which are “enjoyable” by the aesthetes in the audience. The theory is developed further to explain why and how the vicarious experience of the spectators loses the negative character of the basic emotions as experienced in real life. It is suggested that the spectator leaves home, so to speak, her or his daily concerns and ego-involvements with situations that lead to such negative emotions, and the ego-distancing in the process allows for “relishing” of previously experienced “sting” (Dhayagude 1981).

Over the centuries, the development of the *rasa*-thesis (*rasa-siddhānta*) has gone through a series of heated controversies, revisions, modifications, and continued enrichment, and the process continues till this day. A few distinctive features of this theoretical position may be noted in the non-Indian context. *First*, the concept of the generalization of emotion implies that emotions do not belong only to the brain or bodily tissues of individuals; they are socially shared trans-individual phenomena. The underlying ontology is clearly far from the physicalism implied in many contemporary approaches. *Second*, the *rasa* perspective is closer to recent views of social emotions compared to the psychophysiological theories. *Third*, given its attempt to explain transformation of emotion with reference to the ego, it becomes open to use as basis for practical applications. In conformity with the long-standing trend, the practical application was found in the spiritual context.

In the sixteenth century, two scholars of the Guḍīya Vaiṣṇava tradition named Rūpa and Jīva Gosvāmī used the theory of *rasa* to help understand and advance religious devotion. Taking the lead from the *Taittirīya* Upaniṣad, which says that the Brahman is the essence (*rasa*) of reality, they use the *rasa* theory in Bharata’s tradition to help explain self-transformation through religious devotion to Lord Kṛṣṇa described in the *Bhāgavatam* as indicated above. Rūpa Gosvāmī (n.d./1981) and Jīva Gosvāmī (n.d./1986) suggested that the artistic portrayal of emotions have the potential for experiencing shared emotion by *temporarily* overcoming ego boundaries. When a devotee takes for herself or himself the role of a lover, sister/brother, child, servant, student, or whatever vis-à-vis the divine, and plays that role intensely, the devotee can merge with the Lord,

who is the Supreme Self (*Parama-Ātman*). It is important to note here that the concept of divine as defined in the tradition of devotion (*bhakti*) is that God is celestial love, a supreme *rasa* that fills the universe. He is an immanent principle that is said to sometimes manifest in human form. He is not a transcendent creator who controls the universe and punishes humans who disobey Him. The stories of divine beings, such as that of Kṛṣṇa in the *Bhāgavatam*, can serve as aids in total self-transformation through religious devotion. The Gosvāmīs were careful to specify, however, that while the joy in the experience of art was somewhat similar to the greatest Bliss of Brahman, it is not the same (Paranjpe 2009).

Volition and the Path of Action

As noted, the typical Indian term for action is *karman*, and the Law of karma is accepted by almost all schools of Indian thought, except for the materialist school of Cārvāka. The concept of free will is implicit in the notions of *karman*. This is succinctly expressed by Śaṅkara (n.d./1977) in his *Brahma Sūtra Bhāṣya* (1.1.2), where he defines *karman* as action which one can choose to do, not to do, or to do in different ways. According to the Law of karma, *all* actions have their natural consequences sooner or later, whether during the life time of the agent or sometime during later incarnations of the individual. The *Bhagavad-Gītā* (1963) (18.14) suggests five distinct factors that determine the nature of the consequences of every action: (i) the context in which it is done (*athiṣṭhāna*), (ii) the agent (*kartā*), (iii) the instruments available for performing the action (*karmaṇ ca prthagvidham*), (iv) the specific movements involved (*vividhāḥ prthak ceṣṭāḥ*) and finally, (v) the working of divine providence (*daivam*). The *Gītā* (18.15) adds that persons often do not realize the degree to which all these factors jointly determine the outcome, and egotistically tend to take all credit for success to themselves. It goes further to observe that what makes the action “binding” on the individual agent is the ego-involvement and passionate craving for the results of her/his actions. As long as the craving for desired results persists, the individual faces the inevitable consequences of his actions, then new actions and their consequences follow, and the individual gets inextricably bound with the perpetual cycle of actions and their consequences.

On the basis of such theoretical formulation, the *Gītā* proposes a practical strategy for the emancipation of the ego from the perpetual *karmic* cycle. Although it may not always be possible to perform actions without any intended goal, one can get rid of the craving and insistence for the intended fruits. One should rather learn to derive pleasure in doing the right actions, and leave it to nature to produce their lawful consequences. With the cultivation of increasingly dispassionate attitudes, the ego can be gradually freed from the clutches of the *karmic* cycle. To put it into contemporary terminology, whereas ordinarily behavior is conditioned and controlled through environmental factors, Karma Yoga offers a way for emancipating oneself from environmental control through a self-administered process of systematic “deconditioning.”

Person as a Social Being

On the first blush, it might appear that a typical Indian theory of personality, such as the Upaniṣadic and Advaitic view of person as *jīva*, is lacking in adequate attention to the social aspect of human beings. However, the opposite is true. An important aspect of the pervasive and persistent Indian world view, which is accepted by virtually all schools, is the concept of *dharma*, a concept that implies that the social aspect of human beings is an integral part of the very nature of reality. *Dharma* is one of those terms that are hard to properly translate into English. Its usual translation as religion is highly misleading, for the term religion has an inescapable connotation by the nature of Abrahamic religions, as a perspective on the sacred that is defined by one God promulgated by one Prophet, and explained in one Book. This connotation is not applicable to Hinduism, Buddhism, Jainism, Sikhism, and a myriad of sects of Indian origin, although these are commonly designated by the term religion. We need not here discuss the complex issue of what makes for the difference in the so-called “religions” of Western and Indian origins. To help understand the typical Indian perspective on the social nature of human beings, it is necessary to understand the concept of *dharma*.

Traditionally, *dharma* is defined in different ways: as duty, charity, something that “holds” the society together, as natural property of an individual or of a thing, and most importantly, as a society’s ethos.

There is a natural pairing of the term *dharma* with that of *karma*. A historical overview of these concepts is ably presented by P.V. Kane (1968) in a set of volumes titled the *History of Dharma-śāstra*, i.e., history of the “science” (*śāstra*) of *dharma*. While the concept of *karma*, as explained before, suggests lawfulness of all events in nature, *dharma* correspondingly indicates orderliness of life in society. What accounts for social order is a community’s ethos, or a set of guidelines for behavior that are consensually supported. A society “holds itself,” so to speak, to the extent that people follow rules designed for the welfare of society with a sense of duty – and that is what *dharma* is all about. In a spirit similar to Aristotle’s notion of man as a political animal, the common Indian view of human beings is that they are social animals. Insofar as this is widely presumed, it is part of tacit knowledge and as such in no need of explicit statement.

In the Indian tradition, social ethos is conceived of in two distinct sets of rules: one general and meant for all, and the other specific to a category of people in a certain role or a stage of life. The *Taittirīya* Upanisad (1.5) lists a set of prescriptions common to all (called the *sāmānya dharma*): that one must speak the truth, do one’s duty, never miss opportunities for learning, have respect for parents, offer hospitality to guests, and so on. It is recognized, however, that the right behavior for individuals in society requires guidelines appropriate to one’s station in society. It is taken for granted that behavior must be understood in its *context*, defined by space (*deśa*), time (*kāla*), and capacity and eligibility of the person (*pātra*) as appropriate to the context. Persons who play reciprocal roles such as teacher-student, parent-child, young-old, master-servant have differing obligations and duties toward each other, and hence their conduct must be judged by standards appropriate to their specific role. This idea of variability in the rules of conduct is encapsulated in the expression “*varṇāśrama dharma*,” which means duties and obligations appropriate to the different divisions of the society such as priest, warrior, trader, and worker (*varṇa*) and according to one’s stage in the life cycle (*āśrama*): that of the student, householder, a retiree, or a renunciate. Such rules are, again, considered not fixed for eternity, but as revisable from one era to the next. The ethical code was not viewed as fixed like the Ten Commandments as God-given and fixed, but

rather as a matter of conventions that keep changing with time as societies continue to evolve. Each era is supposed to have its own ethos, which would be codified by scholars on the basis of how the wise men of the times behaved. It is widely understood in recent times that the traditional division of the society hierarchically ordered with the priestly Brahmin caste at the top is a thing of the past; the current ethos is reflected in the constitution of the Indian republic. Unlike the old “*varṇāśrama dharma*,” which implied social inequality, the ethos of the present – the *yuga-dharma* of modern times – insists on egalitarian equality.

Traditionally, the two great epics of India, the *Rāmāyaṇa* and the *Mahābhārata*, provide in-depth portrayal of social life, the former emphasizing the social roles within family and royal contexts, while the latter offers an understanding of a society in turmoil and transition against the backdrop of a major war with rival cousins as main combatants. While these works may not be seen to offer formal *theories* of social psychology, they do offer deep insights into the nature of human social life. A formal theory of social conflict is offered by Kautilya (n.d./1992) in his classic treatise on statecraft called the *Arthaśāstra*. The relevance of this work for contemporary theorizing about social conflict is recognized by LeVine and Campbell (1972) in their book on ethnocentrism.

Theories of Language and Meaning

Language was an important topic of scholarship in the Indian tradition. It was initially part of the exegesis of the ancient Vedas. The study of grammar became an important part of any attempt in the study of a text, scriptural or otherwise. Pāṇini, who wrote a comprehensive grammar of Sanskrit, is now recognized as a great grammarian, and the influence of his work on modern linguistics is widely acknowledged. An important perspective on language is offered by the *sphoṭa* theory, which tries to explain how meaning “bursts forth” in the process of linguistic expression. Philosophical and psycholinguistic implications of this ancient theory have been recognized in recent scholarship (Coward 1980; Coward and Kunjunn Raja 1990).

Overview and Styles of Theorizing

Notwithstanding the great diversity within and between Indian and Western psychological theories,

certain dominant features stand out as distinctive of each tradition. The prominent features of theories of the Indian tradition may be identified in terms of the ontological presumptions, epistemological choices, overarching goals, and matching approaches to practice.

In terms of the ontological theses that provide the primary foundation for theories, the Indian tradition has generally favored the presumption of the primordial and irreducible nature of consciousness, while this is not the case in the West. India did not witness anything like the “mind–body problem,” which has remained unresolved, and material monism, which is strong in contemporary psychology, is accepted in an insignificant minority in the Indian tradition.

A most distinctive feature of epistemological foundations of psychological theories in India has been the acceptance of the noetic value of the higher states of consciousness. While followers of the Upaniṣadic tradition have insisted that the highest state of consciousness is blissful and holistic (*pūrṇa*), Buddhists have equally strongly insisted that the highest state is characterized by emptiness (*śūnya*). And regardless of their irreconcilable differences on such important issues, both camps have equally valorized the higher states. The higher states of consciousness are considered the basis for both, the highest form of knowledge as well as the culmination of highest happiness. Consistent with the value of higher states of consciousness, contemplative practices of Yoga in one form or another is integral part of praxis among followers of Hinduism, Buddhism, Jainism, Sikhism, and so on. The dominance of such spiritual goal does not mean the neglect of mundane goals as is illustrated by theories in the areas of social conflict, language, and sex. At any rate, the overall thrust of application of psychology in most schools of Indian thought is self-control, and not on controlling someone else or something in the environment.

The most dominant form of theory building is holistic and “top-down” in approach. Thus, in the Advaita, Sāṃkhya-Yoga, as well as Buddhism, one starts with a global view of reality, of the individual human being as a whole, and one aims for the attainment of ultimate happiness. This approach stands in sharp contrast with the “bottom-up” approach typified by behaviorist psychology where one starts with

a molecular unit such as stimulus-response, and strives to develop an understanding of increasingly complex forms of behavior. This observation, based on a long-range historical account of the development of psychological theories, is interestingly consistent with the observation by Nisbett et al. (2001) that cognitive styles of individuals from Eastern cultures tested in the laboratory tend to be holistic rather than analytic. Hajime Nakamura (1964) has made similar observations about dominant aspects of Eastern philosophies, which goes on to indicate the deep influence of culture on philosophical and psychological thinking.

Notes

1. A brief sketch of the major currents of psychological thought through this early period of history is provided by S.K.R. Rao (1962). References to psychological topics discussed in classical literature were compiled by Jadunath Sinha (1934/1958). Overviews of the classical literature are available in works on the history of Indian philosophy by Dasgupta (1922/1975) and Radhakrishnan (1927/1931), and in a series of encyclopedic volumes on important works in Indian philosophy under the editorship of Karl Potter. Bibliographic details of the first nine volumes published in this series since 1970 and a brief account of the ongoing series may be found on the World Wide Web at http://www.infinityfoundation.com/encyc_philosophy.htm.
2. The precise dates of these works are not known. The approximate period in which these texts were composed are: *Artha-śāstra* (fourth to third century BCE), *Kāma Sūtra* (first to sixth century CE), and *Nāṭya-śāstra* (first century BCE to third century CE).
3. For English translations of the principal Upaniṣads, see Radhakrishnan (1953/1994). Unless otherwise stated, translations of quotations from these texts are from this source.
4. For theoretical significance of the Law of karma see Potter (1980).
5. For a detailed discussion of Indian and Western views of personhood, see Paranjpe (1998a).
6. As is true of many old Indian texts, the date of the *Nārada Bhakti Sūtra* is not known. English translations of this work are widely available. See, for example, Tyāgīśānanda 1972.

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Psychology of Alexander Bain

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Bain published the first part of his Psychology, *The Senses and the Intellect*, in 1855, and the second part,

The Emotions and the Will, in 1859. John Stuart Mill and Herbert Spencer both wrote reviews. Mill was not only a good friend of Bain, but had personally guaranteed the publisher against loss from the venture, and he set the tone of his review in a terse opening sentence: “The sceptre of Psychology has decidedly returned to this island” (Mill 1859, p. 287). Spencer had no conflict of interest except the challenge to his own prestige. His review (Spencer 1860) was severely critical, and it described Bain’s book as “not in itself a system of mental philosophy . . . but a classified collection of materials for such a system” (1864, p. 301). The analytical passages, he said, are “incidental – they do not underlie the entire scheme, but are here and there added to it” (p. 317).

Scholars generally still see Bain through Spencer’s eyes, as an industrious author who borrowed freely, organized skillfully, but lacked the genius needed for theoretical contributions of high order. Thus, Flugel (1933) says that Bain was “dogged and persistent,” “lacked originality,” and “owes his place in history to his power of laborious collation of data and systematic exposition of results rather than to any striking ability either to discover the facts or to interpret them” (p. 79). Heidebreder (1933) says that Bain’s “importance lies so much in any specific contributions, . . . any particular theory or doctrine, as in the fact that his two books constitute a systematic and scholarly exposition of classic associationism at its height” (p. 57). Boring (1950) says that “there was never any school or great theory that derived from him” although he “anticipated much of later psychology.” Hearnshaw (1964) credits Bain with “seminal ideas” but adds that he failed to develop them and probably did not recognize their significance. So we have this paradox: a dogged and persistent worker who neglected to develop his own ideas, who achieved an influential textbook by the exercise of laborious collation, and who anticipated the future but originality.

The theme of my discussion might be taken from the rambling final sentence of Mill’s review. It was directed to those who found Bain’s empirical approach unacceptable, and it advised them that even if they were not “disposed to take up their abode” in the edifice which Bain had constructed, they should nevertheless give it careful study, for “so massive a pile, so rich in the

quantity and quality of its materials, cannot be used even as a quarry without abundant profit.” The advice is still timely, and it seems appropriate because Aberdeen, the city of Bain’s birth and death, has been a world center for granite quarrying since about 1600. I propose to take you quarrying, as it were, in the writings of Alexander Bain, and to inquire how many of the building blocks of modern psychology might have been taken from that source.

Aberdeen was also a very early center of paper manufacture, and during the eighteenth century became a center of textile industries. Historians, however, will better remember that Francis Galton, who fearlessly measured things sacred as well as profane, put Aberdeen “on the map” in a different sense, by stating that of all the cities in the British Isles had the plainest women (Pearson 1924, p. 341).

Bain’s asthma-ridden mother was doubtless one of these, a weaver’s wife who bore eight children, of whom only this one would live past 40. His father found Sunday sermons too mild, and he invariably added a Sabbath lecture in which he assured the members of his family that they were all bound for hell. (Bain’s (1904) *Autobiography*, will be used freely without further reference).

Bain had the usual parish schooling available to poor children in Scotland. His swift progress was a burden to the schoolmaster, who gave him an algebra text and freedom to shift for himself. When the pupil needed help with a difficult problem, the harassed master would provide the answer next day from the key which he kept at home. At 11 Bain left school to become errand boy for an auctioneer; at 13 he became a weaver. No doubt his growth was stunted by the poverty of his childhood, for in later years he was punningly described as a “wee vir.” Avid for scientific knowledge, he struck up friendship with an eccentric watchmaker who was something of an amateur scientist, and with the sons of a blacksmith who owned an English translation of Newton’s *Principia*. There were two colleges in Aberdeen, one founded in the fifteenth century and the other in the sixteenth, and several decades later the merger of these would form the University of Aberdeen. However, they were beyond a weaver’s horizon. For a working man, the only open road to learning was the Mechanics’ Institution,

forerunner of the public libraries. Only a decade after he became a weaver, in an early essay which I shall soon quote to other purpose, Bain wrote these lines:

- ▶ In monotonous employments which use the hands and not the head, there should be a separate provision for the head. One obvious provision is, knowledge of all sorts, and the associations and hopes connected with its acquisition. . . . When we think upon the needs of all classes of society, and the small provision made for them, we are forced to assert that in one sense the mind of man, the greatest thing in the world, is among the least attended to. (Bain 1842, p. 64)

When Bain was 17, a chance encounter suddenly opened new doors. A minister, who heard him conversing with a bookseller, urged him to seek admission to college, told him of the tempting possibility of prize stipends, and offered to help prepare him by correcting his Latin exercises. Bain had made a start on Latin, by teaching himself to read the *Principia* in the original. During the next few years, Bain wrote prize papers, tutored, served as substitute schoolmaster, kept the accounts for the Mechanics’ Institution, catalogued its library, gave courses in its mutual instruction program, and graduated at the top of his class, although he had to share nominal honors with the invalid son of a professor.

His search for literary work then brought him into correspondence with John Stuart Mill, who at once recognized a kindred spirit. Both men were products of atypical educations, but one was a hothouse product, while the other had, one might say, scratched his learning out of crevices in the cobbled streets of Aberdeen. By different routes, each had attained an open mind, but years later Bain (1882) wrote that there was one prejudice that Mill had received from his father and from which he could never free himself, despite all evidence: the belief that all men are essentially equal in innate intellectual potential. Bain’s experience had taught him that *that* was a delusion.

Since Bain did not dissemble his loss of religious faith, any worthwhile academic employment was closed to him in the years when he most needed it. His passion was psychology, but he earned a precarious livelihood by writing popular articles on a wide variety of scientific subjects. Bain was no mere hack in the

natural sciences. For example, he concluded from watching a blacksmith at work that kinetic energy can be transformed into heat. (Unfortunately, the paper on heat which he read to the Aberdeen Philosophic Society early in 1843 was not published). He served for a while as secretary to the Sanitary Commission for metropolitan London, during a severe epidemic of cholera. Amid such activities the psychology took shape, so that it was complete in outline and in most of its substance before he ever had a chance to teach the subject. That chance came with the creation of the Bedford College for Ladies, in London, but even there he had to content himself with teaching physical geography in the first year of his appointment, and got to teach mental philosophy only in the second. Bain was indeed “dogged and persistent.” If he were not, we should never have heard of him.

We shall look first at some of Bain’s central ideas. His key concept, of course, is spontaneity. Using the terminology which Skinner has given us, we may say that Bain rejected the account of behavior as all elicited, which is what a pure associationism comes to, and insisted instead on the importance of spontaneously emitted acts. In his words, “muscular action may, and does, arise from purely internal causes, and independent of the stimulus of sensations.” However, almost 10 years before he arrived at this formulation, we can see the *anlage* or disposition which made that development well-nigh inevitable, in the youthful essay which has already been mentioned. He had been offered the opportunity to review a book titled *Home Education*, which dealt in part with the educational value of children’s toys, and he seized this as a chance to illustrate the importance of similarity in thinking, which was a pet enthusiasm of his. But the resulting essay is even more remarkable as displaying how Bain’s own energetic nature led him to include action as well as thought within the scope of his work. Here are a few sentences culled from 15,000 words:

- ▶ The passion for handling is not duly appreciated. . . What utter nothingness is there in the mere sight of an ancient sword; the delight comes of unsheathing and sheathing it with our own hands, and going two or three times through the manoeuvres of fencing, stabbing, and amputating with it. . . When a companion standing beside us has a curiosity in his hand whose

wonders he is relating aloud, the cry is, ‘Let me see it, let me see it,’ from those looking on all the time at the full stretch of vision; but the cry means, let me handle it. . . With a stout stick in a road well grown with weeds, no one’s mind need come to a stand. . . . It is utterly impossible to lounge, even for a short time, in an artisan’s shop, without setting ourselves to work on his tools. . . We would fain hope that, at no distant time, it will be considered as barbarian cruelty to seat a person down in a naked lobby, beside a bare marble table, without one thing that he can take in his hand. (1842, pp. 52, 60, 61, 64)

It is all witticism, but there is an earnestness beneath it, and the article ends with a program and a promise:

- ▶ Having now had occasion to labour in a region of the human mind neglected by our written mental philosophy, we may remark on that science, that it will require to proceed a little farther into the minute anatomy of human life than it has ever yet done. . . No novelist, not even Dickens, has done full justice to the toy principle; and no one ever will until he conceive it aright as a principle. But let anyone first learn the principle, and then proceed to study life in search of manifestations of its workings, and we fear not to say, that he will find ten times as many as have ever yet been recorded, besides obtaining a more exact account of each. (pp. 64–65)

What Bain here called the toy principle, from the almost accidental circumstance of the nature of the book he was reviewing, he explicitly conceived at that time only as the principle of similarity in thinking, but it is linked intimately with an emphasis on the internal drive to activity, which ultimately would be expressed in the doctrine of spontaneity.

Bain’s concern with activity led him also to emphasize the newer physiological foundation of thought and behavior. The volume on *The Senses and the Intellect* had a short introductory chapter, perhaps 3,000 words, followed by a 20,000 word chapter on the nervous system. This became so much the model for later writers that we are in danger of forgetting that it was an unprecedented innovation. How great a departure it was may be judged by comparison with such books as Lotze’s (1852) *Medicinesche Psychologie*, Holland’s (1852) *Chapters on Mental Physiology*, Spencer’s (1855)

Principles of Psychology, and Laycock's (1860) *Mind and the Brain*. Even Wundt's (1863) *Vorlesungen zur Menschen und Thierseele* gave no attention to neuroanatomy or neurophysiology, except for a discussion of the schema of reflex movement in the fourteenth lecture. Yet Bain (1855), in 1855, gave a detailed account of the plan and finer structure of the nervous system, as far as it was then known. The innovation proved influential. Spencer adopted the same plan for his second edition, in 1870. In 1874, Carpenter (1874) used it in his *Principles of Mental Physiology*. Most notable of all, Wundt (1873), who meanwhile had become acquainted with Bain in the second edition, followed this plan in his *Grundzuge der physiologischen Psychologie*. Wundt, unlike Bain, had his physiology at first hand, but Bain achieved a more successful integration of neurophysiology with the topics of later chapters. The reason for this is Bain's peripheralism, which is another expression of his concern with action. Bain's chapter on the nervous system ended with a statement that "we cannot separate the centres from the other organs of the body that originate or receive nerve stimulus. The organ of the mind is not the brain by itself; it is the brain, nerves, muscles, and organs of sense. . . For although a large part of all the circles of mental action lie within the head, other indispensable parts equally extend throughout the body" (1855, pp. 60–62). In the second edition, the viscera were added to this inclusive organ of mind! More than half a century later John B. Watson wrote, with his usual disregard for historical precedent: "Why in psychology the stage for the neural drama was ever transferred from periphery to cortex must remain somewhat of a mystery. . . When the psychologist threw away the soul he compromised with his conscience by setting up a 'mind' which was to remain always hidden and difficult of access" (Watson 1914, pp. 19–20). But Bain is the clear root of behaviorism's peripheralism.

Bain is credited with having carried the association psychology to its highest development. More remarkable is the fact that this achievement was coupled with repeated insistence on the limitations of association psychology. This appears most clearly in the notes he wrote for the 1869 reissue of James Mill's *Analysis of the Phenomena of the Human Mind*. For example: "It is overrating the influence of association to make it a chief element in the pleasure of intoxicating

stimulants, or in the wretched feelings of diseased digestion" (note 17). Or this: "Our overweening tendency to anticipate the future from the past is shown prior to all association . . . It does not make belief, it conserves a pre-existing belief" (note 103). Or this: "The mere fact communicated to us, on a few occasions, that ghosts appear in the dark, and sometimes perform dreadful deeds, would not by force of association alone produce all that unnerving effect which children and weak or superstitious persons are liable to when, at night, exposed in a lonely place, or passing a Churchyard" (Vol. II, note 53). And as a last example: "On no reasonable and candid calculation, is the association strong enough to account for the intensity and diffusion of disinterested impulses as actually found among mankind" (Vol. II, Note 53).

The force of these instances would be greater if we could take time to give the arguments supporting these conclusions. But these fragments suffice to make our point: Bain was not prepared, as the Mills were, father and son, to explain all things mental by association. He used the principles of association more effectively than any of those who preceded him, but he did not expect it to unlock all psychological riddles. And by this contention for the "intrinsic efficacy" of primitive expressions of emotion he places one foot in the nativist camp alongside the followers of Thomas Reid.

Bain is also credited with introducing the concept of parallelism with regard to the mind–body issue. Actually, his concern in writing *Mind & Body* was not metaphysical, but antimetaphysical: he wished to demonstrate a connection so close that there need be no hesitation in using physiological data to interpret mental phenomena. He contended, therefore, for a double-aspect view according to which "all mental facts are at the same physical facts" (p. 133) which enter into a causal sequence through their physical aspects. It was just enough metaphysics to defend the physiological foundations of his work, but it did not imply that all physical facts have their mental aspects, and he explicitly rejected the notion that the mind might "make use of" the brain for its expression.

So much for Bain "in general." We are ready now to start quarrying, that is, to dig out some of Bain's many anticipations of later theories.

One of the most striking of these anticipations is the assertion that tactile pleasure is the primitive basis or

the affectional bond between mother and child. This idea was not developed in the first two editions of his work. Although he recognized that “there is a peculiar region of the body that is related to tenderness,” (1859, p. 96) including the breast, neck, mouth, and hand, he attached no special importance to this. Apparently it was in the process of annotating James Mill that the full importance of what we now call “contact comfort” was impressed on Bain, as a reaction against Mill’s cold analysis of the origins of family feeling through association. Bain rejected that analysis as “scarcely adequate to represent the reality” and he went on as follows:

- ▶ The case of greatest moment . . . is the contact of one human being or animal with another; such contact being the physical element in the tender as well as in the sexual affections. There is a combination of tactile sensibility and warmth in this instance, each counting for a part of the pleasure. The influence is well enough known as experienced among human beings; but the sphere of its operation in animals has been imperfectly explored.

If we observe carefully the first movements of a newborn animal, a mammal for example, we find that the guiding and controlling sensation of its first moments is the contact with the mother. In that contact, it finds satisfaction and repose in separation, it is in discomfort and disquiet. Its earliest volitions are to retain and to recover the soft warm touch of the maternal body. When it commences sucking, and has the sensation of nourishment, a new interest springs up, perhaps still more powerful in its attractions, and able to supersede the first, or at least to put it into second place; yet, during the whole period of maternal dependence, the feeling of touch is a source of powerful sensibility both to the mother and to the offspring. Among animals born in litter . . . the embrace is equally acceptable among the progeny themselves. The sensual pleasure of this contact is the essence, the fact, of animal affection, parental and fraternal; and it is the germ, or foundation, and commitment of tender affection in human beings.” (In Mill 1869, V. I, Note 12. See also V. II, Note 44; also Bain 1868, p. 168, 1875, pp. 126, 140)

Then comes this extraordinarily insightful statement: “It is the experience of this agreeable contact that prepares the way for a still closer conjunction

after the animal reaches puberty.” Thus, with only the farmyard for laboratory, Bain anticipated many of the important aspects of Harlow’s findings. However, it was William James, not Bain, who anticipated the design of the original Harlow experiment, in his caustic comment that “Prof. Bain does not explain why a satin cushion kept at about 98°F. would not on the whole give us the pleasure in question more cheaply than our friends and babies do” (James, 1890, v. 11, p. 552 n).

Bain’s emphasis on the role of tactile pleasure in promoting affection is one expression of the peripheralism which we previously discussed. Another is his position regarding the necessary participation of bodily structures in all emotional behavior. This was so important to him that it could not wait for his second volume, and he introduced it into his discussion of the Senses, in a footnote:

- ▶ The expression I look upon as part and parcel of the feeling. I believe it to be a general law of mind. . . that along with the fact of inward feeling or consciousness, there is a diffusive action or excitement, over the bodily members. . . According to this view, every variety of consciousness ought to have a special form of diffusive manifestation.” (1855, p. 86 n)

Here are a few sentences from his preliminary statement:

- ▶ The fundamental proposition, respecting emotion generally, may be expressed in these words: The state of Feeling, or the subjective consciousness which is known to each person by his own experience, is associated with a diffusive action over the system, through the medium of the cerebral hemispheres. In other words, the physical fact that accompanies and supports the mental fact, without making or constituting that fact, is an agitation of all those bodily members more immediately allied with the brain by nervous communication. . .

It is the common expression even with those who give full credit to the concurrence of the brain in every mental experience, that the brain is alone concerned, or that the agitation, whatever it may be, is confined to the encephalic mass. To this view I oppose the doctrine of the participation of the secreting organs in the circle of effects. . .

The emotion of Fear, for example, would not have its characteristic mental development if the currents from the brain to the moving organs and viscera were arrested. What we take merely as signs of the emotion are a part of its essential workings, in whose absence it would be something entirely different. (1859, pp. 5, 10)

This was published a quarter of a century before the earliest comparable statements by James or Lange. Bain does not reduce the emotion to peripherally aroused sensations, as James would do, but limits himself to saying that peripheral involvement is an essential component. This made him more correct, as we now know, but less eligible for quotation in the intervening years during which James' theory had serious defenders.

Another important application of the principle of peripheralism linked speech and thought. "In speech," Bain wrote, "we have a series of actions fixed in trains by association, and which we can perform either actually or mentally at pleasure, the mental action being nothing else than a sort of whisper, or approach to a whisper, instead of the full-spoken utterance" (1855, p. 341). Ferrier (1876) cited this passage when he presented his own theory that thinking is speech with the movement inhibited. Ferrier was of course acquainted with the intervening work of Sechenov (1863a) on inhibitory centers, but he was probably not aware of the *Reflexes of the Brain* (Sechenov 1863b), with its now famous phrase: "A thought is the first two-thirds of a mental reflex." John B. Watson, who is usually credited with originating the idea of thinking as implicit speech, undoubtedly read both Bain and Ferrier.

We turn now to a group of what may be called cognitive theories. The first of these represents a transition, because it still affirms the importance of action to thought. This passage is from Bain's chapter on Belief:

- ▶ While, therefore, action is the basis, and ultimate criterion as of Belief, there enters into it a necessary element some cognizance of the order of nature, or the course of the world. In using means to any end, we proceed upon the assumption of an alliance between two natural ~acts or phenomena, and we are said to have a trust, confidence, or faith, in that alliance. An animal, in judging of its food by the mere sight, or in going to a place of shelter, recognizes certain coincidences of

natural properties, and manifests to the full a state of belief concerning them. The humblest insect that has a fixed home, or a known resort for the supply of its wants, possesses the faculty of believing. Every new coincidence introduced into the routine of an animal's existence, and proceeded on in the accomplishment of its ends, is a new article of belief. . . . As the intellectual functions are developed, and become prominent in the mental system, the materials of belief are more and more abundantly reaped from their proper field; nevertheless, we must never depart from their reference to action, and the attainment of ends, otherwise they lose their fundamental character as things credited, and pass into mere fancies, and the sport of thinking. (1859, pp. 570–571)

It is the same view with which Tolman (1932) startled American behaviorists, when he introduced cognitive elements as hypothetical constructs in his discussions of animal learning. "Belief" demonstrated by "using means to any end" – what is this but "means-end expectation"?

Somewhat related to this concept of belief resting on observed coincidences in nature is the concept of discomfort arising from an awareness of contradictions. This theory grew out of Bain's own strong intellectual motivation – the force which propelled him through years of self-education, and later kept him from gaining coveted university posts because he could not pretend to beliefs he did not hold. In his *Autobiography*, he recalls how as a young boy he had "a strong sense of contradiction when varying statements could not be reconciled. From my earliest consciousness, I had this peculiarity to a degree beyond what I could observe in those about me. . . . Time only increased the disposition" (1904, p. 12). It led him to abandon all religion, which cost him more than one hoped-for appointment. And it led to this statement of the contrast between intellectual emotions. The pleasure that attends discoveries of unanticipated similarities and the distress which is an effect of perceiving contradiction:

- ▶ The labour of intellectual comprehension is reduced by every new discovery of likeness; and the first feeling of this gives a rush of delight, the delight we feel when we are relieved of some longstanding burden, or discharged from a laborious obligation. If the effect is

to solve an apparent contradiction, there is the same gladdening reaction from the depression of embarrassment. . .

Contrary statements, opinions, or appearances, operate on the mind as a painful jar, and stimulate a corresponding desire for reconciliation. . . Any strong emotion is sufficient to make the untutored mind swallow a contradiction with ease; but they that have been accustomed to sift opinions, and reject the untenable and contradictory, reel an intellectual revulsion when conflicting doctrines are propounded. This intellectual sensitiveness usually leads to the abandoning of one of the contraries, or else to a total suspension of judgment, that is to say, a repudiation for the time of both the one and the other. As a spur to the volition, therefore, no motive is stronger in the mind of the intellectual man than the pain of inconsistency. (1859, pp. 201, 205)

This is a clear statement of the theory of cognitive dissonance as a motivating force, although it is confined to one area, and not generalized as Festinger would do. Indeed, you have perhaps noticed by this time that Bain's theories are characteristically what have been called mini-theories, which are advanced to explain phenomena within a fairly restricted area. Perhaps because of his strong sense of contradiction, he does not succumb to the temptation of developing them into sweeping generalizations.

The obverse of this sensitivity to contradiction was Bain's emphasis on association by similarity. It was perhaps the point from which his interest in mental science began, for the *Autobiography* recalls that when Bain was barely 20, before he had had any course in mental philosophy, he gave a lecture on "Inventive Genius" to the Mechanics' Institution, and he adds: "I doubt not, the Law of Similarity, as far as then developed, had a leading place" (1904, p. 69). Of course, there was no need to invent the principle of similarity, known since Aristotle, and Bain had met it in his independent reading of Thomas Brown. He was then already in a sense an addict of that "rush of delight" which he experienced in discovering unexpected likenesses, and he seized on this principle with enthusiasm. Because Bain is commonly called a follower of J. S. Mill, and Mill is usually credited with reviving the principle of association by similarity, it is necessary to point out

that Bain's commitment to the importance of this principle in all creative intellectual work not only existed before he met Mill, but also long before Mill had written on this topic.

Let us turn now from the intellectual to the more purely motivational. Bain of course developed rather fully, as any industrious associationist would, the whole question of derived social motives. It is therefore not surprising that he should have arrived at a clear anticipation of what Gordon Allport (1937) called the "new principle" of the functional autonomy of motives. Bain wrote:

- ▶ It is well known that many things sought, in the first instance, as means, come, at last, to have a force in themselves, without any regard to those ulterior consequences, but for which they would never have been taken up. . . . The keeping of accounts is a common instance. This being an operation of trouble, we should never enter upon it, except for the facility conferred thereby upon our solid transactions. . . . Experience shows us that account-keepers are not always ready to abandon their operations, because there is no longer any real occasion for them. It is evident that a special liking for the machinery itself has been gradually contracted. . . . The avidity for the means is, therefore, no longer an accurate measure of our appreciation of the ends. (1859, pp. 429–430)

The illustration is evidently drawn from Bain's personal experience. It was as secretary to the Mechanics' Institution that he had his first experience in keeping accounts, and this discussion testifies that his interest in similar activities persisted. Another example throws some light on Bain's attitude toward experiment. He speaks of "the acquired fondness for experimental manipulation, beyond all question the greatest source of knowledge of nature. We constantly see the practitioners in this art spending their time in securing a precision irrelevant to the case in hand; a failing, no doubt, on virtue's side, but still indicative of an undue attachment to what only of the nature of means" (p. 430).

We can look at the functional autonomy of motives as only a special case of the functional autonomy of any organized response mechanism, which has one important expression in the principle of spontaneity. It also appears in many compulsive acts, which are so often

mentioned in Bain's writings that one cannot escape the feeling that he must have been himself quite compulsive. He writes: "There is such a thing as being laid hold of, through a sort of infatuation, by a feeling that in no way contributes to our happiness. We may be unable to discard from our thoughts the image of a person that we hate; or we may be goaded by a pursuit merely because we cannot shake ourselves free of a certain train of ideas. The fascination of a precipice, or of a serpent, belongs to this species of emotional influence" (1859, p. 35).

Another example, among many: "There is a standing mental determination, whereby all ideas tend to work themselves out into full actuality; a power that the will and other influences are constantly employed in checking" (1869, p. 384).

This brings us to the problem of motivational conflict. Bain discussed it in terms which anticipate much of the content of the related Freudian concepts of the ego, the reality principle, and the superego.

In the conflict of opposite motives, it is extremely common to have one feeling in the actual opposed to another in the idea. This is the case when present justification is restrained by the consideration of remote consequences. In order that the dread of the future may prevail over the present, it is necessary that the intellectual hold of the absent evil should be sufficient to keep alive the volitional spur belonging to the reality. Thus, it is that what is termed self-control, prudential restraint, moral strength consists in the intellectual permanency of the volitional element of our feelings (1859, p. 41).

In dealing with the problem of a supposed moral sense, Bain explains that this sort of "prudential restraint" is not a sufficient foundation for what is called conscience. He rejected both the traditional view of conscience as based on reason and the then popular view that it was based on an independent faculty, and he undertook to show that it was shaped by the early experience of external authority. In fact, he traced its development through stages which are strikingly parallel to those in Freudian theory of the growth of the superego.

- ▶ Conscience is an imitation within ourselves of the government without us; and even when differing in what it prescribes from the current morality, the mode of its operation is still parallel to the archetype. . .

The first lesson that the child learns as a moral agent is obedience, or acting according to the will of some other person. . . The child's susceptibility to pleasure and pain is made use of to bring about this obedience, and a mental association is rapidly formed between disobedience and apprehended pain, more or less magnified by fear. . . As the child advances in the experience of authority, the habit of acting and the dread of offending acquire increased confirmation. . . New elements come to be introduced to modify this acquired repugnance to whatever is prohibited by parents and teachers, and others in authority. A sentiment of love or respect towards the person of the superior infuses a different species of dread from what we have just supposed, the dread of giving pain to a beloved object. Sometimes this is a more powerful deterring influence than the other. . . When the young mind is able to take notice of the use and meaning of the prohibitions imposed upon it, and to approve of the end intended by them, a new motive is added, and the consequence is then a triple compound, and begirds the actions in question with a threefold fear; the last ingredient being paramount, in the maturity of the sympathies and the reason (1859, pp. 315–316).

A topic of limitless discussion has been whether the hostility which men display toward one another expresses an innate disposition, or results from social influences. Bain, as much a nativist as an associationist, set himself against the tide of his time, and I suppose of ours as well, by arguing for what he called "pure malevolence."

- ▶ The distinctive feeling of anger implies the impulse knowingly to inflict suffering upon another sentient being, and to derive a positive gratification from the fact of suffering inflicted. . . So great is the satisfaction thus derivable from malevolent sympathy, that we oppose it as a consolation to neutralize the original wrong.

What we have really to explain, therefore, is not the fury and vehemence of angry excitement, but the root or origin of the *pleasure of malevolence*, which, however we may disguise it, is a fact of the human constitution. . .

In endeavoring to analyze . . . the pleasure of irascible emotion, the first thing that I would notice is the sort of voluptuous excitement that by general remark

goes along with the infliction of suffering upon sentient beings, or the sight of suffering inflicted. . . . I do not profess to be able to account for a circumstance that seems at first sight anomalous . . . but to omit all reference to it would have left the explanation of the origin of the pleasure arising from malevolence palpably defective. (1859, pp. 165–167)

In describing each emotion, Bain always lists the typical circumstances which arouse it. Among the causes of terror, he lists pain, apprehension of evil, and uncertainties of many sorts. Under this heading there are two items that illustrate Bain's breadth. One example is "the sense of the unstable, or insecure," which is in effect Watson's "loss of support." Another is stated in this manner: "Any breach of expectation eminently discomposing. The whole frame being thrown into a certain attitude for meeting a given effect, there is a violent unhingement caused by the occurrences of something totally different" (1859, p. 75). It will be recalled that Hebb (1946, 1949) based his general theory of behavior in part on observations of how chimpanzees respond with fear to any unfamiliar object or to a familiar object in an unfamiliar setting, such as an arm or head detached from a body. These experiences, he reasoned, conflicted with expectations which might be embodied in stable "cell assembles." For Bain, as for Hebb, the recognition that fear is often based on a "breach of expectation" represents an important departure from associationist or S-R theory.

In the area of temperament, Bain (1861) suggested a classification of men into Active, Emotional, and Intellectual types. He based this scheme on the "three-fold division of mind into Emotion, Volition, and Intellect." Bain's categories have many points of agreement with Sheldon's (1942) somatotonic, viscerotonic, and cerebrotonic types. In Bain's treatment, although members of the first type are described as often muscular, they need not always be so, because their disposition to activity arises more from nervous than from muscular energy. He also introduces an interesting distinction in this type between dispositions to quickness and to persistence. Persons of the emotional type are described as having "a physical constitution formed for emotion, and not infrequently marked by the exterior characteristics of a rounded and full habit of body, a constitution apparently of great vigour in the

secreting organs, and less inclined to muscularity" (pp. 205–206). Physique does not enter into his description of the intellectual type, nor does the behavioral description include that element of defensiveness which is so strong in Sheldon's cerebrotonia.

My last example of Bain's anticipations of later psychological theories is perhaps the most interesting of all. Bain was by far not the first to apply the principles of association to actions as well as ideas: nearly for one, and others less well known before him, had done that. But Bain recognized that something more than association was needed, and he mixed three ingredients into his theory of learning, or, as he expressed it, that "process of acquirement in the establishing of those links of feeling and action which volition implies" (1855, p. 293). These are: first, spontaneity, or lithe instinctive germ of volition"; second, "trial and error"; third, an effect resulting from the consequences of the act. His first statement of this theory included most of the essential elements of a reinforcement theory of learning, although the neglect of positive reinforcement constituted a serious flaw.

- ▶ If, at the moment of some acute pain, there should accidentally occur a spontaneous movement, and if that movement sensibly alleviates the pain, then it is that the volitional impulse belonging to the feeling will show itself. The movement accidentally begun through some other influence will be sustained through this influence of the painful emotion. Once assume that the two waves occur together in the same cerebral seat – a wave of painful emotion, and a wave of spontaneous action tending to subdue the pain – there would arise an influence out of the former to sustain and prolong the activity of the latter. . . . This, as far as I can make out, is the original position of things in the matter of volition. (1855, pp. 294–295)

The last sentence betrays Bain's awareness that something essential is missing from this account. Nevertheless, in 1859, the same theory was affirmed with greater confidence, and in memorable phrases:

- ▶ It is the original property of our feelings to prompt the active system one way or another; but there is no original connexion between the several feelings and the actions that are relevant in each particular case. To arrive at this goal, we need all the resources of

spontaneity, trial and error, and the adhesive growth of the proper couples when they can once be got together. The first steps of our volitional education are a jump of spluttering, stumbling, and all but despairing hopelessness. Instead of a clear and distinct curriculum, we have to wait upon the accidents, and improve them when they come. (1859, p. 343)

This theory rests on two principles that are essential elements of Darwin's theory of evolution, as stated in that very year: spontaneous variation, in this case of behavior, and the selective value of success. That we must "wait upon the accidents, and improve them when they come" is also the basis of behavior modification as it is practiced today. What was lacking was a convincing rationale for the selective influence of success. Six years later, Bain (1865, still long before Morgan (1894), told how his dog, Tony, accidentally learned to lift the gate latch while sniffing excitedly at the road) shifted his emphasis from pain to pleasure as the reinforcing influence, with reduction of pain being viewed as the equivalent of pleasure. After arguing that pleasurable experience serves to augment the vigor of muscular actions, he goes on:

- ▶ But suppose now that the movements arising out of mere physical exuberance, should be accidentally such as to increase the pleasurable feeling of the moment; the very fact of such increased pleasure would imply the other fact of increased energy of the system, and of those very movements then at work. The pleasure would in this way feed upon itself, and we should have something substantially amounting to volition. Spontaneity, or accident, has brought certain movements into play; the effect of these movements is to produce a burst of new pleasure; but we cannot induce pleasure without inducing new energy to the physical system, and therefore to the members acting at the moment. So long as these movements add to the pleasure, so long they add to their own stimulation . . .

Before producing actual instances, let us complete the general statement by supposing the opposite condition, that of pain. Let movements be commenced as before, through the spontaneous energy of the healthy system, but let these movements occasion a feeling of pain. In doing so they occasion also . . . an abatement of the vital energies, which . . . brings them more or less to a stand-still. . .

A third case, of equal, if not greater, frequency in animal life, is the following: A creature is in pain, or under a depressing condition of mind; the direct consequence, or natural accompaniment, is a lowered state of the vital energies. Nevertheless random movements are still performed; the spontaneity may not always be exhausted; and perhaps the pain has produced that other effect of spasmodic irritation of the nerves. At all events movements occur; the limbs are thrown about, the head is tossed from side to side, and so forth. Now, let the pain instantly cease. Mentally, the result is a great reaction, in fact a burst of pleasure; physically, there concurs the usual elation of the system, moving members among the rest. The movements that were going on when the pain ceased, receive a sudden accession of power . . . and are made all the more energetic. (Bain 1864, pp. 307–309)

Thorndike (1911) varied this statement with a hypothesis that satisfaction and annoyance exercise positive and negative influence, respectively, on the growth of synaptic endings in use. He not only failed to credit Bain with an assist, but he later listed Bain as one of half a dozen men who "seemed to me to give wrong answers, more often than to verify or extend work which seemed sound" (Thorndike 1930, p. 268). But the other men on that list were born, on the average, 34 years after Bain, and one wonders whose work Bain might have been expected to verify or extend. Because Bain was so much ahead of his time, and because he has been read chiefly in later editions of his works, we tend to lose perspective on his place in history. For example, Boring says that "his importance is partly due to his longevity" (Boring 1950, p. 276). It is true that despite poor health Bain lived to be 85 but his chief works were written by the time he was 40, and everything quoted in this paper (except the bits of autobiography) by the time he was 50, which still 5 years before the appearance of Wundt's *Physiological Psychology*.

How was it possible for one man in the mid-nineteenth century to anticipate essential features in the systems of Freud, the father of psychoanalysis, and Watson, the father of behaviorism – of Allport, who scorned a nomothetic science, and Sheldon, the apostle of types – of Thorndike, the connectionist, and Tolman, the cognitive behaviorist? And how was it

possible for psychologists to overlook these and other theoretical contributions, while they readily accepted the assessment of Bain as a writer of great industry but little genius, an expositor but not a discoverer?

Surely one essential part of the answer is that Bain could do all this because he had no thought of system, but only of facts and their implications. Thus, he succeeded in escaping the rigidities of associationism while retaining its strengths, opening the way to a many-sided science. Spencer (1904) in *Autobiography* tells of his surprise that Bain was not offended by his unfavorable review, and states that he never knew another man so totally devoted to the search for truth. This uncompromising intellectual honesty never allowed Bain to present man simpler in theory than he was in observation. Therefore, he did not offer one of these grand syntheses which create enthusiastic followings, but which are always achieved by at least unwitting suppression of unpleasant inconsistencies. The only “system” he acknowledged was what he called the “natural history method,” that is, reliance on observation and distrust of a priori arguments, and the theories he formulated may fittingly be called mini-theories, because he did not attempt to generalize them beyond the field of observation which gave rise to them. On the other hand, these contributions were undervalued because psychology until recently had an adolescent fascination with system, and it is only as an expression of filial respect that American psychologists have condoned the lack of it in one man, their parent figure William James.

This fascination is not just a residue from the time when our philosopher forbears thought man was created according to a divine scheme. The roots lie deeper, in our innate perceptual dispositions, partly in that very “rush of delight” which we feel at the discovery of likeness and simplicity in nature, and which we are always tempted to enjoy at the expense of truth. The approved defense against such trifling the law of parsimony, but that law has many loopholes, and there are many examples in history of how it has been invoked to spare us the necessity of acknowledging the full complexity of the phenomena with which we deal. Scientists study the most complex phenomena in the universe, and esthetic simplicity is a self-indulgence which we should not carry to excess.

I say all this with diffidence, partly because my very best friends deplore the growing disregard for system, and partly because whenever I voice my distrust of the law of parsimony, the debate is likely to turn on a matter of semantics. So let us return to bedrock. Whether you are for system or against it, I would nevertheless urge on you Mill’s advice, that you take the time to explore this now almost abandoned Aberdeen quarry. There are a good many solid paving blocks strewn about, and here and there I do not doubt there are some fine building stones still waiting to be uncovered. It would be surprising you do not find something you can put to use, under any system. Of course, there are no monoliths, and for anyone who supposes human behavior is monolithic it may be a waste of time.

Bain wanted no epitaph, and only his books for monument. If we sought an epitaph, we might find it, surprisingly, in two lines by William Blake. Surprisingly, because Blake after all is a mystic, but in the lines I quote he was not expressing his own views but putting words into the mouths of the deists whom he despised. For them, he spoke thus:

- ▶ Art & Science cannot exist but in minutely organized particulars, And not in generalizing Demonstrations of the Rational Power.

(Jerusalem, Bk. 3, 62–63)

I think this accurately expresses the proper aim of science in a pluralistic universe, and as Bain pursued it.

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Psychology of James Rush

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James Rush was born on March 15, 1786, in Philadelphia, the third of 13 children born to Benjamin Rush and Julia Stockton. From 1806 to 1809, he attended medical school at the University of Pennsylvania, and from 1809 to 1811, took his post-medical training at the University of Edinburgh. James then went into private practice and taught, at the University of Pennsylvania, students of medicine in this early part of the nineteenth century. By 1819, he married Phoebe Ann Ridgway, daughter of millionaire Philadelphia merchant, James Ridgway (Bernstein 1974).

The leadership of Benjamin Rush as psychiatrist and politician has received considerable attention, particularly during the bicentennial celebration (Carlson and Wollock 1976). Less well known is his role as a father. This entry focuses on one of Rush's children, his third son, James Rush, who made significant contributions to scientific thought in the mid-nineteenth century.

James Rush, M.D., is best known for his major work *The Philosophy of the Human Voice*, first published in 1827, in Philadelphia. This was a highly original attempt to understand the physical properties of the human voice and how vocalizations are used to express emotions and to communicate ideas. With its emphasis on the actual sounds of speech, Rush's *Philosophy* anticipated some of today's research that use tape recordings and other objective methods for obtaining a precise inventory of the behavioral events during social communication.

The Relationship Between Benjamin Rush and James Rush

Benjamin Rush held James in very high esteem, and letter to James are filled with expressions of affection, concern about his health, and classes of sounds that people communicate with: (1) the “natural or vocal” signs and (2) the “artificial or verbal” signs. Rush was

aware that when a person speaks, these audible signs are rarely produced in isolation but are “united in a single act of expression and employed in every manner of compatible combination” (Rush 1893).

For purposes of analysis, Rush separated the human voice into five attributes which he called “vocality, force, time, abruptness, and pitch.” Using today’s scientific terminology (Ostwald 1973), we would translate these terms as follows:

Vocality – the voice spectrum

Force – vocal intensity

Time – the temporal organization of speech

Abruptness – onset and decay of characteristics

Pitch – intonation or melody of speech

Unfortunately, Rush was severely handicapped by the relatively crude state of the art of speech science in his day. He lamented the fact that most available texts were based on the teachings of ancient Greek and Roman authorities. He wanted to correct their errors by doing a naturalistic analysis of Anglo-American speech patterns, aided by direct listening and auditory analysis of sensorimotor components. Rush was strenuously opposed to an idealistic, “metaphysical,” and theoretical approach to the study of human behavior, but it was not until 1845, after he had already published three editions of the *Philosophy of the Human Voice*, that he was able to return to Europe, where physiological research in phonetics was under way in France and Germany.

In dealing with the verbal signs, Rush eschewed the alphabetic tradition of dividing speech into five vowels and 21 consonants. He described a total of 35 speech sounds, similar to what are called *phonemes* today. Twelve of these he called “tonic” sounds – mostly vowels and diphthongs like /ah/, /ee/, /oo/, etc.; 14 were called “subtonic sounds” – mostly voiced consonants such as /v/, /b/, /z/, etc.; and nine voiceless consonants, /sh/, /t/, /p/, etc., he called “atonic sounds.” In discussing the phenomenon of voice quality, Rush described four ways of speaking: a “natural” voice used in ordinary speech; a “falsetto” voice with breaks and excessively high pitches; “whispering” when the voice is held back; and an “orotund” voice, bombastic and exaggerated, used for oratory.

Quite remarkable for a pre-Darwinian writer are Rush’s ideas about bioacoustical continuity. He felt

that certain aspects of human speech closely resemble the noisemaking of animals. “There is no vowel in the voice of a man that is not heard from some speechless brute, or bird, or insect” he wrote (1893), while at the same time insisting that certain unique properties of human speech separate us as language users from all other forms of life. Only among humans does one observe that “speech is employed to declare the states and purposes of the mind.”

Above all, it was Rush’s wish to show how “the voice must have distinct means or signs” for declaring “our thoughts and passions.” He was determined to find precise relationships between inner psychological states and external social communication. Toward this goal, he postulated a tripartite mental organization in which *thoughts*, or what we today would call the more formal cognitive structures, were supposed to be externalized in the form of vocal signs consisting mostly of simple rising and falling intonations, short intervals, unobtrusive voice quality, moderate degrees of force, and short syllabic time. *Passions*, or what we would call the affective states, are signaled by the use of greater variability of intonation, rhythm, and vocal force. Into an intermediate or overlapping category, Rush placed what he called “inter-thoughts,” expressed in an “admirative” or “reverential” tone of voice with “orotund and a moderate, dignified force.”

Many chapters of *The Philosophy of the Human Voice* are devoted to extremely detailed descriptions of the speed, flow, and rhythm of speech. Rush used numerous examples from poetry, especially Milton’s *Paradise Lost* and also from Shakespeare’s plays. Because of a fear that his research might become a “curiosity only, if it does not lead to some application,” he also gave rules and instructions designed for improving the art of speaking. His thoroughness makes the book seem prolix and redundant, particularly in later editions, with its many footnotes and editorial comments. Some of these are however quite revealing from a biographical viewpoint. For example, Rush recalls his great admiration for the tragic actress, Mrs. Siddons, from his student days in England. He obviously felt at home in the theater, and it is of interest that right after completing his *Philosophy*, Rush wrote and published his own version of the play *Hamlet, a Dramatic Prelude in Five Acts* (Rush 1834).

Rush's auditory sensitivity not only enabled him to describe nuances of vocal behavior in extraordinary detail, but also caused him to resent people who make excessive noise. In a footnote that is prophetic of the problem of noise pollution in our own century, he described "the alarming bells of a whole city at once; the jangling clappers of horse carriages, the ceaseless roar of inarticulate trumpets; the screams of boys; the uproar of a thousand brutal throats; and the cautious absence of a 'non-committal' republican police" (Rush 1893, p. 282).

Not content just to comment on what he often considered to be a misuse of our "natural" vocal abilities, Rush, as he grew older, wanted to go so far as to reform the English language. His father had frequently commented on the importance of proper spelling, punctuation, and grammar, and criticized his children for their errors in writing. The later editions of James' books introduce a new spelling system that eliminates all double letters and other extraneous symbols. Thus we see "curent," "receve," "thot," and many other oddly spelled words. What is more, Rush liked the idea of a double comma to separate embedded clauses and other parts of sentences. He expected the English language to have an "unbounded prospect before it. The unequaled millions of a great continent, into whatever forms of Anarchy, or Despotism, they may be hereafter led – still hold community in the wide and astonishing diffusion of one cultivated and identical speech" (Rush 1893).

One of the more interesting features of *The Philosophy of the Human Voice* is Rush's attempt to utilize musical notation as a way to depict the melody of speech. In this respect his work resembles that of a contemporaneous English author, William Gardiner, whose book *The Music of Nature* was published in Boston in 1838. It too uses musical notation to describe biological phenomena. Rush fully realized the limitations of this method, which nevertheless is still applied today for certain kinds of research in the field of linguistics (Bolinger 1972). A much better method for denoting the sounds of speech, one which probably Rush would have adapted for his book had it been available in his day, is the well-known "Visible Speech" technique developed by Bell Telephone Laboratories (Potter et al. 1966).

James Rush and the Human Intellect

Following the death of his wife in 1857, Rush began work in earnest, work actually begun around 1814, on what was to become his other major accomplishment, the *Brief Outline and Analysis of the Human Intellect*. He wanted to develop the subject of the mind and integrate it with that of the voice, believing that "when we shall have a clear physical history of the mind as we now have of the voice, the two subjects will form the first and second parts, but not the whole of the physiology of the senses and the brain" (Rush 1865). Rush used the term "mentivity" to refer to thinking, and he conceived of the mind as basically a physical function of the senses and the brain.

One historian (Roback 1952) observed that Rush's "red-blooded temperament and mercurial nature" may have led him to emphasize "the motor phase of the nervous system which had been neglected by the early psychologists," thus crediting him with being the true founder of the "behavioristic" school of American psychology, long before J. B. Watson. But there is a great deal more in this book than the term behaviorism would imply. It contains references to free association, personality styles, social psychology, and what today might be called communication theory (Miller 1967; Ruesch 1975). Indeed, one can take Rush's "voice" and "intellect" as an attempt to formulate a comprehensive statement about human behavior, as observed with scientific detachment in the nineteenth century. There are definite premonitions of present day ideas regarding the special functions of verbal information processing.

Rush maintained the belief, throughout his study of the psychology of language and thought, that the mind basically comprises perception and memory. His conviction led him further to conclude that the manner in which the mind was capable of expression was a part of the function of the mind itself. In an effort to substantiate this theory, he embarked in a course of careful experimentation and observation of vocal expression to establish the relationship between this expression and its apparent complement, perception.

Mental processes, to Rush, are one and the same with physiological sensation and expression. Speech cannot be isolated or (to use a word coined by his father) disassociated from the physiological being or

whole personality. In Rush's system, speech is actually the fifth constituent of the mind itself.

Numerous authors of the period wrote textbooks based on Rush's *Philosophy of the Voice* and dedicated the books to him (Barber 1830; Comstock 1841; Murdoch and Russell 1846). Rush was not pleased, however, with attempts by others to abridge his own work, and he refused to undertake the task himself. There were authors, nonetheless, who were more than pleased to abridge their own work in the same field, men such as Thomas Upham.

Three basic assumptions underlay the system of constitutes of the mind according to Rush. First, the mind should be regarded as a physiological operation, as orderly as sensation itself, and as tangible as muscle movement. Rush saw the mind as comprising five constituents, rather than the three which Upham assigned to it.

Second, Rush considered thought and language to be inseparable. For instance, Rush believed that in order to fully understand the mind, it was necessary to show the inseparable connection between thought and language, and the reciprocal relationship that these have upon each other.

Third, the demonstrated interdependence of thought and language within the framework of mind as a physiological phenomenon leads to the conclusion that human communication is an integrated mental and physiological response.

The case of Rush's lack of acceptance is not unique. Another nineteenth-century psycholinguist, Alexander Johnson (1786–1867), similarly failed to attain the recognition that his important contributions would seem to demand (Tweney 1977). The circumstances of both Rush and Johnson raise the question: Why were only certain nineteenth-century theories of language popular and accepted within the scientific community?

The answer seems to be that only those theories of language that were by-products of theories of the mind were popular during the nineteenth century. The major concern of the era was for a systematic explanation of how the mind functions. Theories of language were important to nineteenth-century scholars, but such theories depended for their acceptance largely upon their compatibility within the larger framework of an establishment-approved mental and moral philosophy.

Many variables determine whether or not a particular theory becomes popular. For example, James Rush produced theories of both mind and language, but he still did not gain popular recognition. The major reason for this was that his basic philosophical approach was incompatible with the establishment and its goals. He also published his work on the mind at a time (the last half of the nineteenth century) when the circumstances of newly emerging, popular theories – those of Darwinism (Darwin and Spencer) and the physiology of mind (Laycock and Carpenter), to name two – were working against him. Upham, on the other hand, had published his system of the three-part division of the mind 30 years before, at a time when popular acceptance depended to a large extent on meeting the criteria of a traditional establishment.

The Place of James Rush in the History of the Behavioral Sciences

When Roback (1952) proclaimed James Rush to be “the most original American psychologist of the nineteenth century,” he bemoaned the fact that even the Harvard University Library did not own this man's remarkable books. Fortunately, that situation is now remedied, and excellent facsimile copies of *The Collected Words of James Rush* are now readily available (Bernstein 1974). The four volumes contain important biographical and scholarly notes by the editor, Melvin H. Bernstein, who mentions that “next to Dr. Benjamin Rush (Francis) Bacon was James Rush's greatest teacher.” Bernstein also provides valuable insights into Rush's work habits, his solitary existence, and the manner in which he seems to have used writing as a way of speaking to himself: “Read aloud, Rush's prose has the rhythm (he spelled it ‘rythm’) of an earnest speaker who is determined to indoctrinate the reader.”

James Rush certainly must be included among those who “came after” Benjamin Rush (Braceland 1976) to provide intellectual leadership in the United States. His book about the human voice, though almost forgotten today, had a legitimate place in the teaching of speech and theories before the invention of electronic media to make public elocution easier. For many years, the book was used as a text at Harvard, Yale, Columbia, Princeton, and Brown universities. In spite of his personal eccentricities, which he shared to some extent with his famous father and his psychotic

brother, James Rush was a very practical man. He was a product of what Professor Henry F. May (1976) has called the American era of “Didactic Enlightenment.” This period followed the “European Enlightenment” in emphasizing anything practical over anything abstract and in preferring “useful” arts – engineering, agriculture, and technology – over “useless” speculation in metaphysics and theology. In that respect, one may forgive Rush’s arrogance in claiming that whatever he personally observed to be true must indeed be the *truth*. The principles of relativity and uncertainty, which hopefully guide scientific thinking today, were not yet available in the nineteenth century. James Rush actually felt quite skeptical about the influence which his work might have in the long run, and his notes express both an undue modesty and an embittered sense of hurt pride and a feeling of neglect. As he said in his *Philosophy of the Human Voice* (Rush 1893), “there is a kind of hypocritical compliment always paid to originality, with this inconsistent purpose, that mankind are eager to receive what is new, provided it is told in the old way.”

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Psychology of Religion, History of

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Introduction

Psychologists have always existed, though for most of history they were not known as such. Regarded primarily as philosophers, theologians, and writers, their interest was, in the broadest sense, the human condition. Over the centuries, their insights and understandings metamorphosed into psychology. Given the role of religion in history and society, a psychology of religion was inevitable. The last 200 years have thus witnessed the development of these disciplines. Still, turmoil pervades the latter field and its relationship to mainstream psychology. The following pages detail these issues.

Identifying the Psychology of Religion?

A number of problems plague this realm. For example, the psychology of religion cannot always be easily distinguished from anthropology and sociology. Some psychological historians fail to appreciate psychology’s relationship to religion. For example, Hilgard (1987) suggested an equivalence to the sociology of religion. Most authors of psychological history texts ignore the field altogether. Those who mention it usually do so superficially. Such desultory treatment may also reflect

ambivalence or negativism emanating from psychoanalytic and behavioristic views that tend to be unsympathetic toward religion.

Since rigorous definition of the field has generally been absent, we might initially claim that the psychology of religion studies, religious beliefs, behaviors, and experiences from an exclusively psychological perspective, the goal being an objective scientific understanding, is not a religious one. Though this description is abstractly correct, when operationally characterized, the religious aspect usually requires continuing psychological specification; that is, mystical experience, conversion, prayer, etc. These phenomena are invariably multidimensional. When treated simplistically, they also relate rather strongly to each other. Both of these factors get little, if any, recognition.

The term psychology was associated with religion from the sixteenth to the eighteenth centuries, yet scholars of psychological history offer at best a fleeting glance at religion when origins of psychology are discussed. The same is true of texts in general and social psychology. The relationship, however, of psychology to religion is surprisingly involved. The former has frequently been caught in the no man's land between science and faith. Unfortunately, the psychology of religion sometimes finds a value basis that is less scientific than religious (see especially the nineteenth-century writings of the American clerical psychologists).

A generally accepted argument asserts that no definition of religion is satisfactory to all social and behavioral scientists. Happily, the psychology of religion, even though it has spread its potential to virtually all of the 56 Divisions in the American Psychological Association, must embrace psychology as a science and completely separate itself from religion.

Identifying the Psychology of Religion: Parameters and Concerns

An overview of writing on the relationship of religion to psychology reveals a continuum from what might be termed religious psychology to a strictly scientific-empirical psychology of religion. The first is represented in an extensive literature largely from religious publishers who argue that church doctrines and Scripture preempt psychology in understanding human behavior. Some in the religious establishment

reject psychology. One book explicitly argues that there is a psychological war on religion (Cummings et al. 2009).

At the other end of the spectrum, are religionists who welcome and apply psychological principles and techniques. Though our concern is largely with the history of the former, the latter deals with the application of clinical and counseling psychology to those with psychological difficulties. This work is common found within religious institutions and is the domain of Clinical Pastoral Education and Pastoral Psychology.

Sources of Bias

Historically and contemporaneously, many, if not most, psychologists of religion enter the field with strong religious affiliations and backgrounds. Some received training in seminaries and schools of theology. Not a few have been ordained as clergy (Ragan et al. 1980). The psychology espoused by these scholars may be greatly influenced by such attachments (Wulff 2007). In his *Psychology of Religion*, Johnson (1959) identifies "a church as a corporate society of Christian life, a body of Christ" (1959, p. 279). Such restrictive abstractions along with a religious terminology counter a scientific approach but might be construed as relics of much of American nineteenth-century psychology. For example, John Dewey's (1889) elementary *Psychology* text asserts that "Every concrete act of knowledge involves an intuition of God" (p. 244). In later editions, reference to the deity was replaced by an undeveloped concept of the self. In this literature, much of what is perceived as objective and empirical has introduced notions of "good" and "bad" religion into contemporary psychology of religion research and writing (Kirkpatrick and Hood 1990). Despite his repeated appeals to science and empirical research, Starbuck (1914) claimed that "the psychology of religion sees in the scattered facts of religious experience an evidence that spiritual forces are at work" (p. 6). In other words, a desired scientific psychology of religion is subtly and not so subtly influenced by religious thinking.

A more general biasing factor is the culture in which we live. Ninety-seven percent of Americans claim a belief in God and about two thirds are affiliated with religious institutions (General Social Survey 2008). Even though psychologists as aspiring scientists aim for objectivity, this life-long societal milieu is likely

to find expression, possibly faint and indistinct, but nevertheless present.

A thorough history of the psychology of religion offers many avenues for exploration. These have been analyzed in depth primarily by Jacob Belzen, David Wulff, and Hendrika Vande Kemp. Their writings should be consulted for greater depth, breadth, and detail than can be provided here (Belzen 2009; Vande Kemp 1996; Wulff 1997).

Though not all agree, the history of the psychology of religion has been divided into three periods: The first is roughly bounded from 1880 to 1930, the second ranges from 1930 to 1950, and the third or current version continues from 1950 to 1980 (Beit-Hallahmi 1974; Strunk 1958). A fourth possibility is added here to note the current situation.

Period I: The Founding of the Psychology of Religion in America

Preparing the Way

Beit-Hallahmi (1989) points out that American psychologists were “the pioneers and the leaders of the ‘psychology of religion’ movement” (p. 19). Wulff’s (1997) claim that the “momentum” (p. 25) for a psychology of religion was greater in the United States than elsewhere further suggests that the American setting is a good place to begin our analysis. In the eighteenth century, figures such as Cotton Mather, Samuel Johnson, and Jonathan Edwards maintained the primacy of Christianity in mental philosophy (Fay 1939; Roback 1969). The pace of scientific development quickened during the nineteenth century but clergy still dominated the field in America. Frederick Rauch took the next step with the first book with Psychology in its title in 1841. It, however, maintained the primacy of religion. Concurrently, the growing prestige of science transformed the area verbally into mental and intellectual science yet clerical domination continued until shortly after the Civil War. A descriptive faculty psychology backed by Protestant theology ruled the higher learning. Rauch and others of his ilk explicitly denoted mental philosophy and theology to be sciences. A psychology that remained in the service of religion controlled much of education and European, primarily German, developments now appealed to American scholars. New emphases on practical

application, and active mental processes stressing consciousness appeared. Rather than simply accept the established wisdom backed by scriptural authority, the potential of research stimulated a rapidly growing appreciation of laboratory and field study. Even religion could become an object of psychological investigation. This road to the future was, however, to be far from smooth.

Those Early “Giants”

Six scholars stand out in the early phase of the psychology of religion: William James, Granville Stanley Hall, Edwin Diller Starbuck, James H. Leuba, George A. Coe, and James Bissett Pratt. Hall and Pratt studied with James, and Starbuck and Leuba were students of Hall. All came from homes in which religion played a major role. With the exception of James, they were exposed largely to orthodox Protestantism. James’ father, Henry, first identified with a conservative stance but then adopted a Swedenborgian view that allowed more freedom and individual expression. All six converted to liberal religious positions, even to the point of outright rejection of Christianity. Though he wrote in a kindly but firm professional manner, Leuba was most extreme. An argument might be advanced that James showed the most complex, if not ambivalent perspectives and actions toward faith in general. Coe maintained the strongest traditional attachment, yet he too softened his views. At one time or another, philosophy and theology were studied and this influenced their outlooks on psychology. Philosophy opened mental doors to psychology, though initially signs of a religious psychology were present in their approaches to the psychology of religion.

William James

Post Civil War education needed someone to bridge science and philosophy, and William James had the background and interests to accomplish what was required. Though religion was important to him, a liberal focus on spiritual experience was central to his personal faith from the late 1860s to the end of his life (Myers 1986; Richardson 2006). Still, it was his practice to attend early morning services in the Harvard Chapel before going to his classes (Allen 1967).

Scientific interests evidenced during his adolescence were strongly supported by his father in Europe and America. Some of these would now be regarded as basically psychological and biological. This was formally succeeded by the study of chemistry at the Lawrence Scientific School in Cambridge, where he also elected to take courses at Harvard College. After 2 years, with ambivalence, he attended Harvard Medical School but apparently without intending to practice medicine. Darwinian thought appealed to him. By 1867, he declared his intention to study “the nervous system and psychology” (Richardson 2006, p. 86). In 1876, he established a psychology teaching laboratory, however, in 1892 he indicated his dislike of laboratory work and criticized German laboratory experimentation (Allen 1967). Psychological ideas were his forte but philosophy allowed him to speculate in works like *Habit* and *Pragmatism*. James easily applied these notions to religion, hence we read “if the hypothesis of God works satisfactorily in the widest sense of the word, it is true” (James 1890, p. 299). The culmination of James’ philosophy and psychology relative to religion may be found in his most famous and popular effort *Varieties of Religious Experience*. Published in 1902, a 2009 survey of separate printings came up with 187 in English (Meyer 2009). James provided a foundation for the psychology of religion based on an active mind with a Darwinian underpinning. He valued empiricism, emotional and mystical experience, and stressed the importance of religious belief (Thayer 1983). The next stage was activation of research to realize these directions and the task began with James’ student Granville Stanley Hall. Wulff (2007) distinguishes two traditions in the psychology of religion, the interpretive and the statistical-empirical. James represents the former and Hall, the latter.

G. Stanley Hall and His Heritage

Even though Hall was James’ first doctoral candidate in psychology, they were radically different. James was always the thinker; Hall’s greatest strengths were empirical research and professional organization. In later years, he was often acknowledged as the founder or father of the scientific psychology of religion (Pratt 1908; Strunk 1958; Wulff 1997). He also began the study of the life-span development of religious beliefs, behaviors, and experiences. Known for his extensive

work on adolescence, few attend to his scholarly treatment and speculations about old age and death (Hall 1922).

Early in his career, Hall attended Union Theological Seminary, later stating that he deviated markedly from “the rigor of the Puritan faith in which I was reared to complete emancipation from all belief in all forms of supernaturalism” (Hall 1923, p. 422). He was, however, motivated to understand the development and expression of religious faith.

Twice in Hall’s career, he traveled to Germany in order to learn about the experimental psychology of Wilhelm Wundt. Apparently, neither he nor Wundt valued each other highly. Said to have adopted the questionnaire method begun by Galton after one of these trips, he used it to study religious experience, particularly religion in children and adolescence.

In 1904, Hall established *The American Journal of Religious Psychology and Education*, which was renamed *Journal of Religious Psychology* in 1912. Possibly recognizing the paucity of work on religion by psychologists, the journal was subtitled “including its anthropological and sociological aspects.” It was therefore not restricted to work on Christians and Christianity or the Western tradition. Unfortunately, this breadth was not enough to make the journal self-supporting and in 1914, with the death of its editor, publication ceased.

G. Stanley Hall seemed to do everything. Though known as the founder of the American Psychological Association, and its first president, he was also the first president of Clark University, where he established the Clark School of Religious Psychology (Schulz and Schulz 2000). In addition, he began a number of journals in which he and his students published many papers. His writings spanned theology, child, adolescent psychology, old age, philosophy, experimental psychology, many aspects of education, psychological history, race relations, and, of course, the psychology of religion. His final effort in this last area was his 1917 *Jesus, the Christ in the Light of Psychology*, two impressive volumes that interpreted Jesus and his believers in terms of basic psychological concepts. This approach was less than enthusiastically greeted (Ross 1972). Hall’s deviation from Christian orthodoxy resulted in similar recriminations by the cleric who conducted his funeral in 1924 (Ross 1972). G. Stanley Hall set the stage for a modern, empirical, scientific psychology.

Of those who followed in his footsteps, the most noteworthy for the future of the psychology of religion were Edwin Diller Starbuck and James H. Leuba.

The Hall Legacy: Starbuck, Leuba, and Coe

Edwin Diller Starbuck

Trained by both James and Hall, Starbuck took his Master's degree with the former and his doctorate with the latter. Utilizing Hall's questionnaire method, Starbuck studied conversion among over 1,200 Protestants and fixed its origin in adolescence at 16.4 years, (Starbuck 1914). Hall's data set it at 16.6 years (Johnson 1959). In order to understand the "awakening" process, as he often put it, he delved into the feelings, emotions, and motives of his respondents during their childhood, adolescence, and adult years. The book that details this work was the first volume to use the title *Psychology of Religion*. A prolific author of articles in religious, educational, and psychological journals, Starbuck influenced other early psychologists of religion to examine the process of conversion.

James H. Leuba

Like his associates, when young, Leuba joined the church and claimed to have been "deeply stirred by religion." He felt he "retained a sympathetic appreciation and understanding of the religious life" (Leuba 1912, p. 275). As the years passed, he manifested a growing unhappiness with its strictures. Finally, he considered religion irrelevant to living a good life.

Educationally, he joined Starbuck and others who worked under Hall at Clark University. Like Starbuck, he studied conversion but employed an interview method as opposed to questionnaires. This, he claimed, allowed him more flexibility to attain a deeper understanding of emotional-motivational factors underlying conversion. Adopting a strong naturalistic position, he rejected the popular notion of a distinction between a religious and nonreligious consciousness. His learning-cognition stance stressed the role of experience and the likelihood of human error in the beliefs and ideas that people held. A productive scholar, Leuba propounded a hard scientific view of religion. In the preface of a small, tightly written 1921 work on *The*

Psychological Origin and the Nature of Religion, he simply stated "Religion originated in the mind of man." On the last page of this book, he asserts "belief in a God seems no longer possible" (p. 95). Not one to tolerate myths propagated by religion, he rejected notions of immortality and life after death (Leuba 1921). Asserting that a scientific outlook invalidated religious notions, he moved the psychology of religion into the behaviorist mainstream of his time but did so without rancor or hostility (Leuba 1933). In one of his later researches, he showed that among scientists, psychologists and social scientists were in the vanguard of rejecting religious ideas (Leuba 1934).

James Leuba identified strongly with psychology's naturalistic core and his psychology of religion had no place for religious beliefs and explanations that could not be backed by observable evidence.

George A. Coe

George Coe, unlike his predecessors, maintained strong religious commitments yet accepted a more liberal theology. In graduate training at Boston University, initial intentions to enter the ministry were put aside for philosophy and the desire to apply psychology in Christian education. With further study in Germany came a commitment to science, adoption of Darwin's views, and a growing rejection of religious orthodoxy. While teaching at Northwestern University in the late 1890s, he became oriented toward the psychology of religion and wrote on temperament and personality in relation to spiritual expression and mysticism. The roots of an early stress on the self are well explicated in the first decade of the twentieth century and grew further over the next 40 years. Research was not his forte; he was primarily an expositor and interpreter with an appealing writing style. Books such as *The Spiritual Life* and *The Religion of a Mature Mind* freely joined psychology to the concerns of a liberal faith.

Concomitantly, an interest in religious education developed and he undertook an extensive program of writing for psychologists and educators. This resulted in 14 books and over 250 articles. His volume on the psychology of religion went through seven printings from 1916 to 1925. Not narrow in outlook, this tome united psychology with sociology, anthropology, evolution, philosophy, and, one can claim, a liberal Christianity.

Coe was not one to restrict himself and in the course of his later life, he identified with socialist and even communist ideologies. He seemed to be reaching for a harmonious philosophy that joined psychology, social thought, and liberal theology to attain an ultimate goal of social justice.

James Bissett Pratt

The last noteworthy American figure in this early period, James Bissett Pratt studied philosophy under James at Harvard and received his doctorate in 1905. His dissertation *The Psychology of Religious Belief* was published with modifications in 1907. Considered an outstanding work, it went beyond the psychology of religion to include anthropology, comparative religion, and religious history. Pratt goes well beyond what we would regard today as “religious belief.” Despite his frequent use of the word, he samples the entire range of religious attitudes, values, and relationships. Feeling and affect are everywhere in this treatment. One could argue that it displays elements of the modern association of social cognition with emotion (Josey 1927). Pratt also conducted questionnaire research to understand “the relation of argument and unreasoned experience to popular belief . . . as an experience of the presence of God” (Pratt 1908, p. 232). More than a few elements of what is religious psychology are present in his rather less than exacting use of data. A “soft” pattern of inference characterizes this psychology. In addition to having many articles printed in both professional and lay publications, Pratt authored 13 books, and one, *The Religious Consciousness* is regarded as second only to William James’ *Varieties* in representing the central values and concepts of the psychology of religion.

Where *The Varieties* is both philosophically and psychologically creative from the start, in Pratt’s *Religious Consciousness*, the first nine chapters offer an exhaustive overview of knowledge in the psychology of religion. The remaining 11 chapters convey not only what is known but also Pratt’s personal orientation toward the field. Attitude replaces belief and he employs the language of a nascent social psychology while almost desperately trying to maintain reliance on the individual. Since virtually all text authors at this time delved deeply into what we today consider sociology and anthropology, keeping the person in sight

posed a problem. In all of this, Pratt dealt with God belief, immortality, prayer, and mysticism (Ames 1921). Central to this effort is a subjective–objective breakdown, much of which parallels a spirituality – institutional faith distinction.

Though some others might be included in this founding period for the American psychology of religion, those cited above are considered the preeminent scholars.

Period II: 1900–1930

The years from 1900 to 1930 were prolific for the psychology of religion. Psychological professionals heard of it through annual reviews in the *Psychological Bulletin* from 1909 through 1933. The pattern of research begun by Hall was common and the questionnaire reigned supreme. Theory, however, tended to be weak or absent. Many still had the coloring of religious psychology while co-opting the rhetoric of science. Behaviorism was slowly dominating psychology, but Freudianism appealed to a broad segment of the field. The clash between these radically opposing positions is well illustrated in Knight Dunlap’s (1920) *Mysticism, Freudianism and Scientific Psychology*. Though the titular word, psychology, was extensively employed, distinctions between psychology, anthropology, and sociology continued to be vague. Most importantly, however, an objective, human-independent existence for divine beings was not the meat of science for such could not be demonstrated by psychological research and assessment. A positivistic empiricism dominated psychology. By 1930, psychology’s striving for scientific respectability meant a decline for the psychology of religion. As Beit-Hallahami (1974) called it, this was the time for a “fall of a psychological movement” (p. 84). The earlier time was one of “the rise.” As previously noted, not all scholars agree with this assessment (Belzen 2008).

Period III: 1930–1950

The early notables discussed above were now either deceased or advanced in age to the degree that most of their contributions were minor or seen primarily in religious publications. Strunk (1958) tells us that only three new texts appeared up to 1956. Paul Johnson’s 1945 volume was a mix of objective psychology and religious psychological writing. Furthermore, courses

in the psychology of religion were being dropped from college and university curricula. These were increasingly offered in seminaries and schools of theology. Psychoanalytic and clinical psychological approaches were increasingly popular among clergy and much energy went into pastoral training. The field of pastoral care began to develop. Behaviorism was not congenial to ties between religion and psychology and the psychology of religion was viewed in this light. Knight Dunlap's (1946) *Religion and its Functions in Human Life* apparently satisfied psychology's penchant for hard science. The advent of behaviorism further countered the philosophical tendencies of the earlier psychology of religion and demanded a rigorous, research framework to which seemingly objective statistics could be applied. Room no longer existed for theology or a religious psychology. With the current veneration of "hard" science, psychology took an antireligious stance. Among the struggles of a new generation of psychologists interested in the psychology of religion, most noteworthy was Gordon Allport who wrote a small significant work, *The Individual and His Religion: A Psychological Interpretation*. Despite extensive use of religious references and anthropological material, one might suggest it be put in third place as basic reading after James' *Varieties* and Pratt's *Religious Consciousness*. Allport integrated the psychology of religion into the realm of personality and also brought it into social psychology. This reached fruition in 1969 when Dittes described the field in depth in the second edition of the *Handbook of Social Psychology*. Unfortunately, this section was dropped in the third edition; however, the psychology of religion now merited inclusion in the *Annual Review of Psychology* (Gorsuch 1988; Paloutzian and Emmons 2003).

Period IV: 1950–Present

The 1950s revealed a new young breed of scholars interested in the psychology of religion. Texts stressing empirical research slowly began appearing, though those of Johnson (1959) and Clark (1958) still showed religious influences. Each succeeding decade revealed more concern with scientific objectivity. Clinical and psychoanalytic-based volumes also put in an appearance and that by Paul Pruyser (1968) merits special attention because of its strong theoretical emphasis and excellent writing. Volumes on pastoral counseling

became common as seminary education emphasized such work relative to parishioner adjustment problems, particularly those concerned with death, dying, and bereavement. Large compilations of theory and research dealt with all aspects of life-span development. Handbooks, encyclopedias, and dictionaries have continued to be published, some going into multiple editions. A literal flood of such work keeps enriching the field.

Possibly reflecting classical behaviorism and its neo-behaviorist successors, an argument might be advanced that for most of the twentieth-century mainstream psychological publications tended to be wary of submissions that dealt with religion. The pressure, however, of research and writing in the area stimulated the creation of new journals. These initially catered to social science in general but psychology per se was rapidly becoming differentiated from sociology and anthropology. In 1949, the Society for the Scientific Study of Religion was established. Two years later the *Journal for the Scientific Study of Religion* was founded. In 1951, the Religious Research Association was formed and in 1959 it sponsored the *Review of Religious Research*. Despite the fact that the journal *Sociology of Religion* had a long well-regarded history, the new efforts now offered the bulk of contemporary research and writing in sociology and psychology of religion.

Though psychologists of religion continue to publish in the above journals, a desire to "have" their own publications prevailed and in 1991, the *International Journal for the Psychology of Religion* appeared. In its section on "Contributor information," readers are "informed" that this new journal attempted to continue G. Stanley Hall's journalistic effort mentioned earlier. This was supplemented in 2008 by the *Psychology of Religion and Spirituality*, an offering of Division 36, Psychology of Religion, of the American Psychological Association. Slowly but surely, the psychology of religion has been entering the mainstream of professional psychology. This is also evidenced by the increasing appearance of research and theory articles in many of the central journals of the American Psychological Association.

Mention should be made of efforts of religious bodies to develop their own psychological journals. Examples are the *Journal of Psychology and Christianity*, a product of the Christian Association of Psychological

Studies and the *Journal of Psychology and Judaism*, which began in 1976. We should not overlook *The Journal of Psychology and Theology* that has demonstrated considerable breadth in the papers it publishes. These publications largely, but not exclusively, emphasize clinical and pastoral counseling and care concerns. While seeking psychological objectivity, they also include elements of traditional religious psychology.

The psychology of religion has increasingly emulated mainline work with growing sophistication in research design and statistical analysis. Current studies commonly employ multivariate techniques and all forms of Factor Analysis. Journal reviewers and editors demand theoretical foundations for research papers submitted for possible publication. The day has passed, if it ever really existed, that the psychology of religion can be distinguished from psychology, in general.

The Psychology of Religion Outside of the United States

As noted above, the early psychology of religion attained its fullest orderly expression in the United States. With some exceptions, the goal was an objective, scientific understanding of religious thought and behavior, largely relative to conversion and religious experience. When we look to Europe, philosophy and theology plus a more subjective phenomenological stance were common. In contrast to the American situation, relatively little coordination seems to have taken place across national borders until recently (Belzen 1994).

There have been a number of efforts to treat the psychology of religion in different countries. Aletti (1992) focused on Italy; Belzen (1994, 2009) on the Netherlands; Castro, Lafuente, and Jimenez (2009) on Spain; Richards (2009) on Britain; Vandermeersch (1994) on France; and Wikstrom (1993) on Scandinavia. Expanding our horizons, O'Connor (1991) examined Australian developments.

Countries such as Spain, France, and Italy evidenced conflict between psychology and the Catholic Church (Aletti 1992; Kugelmann and Belzen 2009). In some instances, tension and conflict correlated with political forces and cultural contexts. After 1945, differences became less significant as many priests and nuns adopted psychological viewpoints, and courses with a modern psychological orientation were

increasingly given in Catholic colleges and seminaries. This trend was most fully expressed in the United States with the creation of the American Catholic Psychological Association in 1947. In 1976, it became Division 36 of the American Psychological Association, Psychologists Interested in Religious Issues (PIRI), and in 1993, it was renamed Psychology of Religion. The detailed history of this development has been provided by Kugelmann (2009).

Even in societies with many different religious bodies such as the Netherlands, stress was present between psychology and religion. It is not amiss to comment that some conservative Christian evangelical groups in the United States are not comfortable with contemporary psychological orientations in general and certainly relative to the psychology of religion. Overall, however, more and more clergy appear to be seeking advanced degrees in psychology and the psychology of religion, as already commented, continues to move into the mainstream in both the development of psychological theory and research.

Some Limited Specifics

It is not possible in these pages to track fully the history of the psychology of religion in the European nations. A few examples should suffice to give the flavor of these efforts. Nineteenth-century beginnings, for example, were most evident in England and Germany. In many nations, the psychology of religion became a viable realm after the Second World War.

England

Science flourished in Victorian England with Darwin, Huxley, Lord Kelvin, Faraday, and Maxwell among others. One major figure who crossed scientific frontiers into both psychology and the psychology of religion during this period was Francis Galton. Credited with the discovery of various statistical methods and the questionnaire method, he conducted studies of the relationship between piety, prayer, and longevity. Contrary to popular belief, he found that pious people did not live longer than their less religious peers. Furthermore, prayer for the great and famous did not lengthen their lives.

In the early to mid-twentieth century, a few individuals stand out. Evelyn Underhill who Walter Clark (1958) called a "convinced and practicing mystic"

(p. 465) wrote extensively about worship and mysticism. Even though she stressed the metaphysical and tried to be psychologically relevant, her writings do not appear to have influenced the psychology of religion.

Robert H. Thouless, a Cambridge Don and psychologist, was primarily an expositor of the psychology of religion from 1923 to the 1970s. While writing main-line texts in the area plus articles in general and social psychology, he was involved in parapsychology and questions about life after death. A number of similar psychologies of religion texts followed those of Thouless, but research studies were infrequent. This situation has been rapidly changing since 1970 with work tying cognition and social and personality psychology to religious activity and understandings.

Germany

If one nation, or many small nations, manifested images of scholarship in the 1800s, it was Germany and the pre-1870 German states. Here, psychological and social-scientific philosophies dominated the European scene with the likes of Schopenhauer, Hegel, Marx, Herbart, and Nietzsche. German psychological science boasted Helmholtz, Goethe, Fechner, and Wilhelm Wundt. The last was at one time particularly concerned with the psychology of religion (Wundt 1916). Despite his elaborate efforts to provide an individual psychological foundation for personal faith, he wrote most about the collective nature of society and culture. Attempts to make these social referents fundamentally individual in nature were not successful, and today his writings would be consigned to anthropology and sociology.

Despite having come from a conservative Lutheran home, his father being a minister, Wundt moved from this beginning to discuss objectively, the “god idea” (Wundt 1916, pp. xv, 352). He believed that “the god-idea resulted from a fusion of the hero-ideal with the previously existing belief in demons” (p. xv). This was explicitly offered as a hypothesis. Though not averse to using the term, instinct, Wundt avoided it when speaking of the human origins and expressions of gods. He did claim that his folk psychology was based on empirical data but this was countered by Haerberlin (1916) who claimed that it was largely a historical construction. Despite its inclusion of strong evolutionary and developmental content, it has never been viewed as

a theoretical work that eventuated in testable hypotheses. Given its temporal distance from today, *Elements of Folk Psychology* stands as a relatively isolated classic philosophic-social science tome. E. L. Schaub, its translator, called it a monumental work and it probably may remain a thing apart with few connections to the psychology of religion, then and now.

Oswald Kulpe, a student of Wundt’s who founded the Wurzburg school, adapted Wundt’s introspective method to the study of religion. Proposing a much broader view of what could be studied than his mentor, his experimental psychology became a general psychology that included the psychology of religion (Allik 2007). In like manner, Karl Girgensohn, a Kulpe student and primarily a theologian, introduced questionnaires and other means of stimulating religious thinking in the laboratory. He is credited with establishing the Dorpat school of religious psychology at the university at Dorpat, Estonia. Prior to 1919, for 200 years this was part of the Russian empire; however, religion, education, local governments, etc., were largely controlled by Germans. Wulff (1985) has extensively detailed how the Dorpat school emphasized work in and out of the laboratory on religious experience.

France

Relative to the French experience, Wulff (1997) offers the most balanced view. He discusses religion in psychopathology citing the work of Pierre Janet and Theodule Ribot who dealt with religious symptomatology in individual patients. Vandermeersch (1994) ignores Ribot and emphasizes psychoanalytic thinkers such as Hesnard who confronted Catholic moral theology relative to sex, sin, and guilt. The Vatican became involved and viewed psychology as essentially stressing sexual morality. After a period of questioning and doubt, the Catholic Church approved of psychoanalysis and used it as a basis for pastoral psychology (Vandermeersch 1994).

The controversial psychoanalyst Jacques Lacan found common philosophical ground with Catholicism and focused on mysticism, ego structure, and function relative to religion.

Though French psychologists such as Jean-Pierre DeConchy have written conceptual and theoretical works in the psychology of religion for some years, this subfield of psychology has little history in France.

Belgian scholars such as Antoine Vergote and Andre Godin, all primarily twentieth-century scholars, are treated as inseparable from the French. The same seems to hold true for the Swiss with Theodore Flournoy and Jean Piaget. All made noteworthy contributions to the psychology of religion. Wulff (1997) and Vandermeersch (1994) describe a French psychology with a strong philosophical-psychoanalytic-theological flair far different from that which developed in the United States.

The Netherlands

The Netherlands is a small country, but according to its premier historian of the psychology of religion, Jacob Belzen (2009), it occupies a unique place among all nations in its treatment of this discipline. Though essentially founded in 1957, in the ensuing 50 years, at least ten professorial chairs in the psychology of religion were created. This is hypothesized to be more than in any other country in the world, a believable inference. The psychology established was primarily empirical (Belzen 1994).

Prior to 1957, during the first decade of the twentieth century, there was much awareness of the psychology of religion in Dutch religious circles, especially that of James, Hall, and their students. The field achieved a surprising popularity, and in 1920 an Association for the study of the Psychology of Religion was founded. Still, the psychology of religion remained under the aegis of religion and theology (Belzen 1994, 2009). Belzen (1994) suggested that its existence as a field by itself was a work in progress.

Scandinavia

Scholars in Denmark, Finland, Norway, and Sweden were surprisingly active in the psychology of religion throughout the twentieth century. Wikstrom (1993) and Holm (2004) have impressively detailed these developments since 1901, when the noted Danish philosopher and psychologist Harald Høffding's writings made religion of psychological concern in Denmark. Concurrently, Nathan Soderblom, a Swedish theologian with broad interests in the social and behavioral sciences worked on conceptualizing types of mysticism. In his writings, psychological influences were examined relative to cultural and historical factors. Focusing on

religious experience, he expressed reservations about William James and downplayed Freudian possibilities. His students and successors continued working on these topics through the 1920s. Despite the fact that the psychology of religion adopted psychoanalytic ideas and increasingly attended to psychopathology and psychotherapy, the area remained under the theological umbrella.

The 1930s saw the inclusion of Jungian ideas and the study of hypnotism, suggestion, and yoga relative to psychophysiology. In 1938, a chair for the history and psychology of religion independent of theology was created in Sweden's Uppsala University. This was a first, yet religious forces continued to dominate the social sciences. The ensuing dozen years witnessed greater interest in pastoral work and the ideas of Alfred Adler entered the study of religious experience.

In 1959, the formulation of a role theory by Hjalmar Sunden rapidly stimulated research and remains today possibly the primary foundation for work in the psychology of religion in Scandinavia. Interestingly, it has significance psychologically and theologically. This is a major characteristic of Scandinavian research. It reflects both into the psychology of religion and theology itself (Wikstrom 1993).

Conclusion

History has few limits but almost always requires a restricting focus. In this effort, that aspect of the history of the psychology of religion most emphasized has been empirical research and theory. Clinical psychological approaches have been seriously slighted. Many American and European thinkers have written about analytic approaches, most notably those of Freud, Jung, and Adler and successors such as Fromm and Erikson. More recently, this work has been supplemented by the object-relation theorists (McDargh 1983). Objective empirical testing of these ideas has been rare though they have often proved useful in pastoral counseling and care circumstances. Unfortunately, these topics have also not been treated here. The complexity of the pastoral realm is well demonstrated by the over 1,300-page *Dictionary of Pastoral Care and Counseling* (Hunter 1990).

Simply put, this article is designed to stimulate readers to examine further the history of the psychology of religion by citing its main sources and directions.

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R

Rank, Otto

E. JAMES LIEBERMAN

George Washington University, Washington, DC, USA



Seiner Salutaris zu seinen Harcourt

Basic Biographical Information

Born: April 22, 1884, Vienna; Died: October 30, 1939, New York.

Ph.D., University of Vienna, 1912. Co-editor, *Zeitschrift für Psychoanalyse* and *Imago*. Secretary, Vienna Psychoanalytic Society.

Born Otto Rosenfeld, second son of an artisan jeweler in a working class Jewish section of Vienna, Rank took his last name from a character in *Doll's House* by

Ibsen, a favorite playwright. His older brother became a lawyer; Otto became a locksmith as his parents could not support higher education for him. A self-educated polymath, he read Sigmund Freud's works, kept a literary-philosophical diary, and wrote a psychoanalytic essay on the artist published in 1907 at age 23. By then, he was secretary of the Vienna Psychoanalytic Society and kept the *Minutes* from 1906–1916 (four volumes, published 1961–1975). Freud funded Rank's education through academic high school and the University of Vienna (Ph.D. thesis on *Lohengrin*, 1912). With a small book *The Myth of the Birth of the Hero* (1909, English trans. 1914) he gained recognition, which grew with the publication of *The Incest Theme in Literature and Legend* (1912), a world survey of 700 pages. Rank helped Freud update *Interpretation of Dreams*, and by 1914 contributed chapters on drama and poetry. His name appeared below Freud's on the title page in the 4th–7th editions (1914–1922), the only person so honored (Lieberman 1985; Taft 1958).

Major Accomplishments

A small, homely, smart, loyal, hard worker, Rank endeared himself to Freud and witnessed the departure of Alfred Adler from the VPS and Carl Jung from the International Psychoanalytic Association before World War I. He was one of the seven members of Freud's "Ring" Committee that ran the IPA. Drafted into the Austrian Army, he served in Poland as editor of the *Krakow Zeitung*, an Army newspaper. At War's end, he returned to Vienna with his Polish bride, Beata Mincer. She hosted social events for the Freuds and became a lay analyst, rising to prominence in Boston after World War II. The Ranks had one child, Helene, in 1919: She became a clinical psychologist and settled in California. Rank headed the Psychoanalytic Press (Verlag) in Vienna and began to treat patients and train analysts. He continued to write articles, reviews, and books, collaborating with Sandor Ferenczi on *The*

Development of Psychoanalysis (1923) that promoted a more active therapy, and *The Trauma of Birth* (1924) that focused on the pre-Oedipal phase and the importance of the mother–child relationship. He visited New York as a celebrity that year, at age 40, becoming an honorary member of the American Psychoanalytic Association.

Tensions built up in the Committee, intensified by the diagnosis of Freud's oral cancer. He tried unsuccessfully to heal a breach between conservatives Ernest Jones and Karl Abraham and liberals Rank and Ferenczi. Having initially praised Rank's latest book as the best innovation since the beginning of psychoanalysis, Freud changed his mind. Rank reconciled for a time but finally broke away, moving with his family to Paris in 1926. He sailed to the USA every year or two until settling in New York in 1934. By then he and Beata had separated. Rank had treated the writer Anais Nin, then became her lover in competition with Henry Miller, whom he also knew and influenced. From 1935, his companion, whom he married in 1939, was Swiss-American librarian Estelle Buel. He taught at the Pennsylvania School of Social Work at the behest of psychologist Jessie Taft, his former analysand, strong advocate, translator, and biographer. He conducted seminars with New York analysts, and lectured widely. His *Psychology and the Soul*, *Modern Education*, *Art and Artist* were followed by *Will Therapy* and *Truth and Reality*, all in the 1930s.

Rank's important contributions to theory include: (1) Attention to the mother–child relationship and separation-individuation, vs. Freud's father-centered sexual psychology; (2) Emphasis on conscious will vs. unconscious wish; (3) Therapy through egalitarian relationship vs. transference toward authority figure; (4) Existential creativity – including shaping one's personality – as a healthy response to death-fear and life-fear; (5) Valuing the irrational and the importance of emotion vs. intellectual insight. Rank was dropped – excommunicated – from the APA in 1930; his American analysands had to be reanalyzed by an approved Freudian or lose APA membership. His ideas about end-setting helped legitimize brief therapy, but were wrongly caricatured as advocating a 3 month formula (Menaker 1982; Rank 1996).

Textbooks and Freud biographies generally give Rank short shrift, misstating the trauma of birth as

a physical event rather than the prototypical psychological separation followed by weaning, walking, etc. For decades, psychoanalysts would not quote or even read his works because he was a dissident. The three-volume biography *Freud* by Ernest Jones (1953–1957) explained away Rank's deviation as mental illness. Many texts dismiss Rank as having little impact on psychology and psychiatry; an important exception is Ruth Munroe's *Schools of Psychoanalytic Thought* (1955). His reputation grew through the writings of Frederick Allen, Ira Progoff, Phillip Freund, Ernest Becker, Esther Menaker, Carl Rogers, Jessie Taft, Paul Goodman, Rollo May, and Irvin Yalom.

Otto Rank applied for US citizenship and married Estelle Buel in August, 1939. He planned to move to California. After a hiatus in writing he composed his final book in English, *Beyond Psychology*, published posthumously in 1941. Never in robust health, he contracted an infection and died at 55 just a month after Freud's death in London.

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Ratner, Carl

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Basic Biographical Information/Major Accomplishments

Carl Ratner is a North American cultural psychologist. For the last 45 years he has published over 200 scientific papers and seven books in the field of cultural historical psychology. He is an active member in many psychological, philosophical, sociological, epistemological, and

methodological organizations as well as on the board of editors of a dozen of scientific journals.

He refuted the mentalistic and abstraction views of culture and argues that “the relationship between culture and psychology is an interaction of mental processes” (1996, p. 407). Ratner shows in his extensive research studies how important the fundamental preconditions of an understanding of reality, truth, and insight are. These preconditions influence our way of thinking, our scientific work, and our ideas about human nature. Ratner states that there is a common *reality* to be understood and we are able to *grasp it*, and *understand it*. Ratner’s theoretical framework is grounded within the dialectical historical materialist conception of history. Like Marx, Ratner argues that social existence precedes consciousness. He applied Marx’s description of the capitalist political economy to psychological issues such as culture, developmental processes, mediational means (tools, signs), and activity. He argues that political economy structures not only our workplaces, but our way of life, belief systems, ways of thinking and behaving, family structures, education, schools, health, food consumptions, shape and weight of our body, consciousness, and ideology. This means, cultural psychology should study the psychology of oppression, class struggle, repression, and exploitation. In other words, psychology “[It] operates within the individual and appears to belong to the individual; however, it actually allows culture to enter the individual and guide his behavior from within” (2006, p. 16). Human abstract competencies are structured, formed, shaped, and curved within socially organized political economy, the dominant mode of production. Ratner concluded that, “We cannot *rely* on our abstract competencies to guide us and give us strength because they have been captured and corrupted. They only hold out the *possibility* of new psychological and cultural forms. But it is up to us to realize this possibility; and we only do so through a critique of concrete forms and an analysis of viable improvements” (2008).

He articulated in a well-defined cultural historical theory Marx’s ideas developed in the *Theses on Feuerbach* as well as *Das Kapital*. He believed that the meaning of truth is not a question of propositions, postulates, and axioms, but is a question of reality. It is not question of theory but a question of practice.

According to Ratner, human individual is embedded in a cultural, social, and historical system (this is the kernel of the sixth Thesis on Feuerbach). Ratner attacked the liberal philosophy for its defense of civil society against new human society. Ratner was aware of the circumstances of concrete life and social reality on the health of human mind and the development of higher mental functions.

Ratner argues that complex problems require complex solutions. In his writings, he tackled many complex issues, such as social injustice, social inequalities, social reform, war, prejudice, fascism, slavery, poverty, terrorism, and social exclusions. Ratner is a very active scholar. He published a series of scientific papers and books on: cultural psychology, liberation psychology, activity theory, Vygotsky’s cultural historical theory, qualitative methodology, epistemology of psychology, Marxist psychology, dialectics, cross-cultural psychology, and indigenous psychology. He lectured in many universities around the world, in Germany, Holland, Denmark, Italy, Russia, Spain, Turkey, China, Belgium, Hungary, Thailand, Scotland, Costa Rica, Poland, France, Canada, Mexico, Cuba, Brazil, Argentina, Guatemala, and Saudi Arabia. In Trinidad, California, Ratner established the Institute for Cultural Research and Education, a world center for training in qualitative methods, educational practice, and cultural psychology.

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Reich, Wilhelm

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Reich, Wilhelm (24 March 1897–3 November 1957), was a psychologist and psychoanalyst, father, medical doctor, a staunch advocate of civil rights and freedom, and best known as a self-proclaimed orgonomist who worked with natural energy within living and nonliving processes.

Basic Biographical Information

Wilhelm Reich (aka “Willie”) was born in 1897 in an eastern part of Galicia (now Ukraine). He grew up on a farm and was home tutored until he was 13 (The Wilhelm Reich Infant Trust 2004). When his father discovered his mother was having an affair with one of the tutors, his mother committed suicide. His father died of tuberculosis in 1914, the same year World War I breaks out forcing Reich to flee from the family farm. He enlisted in the Austrian army in 1915. After the war was over, Reich enrolled in the medical school in Vienna. In 1920, Sigmund Freud indoctrinated Reich, still an undergraduate, into the Vienna Psychoanalytic Association. While completing his education in Vienna, he studied, not only with Freud, but also with Professor Wagner-Jauregg, a Nobel Prize winner in medicine. Wilhelm Reich had a close working relationship with Freud. He became the First Clinical Assistant at Freud’s Psychoanalytical Polyclinic in Vienna from 1922 to 1928, headed the dispensary

from 1924 to 1930, was Vice Director from 1928 to 1930, and later Director of the Seminar for Psychoanalytic Therapy at the same institution. Additionally, from 1924 to 1930 Reich taught a seminar on technique at the Vienna Psychoanalytic Clinic. He gave lectures and conducted research that led to conflicts with some of Freud’s ideas but were generally aligned with his written theoretical principles. Reich would later go on to develop theory and work with professors in Germany, Oslo, and New York (notably, Albert Einstein). He died on November 3, 1957, in a Federal Penitentiary at Lewisburg, Pennsylvania.

Sigmund Freud’s ideas were considered extremely controversial; yet, his young apprentice, Wilhelm Reich, formulated ideas and theories that were far more revolutionary and was, unlike his predecessor, ultimately met with silence and dissension. Reich was an open advocate of communism during the late 1920s while both Sigmund and Anna Freud were not (Rubin 2003). His outspoken views against Hitler and the rise of the Nazi party stirred dissension in both circles. Reich also began to refute Freud’s Death Instinct, a view held in tandem with communist’s ideals at the time. Reich, unlike Freud, believed society should be built to conform to man’s needs rather than man conforming to society’s needs. He gave lectures about woman’s civil rights and advocated sexual freedom. Reich’s outspoken political views had set him apart from Psychoanalysis and were the driving force behind his official expulsion from the International Psychoanalytic Association in 1934 and, ironically, also led to condemnation and denunciation by the communist party.

Major Contributions

Reich helped formulate the basis of character pathology, notably with “The Impulsive Character - A Psychoanalytic Study of Ego Pathology” (Reich 1975). This work was later carried over into Anna Freud’s book, *The Ego and its Defenses*. The development of contemporary theories of personality was greatly impacted by Reich’s work on character pathology, most notably Reich’s idea of Body Armor, a characteristically stagnant set of pathological traits. In *Character Analysis* (originally published 1933), Reich devotes a significant amount of time addressing negative transference and formulated ideas on how to

deal with latent negative transference, making a lasting impression in contemporary therapeutic practice and technique and becoming commonplace in psychoanalytic theory today.

As a psychoanalyst, Reich drew conclusions from working with patients and generalized his experience into theory. From private practice and his pro bono clinical work, he hypothesized an “Orgasm theory”:

- ▶ I believe that my view of the importance of genitality, particularly the genital orgasm, to the theory and therapy of neuroses and of the neurotic character, is a direct continuation of fundamental psychoanalytic theory and makes possible a more consistent application of the theory of neurosis to therapy. *Genitality* (1980)

Reich attests to the somatic function of libido as opposed to the nuanced meaning of libido as a psychic disturbance. He draws from Freud’s book, *The Three Contributions of Sex* (1920), that sexual neurosis is most similar to an intoxicating chemical substance. Reich believed the substance that Freud alluded to was a detectable substance and the driving force of sexuality in which a block (stasis) could lead to neurotic symptoms. He believed the orgasm was a function of regulating the libido, the sexual energy, in a human being. As mentioned in the interview transcribed in *Reich Speaks of Freud* (1967), Reich claims that Freud never strayed from the sexual theory of libido, a theory that lost its luster in the later years of psychoanalysis.

Reich postulated that Orgastic Potency “is to be understood as the ability to achieve full resolution of existing sexual need-tension” (Reich 1980 p. 18); also a term that would later be used in a distortion of Reich’s theory and practice by reporter Mildred E. Brady (1948). Reich makes a strong connection between the mind and body and eventually deviates from psychoanalysis markedly, believing that talking cures were not as effective as treating the body directly. Further experimentation revealed a charge at the skin’s surface that fluctuated with anxiety and pleasure (Reich 1971). From this, Reich discovered a biological type of energy, similar to Freud’s theoretical libido, which existed throughout the body and the atmosphere. He called it orgone. By working directly on the body, Reich believed he could cure ailments related to the stress a person experienced and retained in the body, much like a deep-tissue body massage (Reich 1949). After years

of research, Reich claimed that this energy helped maintain a homeostasis in human beings and the environment, a disruption and lack of which could result in cancer developing in the body or desertification on earth (The Wilhelm Reich Infant Trust 2004).

Controversy

Numerous slanderous articles were written that yielded no effort to administer any recognized objective scientific study or experimental reproduction; however, some of these efforts, particularly the Brady article, were successful in evoking a judicial response. In 1954, the Food and Drug Administration (FDA) filed a complaint for an injunction, later granted by default, ordering that various materials and books could no longer be distributed. A violation of this injunction by an associate of Dr. Reich ended with the incineration of a gross amount of literature and materials. This incineration had destroyed Reich’s *Character Analysis*, written well before any reference to orgone, and a book that is still used in psychoanalytic schools and widely referenced in a number of books, notably Nancy McWilliams’ *Psychoanalytic Diagnosis* (1994). Because Reich did not properly respond to the court, the injunction was issued without any scientific investigation as to the validity of the FDA’s claims.

In mainstream psychology, Reich is often blacked out or rarely mentioned in lieu of other psychoanalysts with numerous eccentricities (Carl Jung and Melanie Klein are still widely taught). Most of his books have been reprinted and are now available, but this is after a condemnation and suppression of his literature (The Wilhelm Reich Infant Trust 2004). There is still no objective scientific study that is recognized by academia or the scientific community to clarify the validity or falsity of Reich’s more controversial claims.

Wilhelm Reich was an idealist and believed he could defend his theories and findings in a scientific venue, thinking it would be ludicrous to have a courtroom judge science. Very few men and women have stood their ground in the face of overwhelming opposition. Reich was a man who openly spoke against fascism when it was heresy to do so, did pro bono psychoanalytic work, spoke in favor of better housing conditions, divorce rights, birth control, and equal rights well before the civil rights movement. Reich shared the prominence of the psychoanalytic circles in Vienna

later to be silenced and censored, not only by the Nazis, but also by the FDA in America. Wilhelm Reich died in prison in 1957 and is widely known today as founder of the “orgone pseudoscience” that is strewn over the Internet rather than a psychoanalyst and the victim of FDA censorship.

See Also

- ▶ [Dynamic Theories of Personality, Classical, Post-Modern, and Person-Centered](#)
- ▶ [Freud, Anna](#)
- ▶ [Gestalt Psychology](#)
- ▶ [New School for Social Research, History of Psychology at](#)
- ▶ [Psychoanalysis](#)
- ▶ [Social Psychology](#)

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Religion and Early Norwegian Psychology

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Introduction

One may say that three figures constituted and formed the very early modern Norwegian psychology.

These were Johan Ernst Gunnerus (1718–1773), Niels Treschow (1751–1833), and Johan Sebastian Welhaven (1807–1873). Despite the fact that they had three quite different positions in the Norwegian society, and covered more than 150 years, they also shared some common aspects. One of them was that they were all influenced by the German idealism, the other was that they were pioneers in academic psychology, and the third was that they were all theologians. The fourth aspect they shared was that Lutheran theology seems to have been a premise for how their psychology was shaped.

What Lutheran theology is or is not is an open question. In a profound study on secularity, the Canadian philosopher Charles Taylor presents three different definitions of changes in religious worship that came out of the reformation in Western civilization (Taylor 2007). One is the emptying of the public space of religion, the other is the decline of general belief, and the third is the changes of opinions of what it is to believe. It is the third definition Taylor primarily is pursuing in his investigation, and this is probably also a definition, which summarizes some of the core aspects of the entrance of the modernity. This definition does not deny religion as a part of the modernity, but it focuses on the changes of religion's role. According to Giddens, the doubt must be said to be a salient trait of a modern critical reasoning in general (Giddens 1991/1996, p. 11), and of course, the doubt must be said to be an important aspect of the religious faith within the framework of the modernity.

In this perspective, one may say that reformation in many ways grew out of the entrance of the modernity. Also Lutheranism represented a change in the opinion of what it means to have a belief. It was not longer sufficient just to be a part of a society, which was more or less ruled by the church. In addition, it was necessary to have an individual faith, which ended up in a certain confession revealing the faith as personal. Doubt stands in opposition to faith, thus it is a term that more or less defines faith counterfactually: faith is a state of absence of doubts. Doubt, therefore, is a precondition for confession and faith also in Lutheran Protestantism.

In this entry, I will focus on these aspects as a kind of background for the rise of the very early modern psychology in North Europe in the eighteenth century. By focusing on the three pioneers in Norwegian psychology, one may say they are very much representing

the North German Lutheran enlightenment. This is certainly true for Gunnerus, who in 1742–1744 studied in Halle when Christian Wolff was still active as a professor. After having been abroad for several years, Gunnerus was in 1758 offered a position as bishop in Nidaros, in which Trondheim was the center (Gunnerus 1758b). To him this was an opportunity to establish a scientific society in Norway. This was a kind of society he knew very well from Jena, where he also studied and had been working for some years. In his Episcopal letter from 1758, he proclaimed that he would establish this scientific society in which several topics were supposed to be focused on – not at least empirical psychology. Thus, Gunnerus represents a Wolffian tradition when it comes to psychology.

Treschow, on the other hand, published in 1812 a book in psychology with the informative title: “About the human nature in general, especially its spiritual aspects.” This is presented as a “psychological anthropology,” which mirrors the turn of perspective on psychology launched by Immanuel Kant. The book, however, demonstrates some interesting aspects of the relation between theology and psychology. One important aspect is that psychology is considered as something quite different from theology. This implies that “spirituality” is not referring to the religious sphere, but different aspects of the mind in a very broad sense of the word. As a theologian he also wrote a book about the spirit of the Christianity (Treschow 1828). In this book, on the other hand, a lot of psychological issues are thematized.

Welhaven represents an anti-Hegelian form of German Idealism, which can be seen as parallel to Søren Kierkegaard’s existentialism. There were some relations between the two, and Welhaven’s psychology is very much an attempt at combining religious faith with subjectivity. In this sense all the three Norwegian psychologists are closely related to three quite different continental philosophers, where all of them contributed with great impact on the development of psychology. The perspective on this entry, however, is the close relationship between their psychology and corresponding movements in theology.

Lutheranism and Early Modernity

There are a lot of aspects that open up for the reformation of the church in the sixteenth century. One may at

least mention three different perspectives: A political, a theological and an existential. The political aspect might be traced in a very close relationship between the powerful European Medici-family and the papacy. Pope Leo X (1513–1521) was Giovanni de Medici (1475–1521) (Luther 2004, p. 33), and the Italian Medici-family had great impact, not only in Italy, but also in many of the other important European countries. The big discussion about sale of indulgences is also to be understood in a political perspective. The church’s management of the indulgence had some important theological aspects too. These were Martin Luther’s (1483–1546) main goal in his attack on the papacy. The existential aspects must be regarded as a consequence of all these political and theological issues. The changes in politics and theology had great impact on how the individual lived their lives.

During the middle ages, the prevailing form of Western Christian penitential exercise consisted of four different aspects. (1) The sinner had to feel anger (*contritio* or *attritio*). (2) This was followed up by a confession (*confessio*) by the one who do penance. (3) Then the priest replied with forgiveness (*absolutio*). (4) The penitential candidate then had to follow up with satisfactory acts and behavior (*satisfactio*) (Luther 2004, p. 34).

According to Luther, the 95 theses from 1517 represented a spontaneous reaction to a practice he was quite sure did not have its legitimacy from the Pope (Luther 2004, p. 25). He had no idea that the theses should cause such a great discussion, persecutions and end up with a new branch of Christianity. The three opening theses present the theological foundation for the rest of the theses. In addition, the three theses define very much the changes in the understanding of the church. The sale of indulgences was legitimized by the canonical rules administrated by the clergy, and the church was defined in terms of those rules, whereas Luther tried to define the church in terms of the congregation consisting of individuals.

1. Our Lord and Master Jesus Christ, when He said *Poenitentiam agite*, willed that the whole life of believers should be repentance.
2. This word cannot be understood to mean sacramental penance, i.e., confession and satisfaction, which is administered by the priests.

3. Yet it means not inward repentance only; nay, there is no inward repentance which does not outwardly work divers mortifications of the flesh. (Luther 1915).

“Repentance” is the key word, which summarizes the relationship between the mankind and God. Because of the fall of man, there is an insurmountable gap between God and mankind. Christ restored this relationship, but not without man’s anger and repentance because everyone is an unforgivable sinner. For Luther, the crucial question was to clarify the differences between the roles of the church and the individual. This is what is stated in the three first theses. There are some forms of repentances that are administrated by the clergy on behalf of the individual. The third theses, however, point out that the individual is obliged to do repentance both as an inwardly spiritual act, but also as a visible act to control the flesh.

According to Luther, the most fundamental aspect of a religious life is faith. “Faith is God’s work in us, that changes us and gives new birth from God” (John 1:13) (Luther 1854, p. 28). Thus, faith presupposes that the individual has admitted a need for God’s grace to restore the relationship to Him and by this obtains faith. Repentance must be said to be the act in which the need for this is admitted. Thus, repentance presupposes a certain knowledge about man, especially that everyone is a fallen sinner. According to Luther, sin is not only a question about how people act, but even more about how they think and their whole attitude, expressed by the terms “heart” and “spirit.” The knowledge that was required was primarily about man’s nature: its drives, needs, volitions, thinking, etc. Thus, the aim of this entry is to examine if psychology was the subject to provide this kind of knowledge about man’s nature.

Gunnerus and the German Enlightenment

The Norwegian bishop Johann Ernst Gunnerus (1718–1773) must be said to be the one that published the first Norwegian thesis in psychology (Gunnerus 1757). This thesis, however, was a part of his metaphysics, which at that time normally included psychology in addition to ontology, cosmology, and natural theology. Gunnerus founded the royal Norwegian society of

science in 1760, contributed a lot in botanics, and must be said to be a true polyhistor. He studied abroad, primarily in Copenhagen, but also some years in Halle before he graduated in Jena in 1748. After that he wrote several volumes on nature and international law, lectured in Hebrew at Copenhagen University before he became bishop in Trondheim in 1758.

The most important aspect of this very short biography is the fact that he spent 2 years in Halle (1742–1744). At that time, Christian von Wolff (1679–1754) had returned to his position as a professor. He had to exile from Halle 20 years earlier because of a conflict with his pietistic colleagues, but the new king of Prussia, the more open minded and a spokesman for the enlightenment Fredrick II, invited him to come back. Wolff had so great impact that he “acted as a kind of philosophical educator of his nation” (Copleston 1964, p. 135). His main contribution to philosophy and the reason for why he came in conflict with pietism was his rationalism, which, among other things, underlined the importance of natural theology.

The philosophy of Wolff is very often described as a reproduction of Leibniz. It was a contemporary, Georg Bernhard Bilfinger (1693–1750), who first launched the term “Leibniz–Wolffian philosophy” (Copleston 1964). Wolff rejected this combination, but it is still in use. The difference between Leibniz and Wolff is first of all connected to the monadology. Wolff understood it in another way, and did not refer very much to it. An even more interesting difference between the two, however, is the understanding of metaphysics. Wolff’s radical contribution to metaphysics concerns two aspects. One is the way he systematized it. He defined the four parts by dedicating one or two volumes to each one of them: ontology (1730), cosmology (1731), psychology (1732/1734), and natural theology (1736/1737). The other aspect is that psychology became so important that it required two volumes instead of one. This way to systematize metaphysics influenced his contemporaries, not at least Immanuel Kant, but also to an even larger extent, Johan Ernst Gunnerus.

The empirical psychology was about the relation between the sense impressions and our ideas. It was a generally accepted opinion since Aristotle proclaimed that all our ideas stem from sense impressions. Sense impressions, however, were subjective and singular, so

to get general and objective knowledge, the mind had to be involved. That is the reason why Leibniz refused sense impressions as sources for scientific knowledge (Leibniz 1985, p. 309). Wolff changed this by investigating how subjective sense impressions constituted our notions (*psychologia empirica*) but also how our notions and concepts represented a general knowledge (*psychologia rationalis*). Hence the *psychologia empirica* and the other three parts of the metaphysics must be said to be a kind of handbook in scientific methodology, which is underlined by the subtitle: *Methodo scientifica* (Wolff 1732/1738).

This must be said to be the point of departure for Johan Ernst Gunnerus. His *Metaphysica* from 1757 is by himself regarded as a methodology, which on the one hand summarizes his theological and anthropological perspectives. On the other hand, it formulates the fundament for his activities in natural sciences. This is exactly what Gunnerus is known for. His *metaphysica* and the eight volumes in nature and international law are not known at all, but his contribution to natural science, which he developed in close collaboration with Carl von Linné, is highly recognized. There are no doubts about the importance of his contribution to botanic, but the fundament for this activity is given by his *metaphysica* in which *psychologia empirica* has a very special role.

One may say, therefore, that Gunnerus' theological background might be traced on two different levels in his scientific activity. One is the fact that his scientific activity is primarily legitimized in *theologia naturalis*, which also by Wolff is subtitled with "Methodo scientifica" (Wolff 1737). This is the part of the metaphysics, in which it is argued that God is revealed, not only in the Bible, but also in nature. This is exactly how Gunnerus formulates himself, especially in his letters to Carl von Linné. The first letter opens like this: "Since Trondheim is so rich when it comes to the nature, especially fish and seabirds, [...] I have started to collect almost everything that have come to me, and I have done my best to regard this as glory to the eternal name of God" (Amundsen 1976, p. 1). This is a perspective on nature, which apparently does not have much in common with modernity or Protestantism. Thomas Aquinas opened up for the same theological thinking in the sense that he referred to the fact that God's existence is confirmed through nature because

nature is a consequence of his creative acts (Thomas Aquinas 2001, p. 281ff).

There is another aspect, however, which represents a reformatory perspective to a larger extent. This is given by the interest in human nature: its affects, drives, volitions, and notions. This is exactly what is focused on in the empirical psychology: "In my main thesis or metaphysics I have presented a complete science about affects, and brought this confusing area into complete order" (Gunnerus 1758a, s. 54 f). On the one hand, to have an understanding of the role of affects is central when it comes to the scientific method, because all these aspects represent a kind of filter with great impact on the sense impressions. In addition, however, all these aspects imply a kind of incompleteness of the human nature, both when it comes to its notions, but also when it comes to its volitions. Thus, our knowledge appears as incomplete when it comes to the world we live in, and it is probably even more incomplete about the transcendental. To have an opinion on that can only rely on faith. Thus, faith is the only means for prevailing an idea of the need of God. This coincides with what Luther focused on.

Treschow and the Anthropological Psychology

Niels Treschow (1751–1833) must be said to be an influential figure in Nordic philosophy. When the University of Oslo was founded in 1811 he became the first Norwegian professor in philosophy. Before that he had been professor in philosophy in Copenhagen since 1803. He also was the Norwegian minister for education and church affairs from 1814 to 1825. In regard to his philosophy he was a bit influenced by Kant's critical philosophy, but one may trace some differences too. He rejected Kant's conclusion about our ignorance of the objective reality (Treschow 1798, p. 81), but also his interests in religion as an overall important aspect of a normal human life indicated a difference between the two.

In this matter Treschow's perspective differed from Gunnerus' too. "Natural theology" is still referred to, but is regarded as more old fashioned and is therefore connotated more negatively. The reason is that natural theology implies a kind of philosophical system that lies behind the theology. Despite the fact that Treschow developed his own philosophical system, he would not

combine it directly with theology (Treschow 1828, p. v). This is probably a consequence of Kant's critical philosophy. According to Kant, the idea of God must be said to be a "regulative principle" (Kant 1781b/1974, A699/B727), which influences all our thinking, but is not a part of the philosophical reasoning. According to Treschow, the true understanding of religion is given as a consequence of the Scripture alone. In that sense he is a true Lutheran. Not in the sense that Luther was the only one to preach the truth, but in terms of the fact that he opened up for everyone, even the layman to go to the Scripture itself to find out what is wrong and what is right (Treschow 1828, p. III). This is a rational theological perspective due to the age of enlightenment.

One may say there is a close connection between what Treschow says about religion and religious life on the one hand and his psychology on the other. Although Treschow did not adhere Kant's critical philosophy, he was quite influenced by him anyway (Treschow 1798). This is also true when it comes to the psychology. In opposition to Gunnerus, Treschow's psychology is not formulated as a part of metaphysics, due to what Kant had claimed. Kant said that psychology did not belong to metaphysics at all (Kant 1781b/1974, A848/B876). He did not acknowledge psychology as a science either (Sturm 2001, Makkreel 2001). Instead he defined psychology as a part of his anthropology, which also was the last book he wrote (1798). This publication had a more amusing tone, too. Treschow followed up this in the sense that his psychology is primarily anthropology and it does not pretend to be a science (Treschow 1812).

The psychology of Treschow must be understood in terms of three different aspects. On the one hand, the content is very close to what had earlier been defined in terms of *psychologia empirica*. Generally, this is an understanding of how knowledge is acquired through sense impressions. But this is a kind of knowledge which is very much depending on the man's nature – including its weaknesses and strengths. What Kant did was to highlight these anthropological aspects of the empirical psychology. This is the second aspect, namely to define psychology in terms of anthropology. Despite the fact that Treschow is critical to Kant, he is following up this definition of psychology. Hence, psychology is regarded neither as a science nor a basis for scientific

methodology. The third aspect is about the relationship between psychology and theology. The changes in belief after the reformation weakened some of the bounds between the two. Natural theology did not form a basis for Treschow's psychology. In his book about Christian spirituality he is explicitly distancing himself from natural theology (Treschow 1828 p. v, see also p. 45). But the reformatory theology was even more focused on the man's nature, which required an anthropological understanding as a basis for theology. This implied that Treschow's introduction to religious spirituality involved more psychology (Treschow 1828) than his introduction to psychology involved theology (Treschow 1812).

The theological challenge therefore was to reconstruct a sort of relation between man and God despite the fact that there is almost impossible to trace any relationships between the two. The Lutheran answer to this challenge is "faith," which is intimately related to the psychological, or anthropological term "spirit." This is why this term is so central in Treschow's two books on religion and psychology (Treschow 1828, 1812). The two books, however, are referring to at least two different forms of spirit. The religious spirit refers to a living faith, which represents something more than empty rituals (Treschow 1828, p. 28). Psychological spirit, on the other hand, is a bit more complicated. Treschow presents several different meanings, which all represents a mixture of different aspects of the personality and the mind (Treschow 1812, p. 23). The point is that spirit is very much connected to the subject, and in that sense primarily represents the individual.

According to Treschow, however, subjectivity is neither satisfying nor sufficient. The reason is that subjectivity represents the individual and therefore is fragmented. In addition, there must be something that unites all the diversity connected to subjectivity. In this matter, Treschow repeats very much Leibniz' famous reply to Locke. The consciousness is immediately given, not through senses, but as something self-evident. It has no reason to exist except for the fact that we are conscious. Thus, what we immediately register as consciousness is at the same time the reason for the consciousness. This is the objective aspect of the consciousness. It represents on the one hand the subjective and fragmented individuality, but on the other hand,

the fact that we are able to conceptualize our consciousness is at the same time the objective reason for its existence. “Without an objective reason the consciousness is anyway incomprehensible” (Treschow 1812, p. 24).

This implies that the conception of God is not to be regarded as an issue for the psychology. The soul is not the human entity that reflects God, the human counterpart to God’s order or something that transcends this world. On the contrary, the soul is an immanent entity, which unites the human mind with the body: “A spiritual being combined with an organic body is what is called a soul” (Treschow 1812 p. 29). In other words, the *psychologia rationalis* says something about the spiritual or intellectual mind, whereas the *psychologia empirica* tells us about the relationship between the spiritual mind and the sensual body. The empirical psychology is primary about ideas acquired through sense impressions, which requires knowledge about human nature. This is probably the reason why *psychologia empirica* changed from being a kind of scientific methodology to become anthropology.

One may say, therefore, that theology is not very much included in psychology, but the opposite: Theology seems to presuppose a certain psychological competence. This is very much true when it comes to Niels Treschow. In his book about “The Spirit in Christianity,” he refers very much to the human nature and psychological concepts like “soul,” “ideas,” “experience,” etc. To be a Christian, everyone has to know about the limitations of the human spiritual mind, about the deceptions in notions, thinking, feelings, volition, drives, and passions. All these topics are, however, exactly what Treschow’s book on psychology from 1812 is about. This explains probably one aspect of the close relation between psychology and metaphysics. But there have been a lot of changes from the scholastic thinking and psychology in the early nineteenth century. This is probably also the reason for the change in the identity of psychology, from having been a sort of scientific methodology to become anthropology.

Welhaven and Anti-Hegelian Psychology

Like the two forerunners, Johan Sebastian Welhaven (1807–1873) was also educated in theology. He is, however, most famous as a Norwegian poet, and very

few recognizes that he was an important professor in philosophy. Even fewer are aware of the fact that he regularly gave series of lectures in psychology for more than 25 years. The reason for this collective oblivion is that he had very few publications in philosophy, and almost none in psychology. What is left is just some of his student’s notes from his lectures, in addition to one thesis he wrote by himself: “Metaphysics in 100§§” (Welhaven 1965). This thesis is apparently in the tradition of Wolff as psychology was regarded as a part of the metaphysics.

One may ask, however, if Welhaven really was up to date in regard to contemporary philosophy. This question can be raised by the fact that he does not refer very much to Kant and his writings are apparently pointing at Wolff. This implies that he might be considered as a very conservative philosopher. This is, however, not a necessary conclusion, and must be said to represent a more superficial understanding of him. A closer look at his metaphysics reveals that he is not following the traditional four parts, which are ontology, cosmology, psychology, and natural theology. He presents a lot of aspects of all of the four parts, but what he primarily attempts at is to demonstrate how shortcoming ontology, cosmology, and natural theology really are as a basis for acquiring knowledge. Thus, he more or less stands left with psychology.

Welhaven is focusing on psychology because it is the only reliable field that stands left in metaphysics. Especially when it comes to theology, there will be no evidence for the existence of God neither through ontology, cosmology, or natural theology. The reason is that all these fields, but especially cosmology, presuppose a suggestion of causality to end up with an idea of the Absolute as the first mover. This inference, however, represents circularity because the dependency of the reality is something our minds presuppose and therefore project into the reality (Welhaven 1965, p. 24, §18). The Absolute, in other words, depends on a subjective reason in the sense that we presuppose that everything in the reality must depend upon something independent. Thus, our suggestion of the Absolute appears as if it is something necessary given in our intellect (*forstand*), but it is not. It is depending on a subjective suggestion. Thus, we talk about faith instead of knowledge when it comes to the concept of God.

This means that subjectivity is the only reliable ground for assuming the existence of God. Thus in metaphysics, psychology is the only part that treats subjectivity. Welhaven's metaphysics, therefore, considers all the aspects of traditional metaphysics, but they are all treated in a way that ends up with psychology because psychology is the only field that says something about what it all depends on, namely, the individual subject. Associations to the Danish philosopher Søren Kierkegaard (1813–1855) are highly motivated. They knew very well about each other, and they had a reciprocal influence upon each other. How tight this relation really was is an open question. Some historians have documented that Kierkegaard referred to his "good friend Welhaven" for having applied the term "existence" for the first time in an attempt at describing a philosophy which focused on questions about the art of living (Slagstad 2001. s. 89). They also shared an interest in attacking Hegel and Hegelianism (loc. cit).

Religion and Psychology in Early Modernity

If we now reconsider this development of early Norwegian psychology, one of the most striking conclusions to be drawn is that it mirrors some aspects of the development of the continental German psychology. There are clear similarities between Gunnerus and Wolff, not only when it comes to psychology, but also when it comes to theology. Wolff was first of all a free minded and open Lutheran due to his central position in the German enlightenment. This open-mindedness was something that characterized Gunnerus as well. One may say that Gunnerus was the one who imported the German enlightenment to Norway. His contributions in science were superior to his contributions in theology, and as a part of the metaphysics psychology was regarded as the methodological basis for doing observations in science. By opening up for subjective observations, psychology must be said to be a true child of the enlightenment. The other parts of the metaphysics, especially natural theology, neutralized this subjectivity. In this first phase of modern psychology, one may say that the theological aspects were not an issue to discuss, but taken as something given and explicitly articulated in the natural theology.

This perspective changed very much with Immanuel Kant. His refusal of empirical psychology as relevant to

science implied that he left no space for it in his *Critique of Pure Reason*. Instead, empirical psychology was defined in terms of anthropology. Although Kant included observation as an important aspect of acquiring scientific knowledge, he did not call it psychology, but discussed it under the heading of "aesthetics." Natural theology was definitely thrown overboard and replaced by God as a regulative idea. Hence, God and the Holy Scripture were regarded as irrelevant to science. Niels Treschow was the one to introduce this new thinking of Kant – first in Denmark and then in Norway. He was also a liberal Lutheran theologian, with apparently more interests in philosophy and cultural affairs than in theology. Although he had some objections to Kant's philosophy, he was highly influenced by defining psychology in terms of anthropology. Leaving natural theology aside was also a perspective adopted from Kant. This created a sharp distinction between psychology and theology in the sense that his psychology is not referring to theology. His theology, on the other hand, is very much referring to psychology. To have an insight in human nature seems to be a vital question in theology. One may say, therefore, that there is an important change in the religious perspective at this time. God is not revealed in nature as an objective entity, but through the individual believer's faith. Thus, the cultivation of faith is primarily a question of how to avoid doubts. This presupposes a control over thinking, which requires insight in the human nature, not only in regard to the mind, but also in regard to having an understanding of the body. The understanding of faith as a consequence of an understanding of the human nature required of course deep anthropological knowledge. This unilateral relationship between psychology and theology still can be traced in the sense that preaches very often involve psychological considerations, whereas psychologists more rarely refer to theological issues.

In his *Critique of Pure Reason*, Kant attempts at restoring objective knowledge. In this sense, the book can also be read as a reaction to what *psychologia empirica* opened up for. By the twelve categories of the intellect one may say he managed to form a basis for objective scientific knowledge. Although the thesis can be read as an answer to the subjective challenge of the empirical psychology, Kant did not avoid the

challenges of subjectivity. What he did was to place subjectivity in categories and under headings beyond science. The *Critique of Judgment* (Kant 1790) is one place where subjectivity is discussed. Despite the fact that an aesthetical experience appears as if it brings in new knowledge, it is not scientific. Consequently, this form of subjectivity is put aside from what is called science. The same is true for the anthropology, which is the other category of subjectivity (Kant 1798/2006). One may say that Welhaven's contribution is a reaction to this marginalization of the role of subjectivity. Thus in contrast to Treschow, Welhaven introduces God as an important aspect of the psychology. Our conception of God is just given by the faith and must therefore be regarded as the most superior form of subjectivity. This is exactly what Søren Kierkegaard does in a more consistently and elaborated way. To him, empirical psychology represents a direct point of departure in his argumentation for subjectivity (Kierkegaard 2009).

In this regard, we can see that psychology, religion, and the relationship between them went through three very different phases during the early age of modernity in the German-influenced North Europe. Psychology started as a basis for applying modern scientific method, and by this opened up for observations. In addition, psychology was regarded as a science in itself. Then it was separated from science and defined as anthropology. In the third phase, it was focused on subjectivity, which on the one hand was based on the anthropological aspects of psychology, but on the other hand did not separate it from science. The same sort of subjectivity was regarded as a factor both in anthropology and science. In the same period, religion was first regarded as an objective entity given in the nature as well as in the Scripture. In the second phase, religion and nature was totally separated, which implied that also religion and science were separated. Whereas religion was not so much included in psychology, psychology was very much included in theology. In the third phase, religion was very much defined in terms of the individual's faith, which also highlighted subjectivity. The relationship between religion and psychology in these phases must be said to be very close, but very different as well. In the first phase religion was regarded as a basis for psychology, in the second the two were parallel but independent to each other, whereas in the

third phase one may say that psychology formed the basis for religion.

Each of these phases lasted for about 50 years. The first one was introduced by Wolff's *Psychologia empirica* from 1732. This opened up for a very hectic period, which ended with the introduction of Kant's critical philosophy at the beginning of the 1780s. Both Welhaven and Kierkegaard started with their lecturing and writings in the late 1830s. The three phases must be said to be so different that they have their own characteristics. The first one might be called the "idealistic." It is very influenced by Leibniz' idealism in regard to both religion and psychology. The second phase coincides with the highpoint in the era of the enlightenment and must be said to be the "enlightened." The third phase then is the era of "subjectivity."

Conclusions

The announced aim of this entry was to examine if psychology contributed with the anthropological knowledge required by theologians due to the reformatory theology in early modernity. Although three very different phases of the development of modern psychology has been revealed, one may conclude that reformatory theology played a role in all of them, but also that psychological knowledge seems to have been even more important to theologians in all the three phases. As doubt defined the entrance of the modernity, doubt has been a running theme in both theology and psychology in this period. In theology doubt has been a very clear premise for the faith, whereas in psychology doubt must be regarded as a premise for the subject itself. One may even say that psychology is the subject that thematized the doubt by opening up for an investigation of subjectivity. This started with Wolff, and was fulfilled with Kierkegaard. The two Norwegian scholars, Gunnerus and Welhaven, respectively, mirrored their positions. One may say that Kant in one respect represented an intermediate phase by redefining an objective basis for knowledge, as Treschow also did in Norway. On the other hand, Kant is the one that has dominated philosophy for the future, and especially philosophy of science. Psychology, however, was on the way to be released from philosophy in the late nineteenth century. Thus, the challenge of subjectivity, which was introduced by *psychologia empirica* and followed up in a consistently way by Kierkegaard, seems still to be an

issue in psychology. Hence, the very early period of modern psychology tells us a lot about what psychology is about, and not at least that it stands in a natural relationship with religion.

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Rettig, Salamon

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Basic Biography

Salomon Rettig was born to a Jewish family in 1923 in Berlin, Germany. His father worked as a salesman and his mother was a live-in maid until the advent of Nazism. Each member of the Rettig household managed to successfully escape the Nazis and establish “a second life” in another country. In Germany, his family was largely socially isolated because of the rampant Anti-Semitism that included acts of violence directed toward Jews. Rettig had few social interactions with other children as nearly all of his schoolmates belonged to the Hitler Youth. Nevertheless, he was an excellent student, and his academic abilities literally saved his life.

At the age of 11, his father and brother had successfully fled the country. His mother placed him in an orphanage hoping that the orphanage might select him

to be sent to Palestine. Three years later, he was indeed selected and sent to Palestine because of his academic “promise.” Shortly afterward, the Nazis disbanded the orphanage and all the children and staff were sent to concentration camps. Feelings of depersonalization and traumatic memories of Nazi Germany have persisted throughout his life and thoughts of the Holocaust continue to be a daily occurrence.

Salomon Rettig lived in a Kibbutz that he found refuge in for 10 years before coming to the United States. In the early 1950s, while working as a busboy at a Poconos resort, he learned English and met his first wife. They moved to New York, where he attended Harlem Evening High School, NYU, and later Temple University in Philadelphia. His Doctoral work was completed in 1956 at Ohio State University after only 3 years in the graduate program. He then joined the Department of Psychiatry at the Ohio State University for the next 11 years, achieving full Professorship in the department. In 1967, he was invited to join the department of Psychology at Hunter College of the City University of New York, where he is still working full time as of this writing. In the ensuing years, Dr. Rettig has published over 75 articles, most of them as primary author and a book on discourse analysis. The book was published by the Plenum Press and is titled: *The discursive social psychology of evidence: Creating symbolic reality*. This substantial body of work has received recognition in both the United States and abroad. Two of Salomon Rettig’s most valued experiences were Visiting Professorships at Tel-Aviv University in Israel and the A.N.S. Institute of Social Studies, in Patna, India.

Major Contributions

His publications cover a period of over 60 years, and the content of those 75 publications have varied considerably. His early work involved the perception and self-perception of professional and nonprofessionals, which was first published in 1956 and continued into the 1970s. The area of research involved nearly 50 primary author publications and cemented his quick rise from graduate student to full professor at Ohio State. During the later end of this period, these publications focused increasingly more on morality and alienation. Of this work, two subtopics clearly stand out: ethical risk taking and changes in moral values over generations. His work on the “risky shift”

phenomena was controversial as he argued that an individual’s willingness to take chances or behave in an extreme manner was not some indefinite pull of the group to de-individuate the person/subject but rather best accounted by the individual calculating the degree of censure and gain. In the group, the degree of censure is appreciably underestimated, the person/subject feels less vulnerable, and the amount of gain becomes the focus instead. The individual behaves less responsively because he/she believes there will be lighter penalties for their trespasses.

The individual experiences the group not as a “herd” confounding rational thought but rather as a protective guard that allows the individual to be more self-serving and less concerned with the consequences of their actions. His work continues to be cited almost a half of century later and has gained attention among a range of applied topics such as the judgments of professionals and fertility research.

Rettig’s work on generational changes in morality is still cited in textbooks and on chapters in moral development and judgment. The first publications examined social responsibility among low-pay and marginal status employees, a neglected group in the mid-1950s, and the research was later expanded to include a full range socioeconomic groups. The shift in moral values in groups and through generations became a more prominent focus in the early 1970s and continued to be a topic published upon until 1990. Rettig’s work looked at generational changes in morality among American College students from the 1920s until the 1980s, employing multiple samples over generations in different countries, including Korea, Israel, and the United States.

During this period, he published several articles critically examining life in the Israeli Kibbutz. Rettig’s work noted as early as the mid-1960s that critical differences exist on values such as affluence, religion, and family principles between first generational Kibbutz workers and in subsequent second and third generations. The moral outlooks of kibbutzniks converged with other non-collective farmers. The third generation Kibbutz children engaged in the stealing of cars and drug use, and police interventions were needed which were unheard of with the first two generations of Kibbutzniks. Also, what seemed to emerge with the third generation of Kibbutzniks was the emphasis on personal gain. The acceptance of

having few personal choices and the demanding routine of Kibbutz life declined as later generations believed less in the common good and that the Kibbutz was a superior society. The Kibbutz was an unrealizable utopia, as founding members could not convince future generations to greatly restrict personal freedoms for the common good. The amounts of restrictions on the self were perhaps unreasonable for generations who were not directly threatened by the devastation of the Holocaust. The Kibbutz movement exists today because it was able to initiate dramatic changes such as introducing private property and outside labor.

In the late 1980s, Rettig's work became less empirical, focusing on hermeneutics, in particular with how people understand, convey information, reach consensus, and create meaning. Rettig began publishing on the topic of discourse analysis, which is not interested in developing predictive laws but rather a mutual understanding of the reality of individuals. The jury system became one his exemplars, particularly how jurists, strangers to each other, might interpret facts or decide what exactly should be called facts, and then reach a consensus about guilt or innocence of the plaintiff. In the juror system as in everyday life, the perception or belief in true consensus, whether others authentically agree becomes important a basis of validation of social facts. His work addressed a number of famous court cases, such as the Levin-Chambers and O.J. Simpson case, but was interested in consensus formation in general and not as it only pertained to the legal process. These included death, organ donation, and designer babies, a topic which his early work on the "risky shift" is still cited.

Salomon Rettig's work from 1988 has shifted from "empirical research" (which he still considers quite valuable) to hermeneutics and discourse analysis that has been neglected by psychologists in the United States. Rettig has been strongly concerned with issues in the "social epistemology" in human subject research in Psychology, particularly the process of discovery and verification of discursive evidence in the construction of meaning. The core tenant in his work is that human behavior is categorically different from the type of physical phenomena studied in the natural sciences. His argument has always been that the researcher's interest, values, and presence can never be fully removed from the experiment or the study. The

researchers' influence on subjects needs to be acknowledged and incorporated in the discovery process. The experimenter to subject relationship is similar to any other interaction between human beings, nearly all of which involve significant normative considerations.

A second difference between social and "natural phenomena" is that humans understand and communicate that understanding of the world through language. Humans build the world of meaning by means of language usage that expresses desires and motives that require understanding. Hence, language usage is not reducible to solely biological correlates and cannot only be studied only in the physical domain. It must entail mutual engagement and attempts at consensus formation via discourse.

Rettig's shift from the "empirical model" to hermeneutics was facilitated by a number of personal events. He was asked in the early 1970s by the Dean of Faculty at Hunter College to leave Ohio State in 1977 and that offer was quickly accepted. However, due to a number of factors, lab space with doctoral students did not materialize. The setback did provide other opportunities: Rettig chaired the department at Hunter for 6 years overseeing "open admissions" for students, the doubling of faculty, and the access of computers for faculty and students. He mentored students such as myself, often directing their intellectual process through readings and long patient discussions on various topics in psychology, ethics, and philosophy of science. As chair, he had become more involved in a highly diverse student community, advising many more students than he would have likely encountered as a faculty member in his prior position. During this period, and perhaps facilitated by his years as chair, Rettig's interest became more focused on the individual and a heightened obligation to actively seek how others understood and reasoned. The appeal of discourse analysis is in part related to that moral imperative: We are obligated to understand others. The subject is no longer an object but a citizen in the process of research. Although, in any social interaction, disagreements might emerge, but output (their grounds for understanding) are not to be devalued. This more humanistic approach might help account for diverse perspectives such as racial divisions in well-publicized legal cases such as the O.J. Simpson murder trial, incidents of alleged police brutality, or attitudes among believers and nonbelievers

about the possibility of an afterlife. Dr. Rettig continues to produce work at 87 and has several articles in press. A book arguing for the importance of hermeneutics in general and discourse analysis in particular is nearly complete.

Rieber, Robert W.

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Robert W. Rieber, historian of psychology and writer on various topics and psychological theories holds academic appointments as a research professor at Fordham University in New York, and as a Fellow in psychiatry at Columbia University in New York City. He was formerly professor of psychology at John Jay College, City University of New York where he taught in the University's PHD programs.

The son of Jewish immigrants from the Austro-Hungarian Empire who came to the USA and took up residence in Philadelphia, Robert Rieber attended Pennsylvania State University and received a Master's degree from Temple University. It was at Temple University in the 1950s that he studied with a student of Kurt Lewin. In 1957 James Page, a prominent textbook author of abnormal psychology was his advisor and recommended him for membership in the American Psychological Association where he would eventually become a Fellow.

His career took another momentous turn when Prof. Rieber moved to New York City and took a job at the Rusk Institute of New York University Medical Center. At the Rusk Institute, he worked as a clinician, specializing in speech pathology and related communication disorders. He also developed interest in psychotherapy as a treatment technique. Another intellectually formative experience occurred at the Alfred Adler Institute where he was admitted for study and training with the assistance of Prof. Emil Froeschls who acknowledged him as an honorary Viennese citizen – given his intellectual interests and predilections.

In the early 1960s, Prof. Rieber taught courses in speech pathology and psychology at Pace University in

New York and consulted with Dr. Froeschls on a project about speech pathology research and theory from an international perspective. The result was a book entitled *Speech Pathology*, which Rieber edited and contributed to with his colleague Brubaker. The volume was very successful and led to another publishing venture, namely, the *Journal Communication Disorders* which he edited for 25 years.

In the late 1960s, Rieber received an offer from John Jay College, CUNY whereupon he joined its psychology department. In 1962 at a speech communications conference in Padua, Italy, Rieber became acquainted with Dennis Fry of University College, London. Needing a Ph.D. mentor, Rieber completed his dissertation under Fry on the relationship of stuttering and cluttering. Some years later, Rieber brought to the international intellectual community the neglected works of the great Russian psychologist Vygotsky. The outcome was *The Essential Vygotsky* [2004]. This massive project contains essays and analyses by many of the world's most prominent scholars.

In 1970, he created *The Journal of Psycholinguistic Research* and has remained its editor for the last 40 years, the duration of which is unprecedented in the social sciences. This editorial tenure was followed by the creation of another journal, *The Journal of Social Distress and the Homeless* in 1990 which publishes articles, monographs, and studies across a broad range of issues including political and social questions. The journal is in the 21st year of publication.

In the 1980s as CUNY rapidly expanded, Prof. Rieber was instrumental in bringing the distinguished writer and psychiatrist Robert Jay Lifton to CUNY and John Jay College.

One of the most controversial episodes in Rieber's career at CUNY and John Jay involved the "Sybil" case. The book, *SYBIL*, made the idea of multiple personality disorder (MPD), a fashionable illness with its emphasis on child abuse, and stimulated interest in two mental/emotional phenomena relating to obsession. One such idea, for example, was the belief that people were being poisoned by buried memories, and the other related notion was that only by re-awakening those memories through hypnosis was recovery possible. Together, the three phenomena constituted what Rieber referred to sardonically as "a trinity of affinity" (Rieber 1999).

In 1994 the erstwhile notion of MPD was renamed Dissociative Identity Disorder (DID) which broadly refers to a disruption in the various parts and linkages of mental functioning that constitutes consciousness: forming and holding memories, assimilating sensory impressions, making sense of cognitive data, and maintaining one's identity. By stressing the dissociation dynamics experienced by the individual rather than the splitting of the personality, the name change of MPD reflected a groundswell of critical response to the whole idea of MPD. In Rieber's opinion, the book and film versions of SYBIL are best understood as symptoms of social distress and the psychopathy of everyday life, a subject he elaborated on in his book *Manufacturing Social Distress* (1997). For a more detailed discussion, see Dr. Rieber's autobiography.

Dr. Rieber also wrote a book with his colleague Harold J. Vetter in the mid-nineties, entitled the *Psychopathology of Language and Cognition*.

Much of his recent work has focused on the concept of social distress and its expressions across social institutions. Research and writing on films, which is in its formative stages, will examine the role of film as a quintessential medium for the transmission of "social dreams" – another important concept in his psychological theorizing. There is an aspect of the phenomenon of social distress which when lodged in social dreams is likely to induce parlous effects such as normalizing psychopathy which may become ubiquitous in the culture and whose tolerance borders on social acceptability. This is, to say the least, a frightening prospect.

During the 1980s and 1990s, Rieber worked assiduously in international settings and professional organizations encouraging scholarship in psychology that is transcultural and transnational. Research was carried out with David Ho (Hong Kong) and Anand Paranjpe (Canada), which produced a seminal book on the indigenous psychology of Asian countries (Paranjpe et al. 1986).

In the course of a prolific career, Robert Rieber has been concerned with the "crisis in psychology." In the midst of these controversies, he describes himself as a humanist with methodological and theoretical interests that transcend the narrow paradigms of positivism.

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Roback, A. A.

DAVID C. DEVONIS

Graceland University, Lamoni, IA, USA

Basic Biographical Information

Born: 19 June 1890; Died: 5 June 1965.

Born in Poland, Abraham Aaron Roback was raised in Quebec City, Canada and attended McGill University in Montreal, graduating in 1912. He then migrated to Harvard, where he was Münsterberg's last Ph.D. student, receiving the doctorate in 1917, signed by Langfeld after Münsterberg's untimely death (Taylor 1999). He then dropped experimental work and embarked on a long itinerant career as a teacher of psychology, which he did successively for shorter or longer times between 1917 and 1925 at Pittsburgh, Brown, Northeastern, Harvard, Radcliffe, and MIT. From 1926 through 1948, he lectured for the extension division of the Commonwealth of Massachusetts, and then from 1949 until his death, he was associated with Emerson College in Boston as a professor and as psychology department chair.

Major Accomplishments/Contributions

His dissertation concerned the interference of will-impulses, meaning the competition between tasks and intentions to do them. Based on his study, which involved making competing responses to two

concurrent tasks, he offered several observations and suggestions to educators. For instance, Roback noted that if the choice was between a difficult and an easier task, it was on the whole better to start with the more difficult one. And he made distinctions between “undulators” who focus on single tasks in a series and leave some undone, and “equalizers” who deal with competing tasks by working a little on all of them and leaving them all partially undone. But, promising as this work was, ultimately he adopted an outsider’s stance toward academia, preferring to maintain his independent iconoclasm. He had a long career as an editor and journalist, starting with his work in Canada on the Yiddish newspaper *Keneder Adler* (Jewish Daily Eagle) for which he wrote and served for a time as editor, and then in the USA where he founded his own publishing company, Sci-Art, which, though it did occasionally publish others, served mainly as an organ for Roback’s teeming writings. Roback apparently knew everyone: He published correspondence with Freud, Jung, Bernard Shaw, and Albert Schweitzer among others, though how intense these relations were was debatable. Nonetheless he was able to attract persons into his orbit (for instance, he was able to enlist George Sarton as a co-editor on his 1946 commemorative volume about Albert Schweitzer) and he was friends with members of William James’s family as well as Cambridge Jamesians. One of his most significant actions was in persuading the Harvard library to accept hundreds of James’s books on “fringe” subjects along with those “serious” works that their staff had handpicked after James’s death. Roback also wrote the first monograph on James’s marginalia (Roback 1942a), which have since proved, in their detailed analysis by Eugene Taylor and his collaborators, a highly productive guide to the intellectual background of James’s work (Trochu 2009). Although he wrote many books on psychology, including works on personality, business psychology, self-improvement, and on Freud, Roback’s main activity was history, both as a psychologist and as a first-rank Yiddishist. It is difficult to say, out of the many works on Yiddish culture which Roback wrote and published, which are the most important, but his *Story of Yiddish Literature* (Roback 1940) would be a good start. He was also well-read in linguistics and published interesting linguistic

monographs: One of these, on ethnophaulisms (ethnic slurs) (Roback 1944), has continued to generate some research interest. His historical style ranged between listmaking and a raconteurial, occasionally inaccurate, and often irreverent biographical approach (anyone who could title a chapter on George Trumbull Ladd “The Last of the Church Mohicans” was certainly unique among practicing historians of psychology of his time.) His personal style was contrarian and probably grated on some of the powers that were in Cambridge. E. G. Boring observed that the “eminent” Roback wouldn’t hesitate to tell you he knew more than you, every day (Winston 1998, p. 31). But Roback would not be moved from Cambridge and, for all of his eccentricity, lived a life of integrity and of speaking truth to power. Most significantly, a part of his 1942 collection *Psychorama* (Roback 1942b) details how he, in correspondence in 1939, held Jung to account for his ambiguous relations to Nazi Germany. Recent historical scholarship (e.g., Barenbaum 2003) finds Roback to be an essential element in the story of the relation of Jewish/Yiddish culture and psychology.

See Also

- ▶ [Analytic Psychology of Carl Jung](#)
- ▶ [Langfeld, Herbert Sidney](#)

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Robinson, E. S.

DAVID C. DEVONIS

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Basic Biographical Information

Born: April 18, 1893; Died: February 27, 1937.

Edward Stevens Robinson was born in Ohio and graduated from the University of Cincinnati in 1916. He next was at Carnegie Tech during the early development of industrial/organizational psychology there, and then a student at the University of Chicago. During the First World War, he worked on trade testing for the military and afterward, briefly, as an instructor at Yale University. He returned to Chicago and obtained the PhD with Harvey Carr in 1920. He continued teaching at Chicago until 1926, when he returned to the East Coast, first to Yale in 1926 and then as a visiting instructor at Harvard during 1926–1927. He returned permanently to Yale in July, 1927. He became associated with the Institute for Human Relations and also was prominent in student academic life, becoming master of one of Yale's residential colleges in 1936.

Major Accomplishments/Contribution

Robinson was a commonsense psychologist who was interested in everything, good at weighing evidence and sorting out the more from the less believable, and sober counsel against hoping for easy solutions and a “bag of tricks” approach to psychological knowledge. For the most part, Robinson was interested in the details of learning and followed in the tradition of Ebbinghaus and later scientists who focused on the minute analysis of the performance of simple tasks. For example, Robinson conducted several studies on a single effect in learning, the work decrement, the observed drop in performance observable in the work curve constructed for performance of a repetitive task. Robinson first posited a theoretical structure for the explanation of the decrement based on expectations that it would be due to the effect of several factors including recency of function of the S-R connection involved, the frequency of previous functioning, the connection between the specific stimulus and other possible responses, the general strength of the S-R

connection, variations in the stimulus, and other decrements in parallel S-R connection systems. A simple task, for example, the writing of strings of letters, was then performed with variations (see, e.g., Robinson and Bills 1926). This experimental procedure was compatible with the microanalysis of behavior advocated by Hull and others and very typical for its day. Exciting it was not, but it was a respected research style which found its best expression in the work of Robinson's contemporary and friend John McGeoch (1897–1942). It was a precursor of the development of mathematical learning theories in the 1950s and 1960s and ultimately led to the development of those parts of modern cognitive psychology with a similar focus. As might be expected, Robinson was among the few psychologists to directly challenge Gestalt psychology, which had made many inroads during the 1920s. In a critique published in the *New Republic* in 1929, he chided the Gestaltists for setting up a straw foe in the person of the analyst of behavior blind to its larger structure and meaning (Robinson 1929). Robinson was among the best-qualified psychologists to make this complaint, because he had another side to his career, an applied side intensely focused on practical problems. His early experiences in industrial psychology were further reinforced by his marriage to Florence Richardson in 1920, a 1908 Chicago Ph.D., protégé of James Angell and J. B. Watson, who was one of the earliest female academic industrial psychologists and also an early member of the League of Women Voters and a civic activist. Together the Robinsons published several joint articles and a widely used book of readings in psychology. After moving to Yale, Florence, now Florence Richardson Robinson, continued her social activism which was reflected both in her career, which led to political consulting, and reinforced her husband's activities as well (Devonis and Froese 2000). Between 1928 and 1936, Edward Robinson conducted studies on museum behavior (Robinson 1928), wrote on the relations of psychology and social work, and studied the relation of radio information to the outcome of political campaigns (in which he was directly assisted by his wife, who was able to gain access to research populations). Also he became associated, through the Yale Institute of Human Relations, with legal realist scholars at Yale and developed in conjunction with them a view of law as grounded in and

responsive to human psychological facts, especially those relating to differential capacity to understand and process information. This view was expressed in a seminal monograph on the relation between law and psychology, *Law and the Lawyers* (Robinson 1935). Three months after the sudden death of his wife from an infection, Robinson was struck by a bicyclist and suffered a fatal brain injury while crossing a New Haven street.

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Rodríguez Arias, Enerio

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Basic Biography

The Professor Enerio Rodríguez Arias (1939–) can be considered the first and one of the most influential psychologists in Dominican Republic. He graduated from the *Universidad Nacional Autónoma de México* on December 11, 1968, although he previously had studied philosophy for 6 years at the *Universidad Autónoma de Santo Domingo*, where he obtained his doctorate in philosophy after his return from México. Dr. Rodríguez Arias then became an important and influential force in the Dominican psychology, helping to shape the future of psychology. In fact, he became Director of the psychology department at the *Universidad Autónoma de Santo Domingo* from 1970 to 1981 and hence became intimately involved in the

preparation of future psychologists. He is credited with introducing to the Dominican Republic one of the most important theoretical debates in the Psychology of the twenty century between behaviorism and phenomenology, which started in 1963 during the *Symposium of Rice* and extended for several decades. He was the first in introducing to the Dominican Republic Thomas S. Kuhn's ideas about the development of scientific knowledge and the first to teach a course on Behavior Analysis in 1970. He was also the first to make the concepts of Chomsky's Generative Grammar and its impact on the psychology of language familiar to Dominican students, as well as the central ideas from cognitive science. The first course on the psychology of reasoning was also introduced by him in the 1980s.

Major Contributions

In terms of his intellectual legacy more specifically, we can distinguish five distinctive areas: (1) Issues related to the philosophy of science, (2) elucidation of the problems in statistical analysis and inferences procedures in psychological research, (3) metapsychology considerations, (4) relevance or irrelevance of learning research for educational practice and research on human reasoning, and finally (5) notions about behavior analysis and its applications.

Concerning scientific epistemology and research methods in psychology, Rodríguez Arias has been concerned throughout his life with the “relative character of the method.” Over the years, he has emphasized the importance of first asking what the research problem is and to then determine what methods may be most appropriate to answer that research question, warning us about the danger of taking the inverse process.

With regard to statistics, he has emphasized the importance of reestablishing the supplementary and subordinated character of the statistical analysis in psychological research. By so doing, as I understand it, he is trying to bring to our attention the danger of confusing the inductive quality of statistical inference as a magical instrument to determine “the truth” or certainty of a phenomenon, as if coming from a deductive process.

In looking at the philosophy of science, some of Rodríguez Arias' recent works on the impact of the evolutionary theory on epistemology and philosophy of science call to task the “Popperian falsificationism”

approach of Karl Popper to evolution and exposes the way this philosopher applies the natural selection mechanisms to the development of human knowledge. In this context, he was particularly concerned with the problem of demarcation between science and metaphysics.

The same (philosophical) analysis is seen consistently in his dealing with any aspect of psychology. Indeed, he is considered one of the most influential authorities in Dominican Republic as a metapsychologist. His focus was on analyzing the history of psychology, establishing comparisons between its theories, deliberating over the validity of the arguments from these theories and examining their relation to the efficacy of the professional practice. His strict loyalty to the scientific method has gained him tremendous respect among the Dominican scholars. He has brought to the psychological community of Dominican Republic the only account on what may represent the history of the origins of the psychological studies in this country. Dr. Rodríguez Arias has been acknowledged (Ardila 1986) as the most prestigious Dominican psychologist for his scientific contributions. In February 2010, the Department of Psychology at the *Universidad Autónoma de Santo Domingo* published a special issue of its journal, *Perspectivas Psicológicas*, and included 24 Rodríguez Arias's selected papers.

Dr. Eнерio Rodríguez Arias is a member of Philosophy of Science Association (PSA) and an International Affiliate of American Psychological Association (APA).

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Rogers, Carl R.

PEGGY BRADY-AMOON

Seton Hall University, South Orange, NJ, USA

Basic Biographical Information

Carl Ransom Rogers was born on January 8, 1902, in Oak Park, IL, the fourth of six children born to Walter

Rogers and Julia Cushings. Both of Carl Rogers' parents were of English/settler heritage and both were college educated. His father was a civil engineer and his mother, a homemaker. The family had a housekeeper. Carl Rogers later wrote of his family's Christian roots; that his family was very strict in observance and discipline, that the *Protestant work ethic* was instilled in him at an early age.

In accord with the family tradition, Carl Rogers enrolled at the University of Wisconsin. While there, he visited China, a trip he considered transformative, and was elected to Phi Beta Kappa. He earned his B.A. in History in June 1924.

He married Helen Elliott, a childhood playmate, on August 28, 1924, in River Forest, IL, and entered Union Theological Seminary in NY that fall. Their children, David and Natalie, were born in 1926 and 1928, respectively.

His interests shifting, Carl Rogers entered Teachers College, Columbia University in 1926, where he studied with E.L. Thorndike and Leta Stetter Hollingsworth. He earned his M.A. in Psychology in 1928 and his Ph.D. in 1931, focusing his dissertation on children's adjustment.

Between 1928 and 1938, while serving as a psychologist and, later, Director of the Child Study Department at the Rochester (NY) Society for the Prevention of Cruelty to Children, Carl Rogers continued to explore new ways of understanding and working with children, including strength-based approaches and case conferencing. He advanced the cause of multidisciplinary collaboration, incorporating best practices in psychology, psychiatry, and social work in his work. His first book, *The Clinical Treatment of the Problem Child*, was published in 1939.

Carl Rogers was appointed full professor of Psychology at the Ohio State University in 1940, a position he held until 1944. At Ohio State, Carl Rogers established one of the first university-based training programs to include supervised – and recorded – therapy experience. Rogers also broke new ground in recording his work, the most famous of which are *The Gloria Tapes*, recordings of his – and other psychologists' work with a client named Gloria.

From 1945 to 1957, Carl Rogers served as Professor of Psychology and Executive Secretary of the Counseling Center at the University of Chicago where he

established the University's first counseling center. Between 1957 and 1963, Carl Rogers was on the faculty at the University of Wisconsin during which he consulted with the CIA and expanded his research on non-directive counseling and psychotherapy to clients diagnosed with schizophrenia. In 1964, Rogers joined the staff of the Western Behavioral Sciences Institute (WBSI), which gave him the freedom to return to his earlier investigations of humanism and the newly emerging encounter groups. From 1968 through his death in 1987, Rogers was affiliated with the Center for Studies of the Person in La Jolla, CA. His wife, Helen, died 1979.

Carl R. Rogers died at his home in La Jolla, CA, on February 4, 1987, at 85 years of age. Much of Carl Rogers' papers and other documents are housed at the Carl Rogers Memorial Library, hosted by the Center for the Studies of the Person.

Major Accomplishments/Contributions

Carl Rogers is best known for his theory of person-centered counseling and psychotherapy and his humanistic approach to psychology and allied fields. Carl Rogers contributed to the transformation of the profession by focusing on people's strengths including their self-actualizing tendencies and developing a systematic approach to help people reach their own goals (Kirschenbaum 2007).

Rogers is also credited with being one of the first to refer to people who participate in psychotherapy as clients. He formally introduced that term as well as the concepts of client-centered and non-directive counseling in his 1942 publication of *Counseling and Psychotherapy*. In 1977, he revised and updated his terminology, thereafter referring to his theory and approach as *person-centered*.

His theoretical conceptualizations of the self, and the necessary and sufficient elements for change: congruence, empathy, and unconditional positive regard, made a significant contribution to theoretical and applied psychology and allied fields in a wide range of settings that continues today.

During his career, Carl Rogers published 16 books and more than 200 theoretical and research-based articles (Rogers n.d.). Rogers was also active professionally, making significant contributions to the foundation of

Humanism in Psychology, the American Board of Examiners in Professional Psychology, and the American Psychological Association (APA), which he served as President, from 1946 to 1947. At the same time, Rogers published in and worked in diverse yet allied fields, including psychology, education, and social work, and worked to promote interdisciplinary collaboration.

Not surprisingly, Rogers was the recipient of numerous professional awards including the APA's first Distinguished Scientific Contribution Award in 1980, its highest honor at the time, and APA's first Distinguished Professional Contribution Award in 1972.

Carl Rogers remained active professionally and personally up to his death at the age of 85. Toward the end of his life he published *A Way of Being* (1980) while continuing to develop and apply his work with groups and in education more fully to cross-cultural and international peace-building (Raskin and Rogers 1995).

See Also

► Maslow, A. H.

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Romanes, G. J.

ROGER K. THOMAS

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Basic Biographical Information

Romanes (1848–1894) was born in Kingston, Ontario, Canada. His Scottish father, a minister and professor at Queens University, received a large inheritance and moved the family to England before Romanes was a year old. He lived thereafter in England and died in Oxford at age 46 of a cerebral hemorrhage following

a long illness. He earned an A.M. degree at Cambridge University, specializing in physiology and evolutionary biology. While he made significant contributions in neuroanatomy, physiology, and physiological evolution, including work that contributed to Sherrington's development of the concept of the synapse, Romanes is best remembered in psychology for his work on behavioral and mental evolution. Impressed by something Romanes published in *Nature* (1873), Charles Darwin contacted Romanes, initiating a close friendship until Darwin's death in 1882. Darwin's chapter on "Instinct," originally intended for *Origin of the Species*, was given by Darwin to Romanes to publish as he saw fit, and Romanes included it as an appendix to his most important book, *Mental Evolution in Animals* (1883).

Major Accomplishments/ Contributions

Romanes legacy in psychology is mainly embodied in *Animal Intelligence* (1882), the aforementioned *Mental Evolution in Animals* (1883), and *Mental Evolution in Man* (1887). David Murray (*A History of Western Psychology*, p. 262) wrote that *Mental Evolution in Animals* "is now being recognized as one of the most important books in the history of psychology." Unfortunately, Murray's appreciation of Romanes is a minority view among current authors of history of psychology textbooks (Thomas 2007).

Romanes reputation has long been unjustifiably and, occasionally, sarcastically diminished, and it is appropriate to consider this in some detail. When developing his views on mental evolution, relatively few scientific data were available. *Animal Intelligence* was intended be a compendium of data to be used as a basis for his theoretical views to be developed in the other two books. Most of the available data were anecdotal. Unfortunately, readers such as E. L. Thorndike, Wilhelm Wundt, and Margaret Washburn who criticized Romanes for his use of anecdotes overlooked Romanes' carefully prescribed criteria for using anecdotes and his acknowledgement that their use was fraught with difficulties (see Preface to *Animal Intelligence*).

Worse, most critics failed to distinguish the anecdotes' authors' interpretations of the behavior from Romanes' more carefully considered interpretations.

One example used by Wundt and Washburn involved the burial habits of ants. Romanes was merely interested in documenting that some ant species bury their dead, and he reported several anecdotes confirming that. However, as stated in the Preface to *Animal Intelligence*, Romanes felt obligated to quote anecdotes fully often including far-fetched interpretations by the original observers. Wundt and Washburn criticized, even ridiculed, Romanes for such interpretations while failing to note that they did not represent Romanes' views. Consider his very reasonable interpretation of why some ant species bury their dead. It was "no doubt due to sanitary requirements, thus becoming developed as a beneficial instinct by natural selection" (*Animal Intelligence*, p. 89).

The gravest injustice done to Romanes was done by authors who argued that Morgan's canon was aimed at Romanes. Morgan's canon:

- ▶ In no case may we interpret an action as the outcome of the exercise of a higher psychical faculty, if it can be interpreted as the exercise of one which stands lower in the psychological scale. (*Introduction to Comparative Psychology*, 1894, p. 53)

As early as 1896 and persistently thereafter, Morgan's canon was misrepresented in several ways that continue to be perpetuated in too many current histories of psychology textbooks (Thomas, 2007). Two misrepresentations have been that Morgan aimed the canon at Romanes' use of anecdotes and anthropomorphic reasoning. Quotations from Morgan contemporary with his formulation of the canon show that he understood that anthropomorphic reasoning with respect to animal behavior and intelligence was the only path available, and Morgan described Romanes' collection of anecdotes to be valuable in the context of the way that he used them. It is true that in Morgan's later years, perhaps, having derived so much fame from the *misrepresentation* of his canon, he was somewhat critical of Romanes' use of anecdotes. In any case, the applicability of Morgan's canon to Romanes must be seen in the light of Morgan's views of Romanes at the time he wrote the canon.

Criticism of Romanes occurred mainly after his death, and it seems likely that had he lived to address them, he would have done so effectively as he did

criticism by his contemporaries. At times, Romanes may have gone too far in some of his interpretations, but some of his questionable interpretations by past standards appear more compatible among some of those offered by researchers in animal cognition today.

Morgan eventually found it necessary to clarify that “the psychological scale” mentioned in the canon referred to a psychological scale of evolutionary development, but Morgan did little to specify what such a scale might be. Romanes developed an evolutionary scale of intellectual and emotional evolutionary development that may be one of his greatest theoretical legacies. It may be seen in a foldout chart in *Mental Evolution in Animals* (reproduced in Murray’s textbook mentioned above and in Robert Boakes’s *From Darwin to Behaviourism*, 1984).

See Also

- ▶ [Morgan, C. Lloyd](#)
- ▶ [Wundt, Wilhelm](#)

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Roscoe, Stan

VALERIE J. GAWRON

The MITRE Corporation, McLean, VA, USA

Basic Biographical Information

Stanley Nelson Roscoe was born on November 4, 1920, in Eureka, California, as the elder son of Martha Beer Roscoe and Stanley Boughton Roscoe. He died on November 18, 2007, also in Eureka, California. Dr. Roscoe completed a bachelor’s degree in speech and English at Humboldt State College. During World War II, Dr. Roscoe was a flight instructor and transport pilot in the Army Air Corps. At the end of the war, he

enrolled in the Engineering Psychology graduate program at the University of Illinois at Urbana-Champaign and received a master’s in Experimental Engineering Psychology in 1947 and a doctorate in 1950. After graduation, Dr. Roscoe joined Hughes Aircraft in Culver City, California, and founded the first human factors program in aircraft and air traffic control system design and training. After 17 years at Hughes, he returned to the University of Illinois as the Associate Director for Research at the Institute of Aviation and founded the Aviation Research Laboratory. During a short hiatus from the University, Dr. Roscoe returned to Hughes to complete apparent size research at the NASA Ames Research Center. Soon afterward he started a company, ILLIANA Aviation Sciences, to continue research in pilot selection and training. Dr. Roscoe retired from the University of Illinois in 1979 and accepted a professor position at New Mexico State University (NMSU) in Las Cruces, New Mexico, where he founded the Behavioral Engineering Laboratory. Dr. Roscoe retired from NMSU in 1986 and returned to Eureka, California. He continued to publish until his death.

Major Accomplishments/Contributions

Dr. Roscoe applied his experience as a pilot in World War II as well as his academic training as an engineering psychologist to enhance cockpit display design, pilot selection, and training of pilots and air traffic controllers. He was a founding member of the Human Factors and Ergonomics Society (HFES) and as such contributed to the writing of both the HFES constitution and the HFES bylaws. He served as the fourth president of the HFES. Dr. Roscoe’s greatest legacy, however, may be his students, six of whom are HFES fellows.

Cockpit Display Design. Dr. Roscoe conducted a series of experiments over 4 decades to quantify the effects of visual accommodation on perceived size of objects. The experiments examined a number of visual anomalies relevant to aviation. One of these was the 1.25 magnification in out-the-window views in flight simulators needed to make objects appear at the correct distances. This also applied to periscopes – including periscopes through which a pilot flew an aircraft. Another anomaly was the Mandelbaum Effect, the tendency of eyes to focus at resting distance leading to missing objects

beyond that distance. In Dr. Roscoe's words, "When Day is Done and Shadows Fall, We Miss the Airport Most of All." His research with size and distance judgments based on the Moon Illusion (the moon appears largest at the horizon) was applied to the design of imaging displays. Dr. Roscoe also completed early research in moving horizon displays in aircraft. This research resulted in flight standards for primary flight reference displays in both commercial and military aircraft.

Pilot Selection. Dr. Roscoe was a partner in the design of the Wondrous Original Method for Basic Awareness Testing (WOMBAT), a PC-based system to predict pilot response to in-flight emergencies. The system is being used on the MIR space station to test the effects of long duration space missions on cosmopolitan situational awareness.

Training of Pilots and Air Traffic Controllers. Dr. Roscoe was part of teams to develop pilot training simulators as well as the first air traffic control simulator. He led efforts to measure the transfer of training from simulators to actual flight including the development of the Incremental Transfer Effectiveness Ratio to measure the effectiveness of each consecutive hour of training in a flight simulator. As part of this effort he identified methods for augmenting the visual scenes to enhance the transfer of training. Dr. Roscoe also collected data to assess the effectiveness of simulator cockpit motion on transfer of training, showing that in some cases motion decreased the transfer of training.

Student Research. Dr. Roscoe was a member of 60 thesis committees.

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Rosenthal, Robert

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Basic Biography

Robert Rosenthal is currently a professor of psychology at the University of California, Riverside. Rosenthal was born on March 2, 1933, in Giessen, Germany, and left his hometown at a young age. He received a Bachelor of Arts degree in Psychology from the University of California, Los Angeles, in 1953, and went on to receive a Ph.D. in Psychology from the University of California, Los Angeles, in 1956. After receiving his doctorate, Rosenthal taught at the University of North Dakota for 5 years beginning in 1957. Following his time at the University of North Dakota, Rosenthal went on to teach clinical psychology at Harvard University, and eventually began teaching social psychology.

Main Contributions

The main focus of Robert Rosenthal's research has been on the role of self-fulfilling prophecies in everyday life and in the laboratory. The specific interests of Rosenthal's research on self-fulfilling prophecies include: the effects of a teacher's expectations on a student's academic and physical performance, the effects of experimenters' expectations on the results of their research, and the effects of clinicians' expectations on their patients' mental and physical health.

In addition to researching the self-fulfilling prophecy in everyday life and the laboratory, Rosenthal has been interested in the role of nonverbal communication. Rosenthal's research includes the influence of nonverbal communication on interpersonal expectancy effects, and how it influences the relationship between the members of a small work and social groups. Rosenthal has also been interested in studying the sources of artifact in behavioral research in many quantitative procedures. Main interests in data analysis include: experimental design and analysis, contrast analysis, and meta-analysis.

One of Rosenthal's most widely known contributions to the field of social psychology is the "Pygmalion

Effect in the Classroom,” which studied the idea that children could become brighter when expected to by their teachers. The results of this hypothesis suggested that when children were expected to be more intelligent they showed a higher level of intelligence when compared to the control group. Also well known for the experimenter-*efficacy* effect, or Rosenthal Effect, Rosenthal found that when a researcher has expectations about a hypothesis, it becomes a self-fulfilling prophecy of the subject’s responses.

Robert Rosenthal’s most recent publications are on the topics of data analysis, nonverbal communication in situations where relationships are formed. For example: teacher–student, doctor–patient, manager–employee, judge–jury, and psychotherapist–client interaction. Rosenthal has also published work on the strategies to improve the design and analysis of studies. In addition, Rosenthal has played a key role in the introduction of the binomial effect size display, the file-drawer problem, and the counternull statistic, to name a few.

In adding to the work and many contributions of Robert Rosenthal, are some of the most prestigious awards he has received. Among the many awards is the Gold Medal Award for Life Achievement in the Science of Psychology of the American Psychological Foundation, which was received in 2003. Additionally some awards include: Distinguished Scientific Award for Applications of Psychology, APA in 2002; James McKeen Cattell Award, American Psychological Society, 2001; Distinguished Scientist Award, Society of Experimental Social Psychology 1996; and the Donald Campbell Award, Society for Personality and Social Psychology, 1988. Robert Rosenthal has also been a Guggenheim Fellow, Senior Fulbright Scholar, and a Fellow at the Center for Advanced Study in the Behavioral Sciences. Rosenthal has also been the Co-Chair of the American Psychological Association Task Force on Statistical Inference.

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Rotter, Julian B.

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Julian B. Rotter (October 1916–) is a clinical psychologist, educator, and author, known for his theories in social and personality psychology, who was influential in establishing psychology as an independent field from medicine.

Basic Biography

Julian B. Rotter was born in October 1916 to a Jewish middle class family in Brooklyn, New York. Rotter’s family’s circumstances were comfortable until the Great Depression when his father’s stationary business failed. In high school Rotter started reading works by eminent psychologists Freud and Adler. In 1933 he entered Brooklyn College with a serious interest in psychology but chose to major in chemistry since it led to a more reliable source of income. However, Rotter still attended many psychology courses, some of which were offered by Solomon Asch. He started to attend lectures given by Viennese psychiatrist Alfred Adler at a medical school nearby, and later attended monthly meetings of the Society of Individual Psychology in Adler’s home (Rotter 1993).

After graduating from Brooklyn College in 1937, Rotter decided to pursue a master’s in psychology at the University of Iowa despite his financial concerns, due to the encouragement of Asch and other professors. At Iowa he studied under the prominent psychologist Kurt Lewin and under the general semanticist, Wendell Johnson, both of whom influenced Rotter. Johnson was known for his works on stuttering, the topic of Rotter’s master’s thesis (Rotter 1993).

Following a year in Iowa, Rotter was accepted to a clinical psychology internship at Worcester State

Hospital in Massachusetts. The notion of such an internship was new at the time, and very few were available. Rotter gave up a full assistantship offered by Wendell Johnson for the rare opportunity to attend the Worcester internship. At Worcester he met his future wife, Clara Barnes, whom he would marry in 1941. They would have two children (Rotter 1993).

After some time at Worcester, Rotter began to have doubts about the practiced approach to psychopathology and psychiatric diagnosis. He observed that “most of the diagnoses were more predictable from the psychiatrists’ biases than they were from the patients’ behavior.” Due to these doubts, and further fueled by reading C. M. Louttit’s book *Clinical Psychology* Rotter decided to apply for a Ph.D. at the University of Indiana, where Louttit taught. Rotter liked Louttit’s approach, which identified a field of application involving the treatment and diagnosis of many psychological disorders. Louttit became Rotter’s dissertation advisor and he gave Rotter an assistantship position at the university’s psychological clinic. Rotter liked Louttit as a mentor as well as a friend, and attributed much of his academic and personal growth to him. Rotter completed his dissertation in 1941 on the “level of aspiration,” a topic he started studying at Worcester. Upon receiving his doctoral degree he became one of the first clinical psychologists to be trained in what would be called in later years the traditional model (Rotter 1993).

After receiving his Ph.D. Rotter started working as a clinical psychologist at Norwich State Hospital in Connecticut, where he remained for 13 months. In 1942, amid WWII, Rotter entered the army as a private. After a month he was transferred to the Armored School at Fort Knox to work in the Office of the Military Psychologist. For the next 4 years he served in the Army and Air Force as a psychologist. He helped reduce the numbers of those who went absent without official leave (AWOL) – a serious problem among base personal, and also improved some environmental conditions to upgrade the general efficacy of the army (Rotter 1993).

In 1946, Rotter took up an assistant professorship at Ohio State University where he began to work systematically on constructing a social learning theory of personality. In 1954 he published *Social Learning Theory and Clinical Psychology* (Rotter 1993).

Rotter always saw a need for improvement in the training and role of clinical psychologists. In 1949 he participated in a conference on graduate training for clinical psychologists in Boulder, Colorado. The results of the conference are known as the Boulder Model, or the Scientist-Practitioner Model. At the conference he strongly opposed the movement that tried to shift the training of clinical psychologists into medical schools. At Ohio State he resisted the emphasis on techniques for diagnosing adult psychopathology and put a greater emphasis on methodology for construction and validation of psychological measuring instruments. In 1951 Rotter replaced George Kelly as director of the Ohio State psychological clinic and training program. In 1963 Rotter left Ohio State to direct the clinical training program at the University of Connecticut, and stayed there for the remainder of his career. He now serves as professor emeritus there (Rotter 1993).

Rotter is considered one of the 100 most eminent psychologists of the twentieth century. In a study he was found to be the eighteenth most cited psychologist and rated as number 64 in overall eminence (Haggbloom 2002).

Major Contributions

Rotter believed that individual’s psychological outlooks in life are shaped primarily by their past experiences. These experiences can be looked at as what behaviorists would consider positive and negative reinforcement. In his *social learning theory* Rotter proposes that people’s behavior can be predicted based on three factors: *behavior potential*, *expectancy*, and *reinforcement value* and developed an equation to explain behavior based on this model: $BP = f(E \& RV)$. Behavioral potential (BP) refers to the idea that behaviors that most frequently lead to positive reinforcements, or any rewarding experience, have the greatest potential of reoccurrence. The second concept, expectancy (E), suggests that for a behavior potential to be high, individuals must *expect* for it to lead to positive reinforcement. The third concept, reinforcement value (RV), is the desirability of an outcome – how much one values an outcome of a behavior will affect the potential of the behavior’s reoccurrence (Millon 2004). Everyone has different variables in the equation, which is a result of each individual’s unique, what Rotter called, *psychological situation* (Friedman and Schustack 2006).

Rotter is most widely known for his personality theory *locus of control* which is the concept of external versus internal control of reinforcement, or how much power a person feels he or she has over a situation to influence the outcome. An *internal locus of control* is the generalized expectancy that the individual's own actions lead to desired outcomes. Conversely, an *external locus of control* is the belief that things outside the individual, such as chance or any other external forces, determined the outcome (Friedman and Schustack 2006).

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Rousseau, Jean Jacques

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Rousseau, Jean Jacques (June 28, 1712–July 3, 1778). “Man is born free and everywhere he is in chains.” These were the famous lines of a man who was one of the most influential thinkers of the Enlightenment period in the eighteenth century Europe, and whose novels inspired the French Revolution.

Basic Biographical Information

Jean Jacques Rousseau was born on June 28, 1712, in Geneva. His mother Suzanne Bernard died soon after his birth and his older brother ran away from home. As a result, Rousseau was primarily brought up by his father, Isaac Rousseau, a clockmaker, with whom he studied ancient Greek and Roman literature. Risking imprisonment owing to a quarrel with a French captain, his father left Geneva forever and the barely

educated Rousseau was sent to study in the village of Bosey. In 1725, he worked as an apprentice to an engraver but fled to Annecy in 1728 as he considered his master a tyrant. In Annecy, he developed a romantic relationship with Louise de Warens, who influenced his conversion from Calvinism to Catholicism, which ultimately led to him forfeiting his Genevan citizenship. During this time, he earned money through secretarial, teaching, and musical jobs. In 1740, he acquainted himself with the brothers Abbe de Condillac and Abbe de Mably while tutoring in Lyon. This was the beginning of a turbulent relationship with the Paris *philosophes* with whom Rousseau would have a continual cycle of love and hate. In 1742, Rousseau went to Paris to become a musician and composer but ended up serving two unsatisfactory years at the French Embassy in Venice. He returned to Paris in 1745, where he befriended editor of the *Encyclopedie*, Denis Diderot, a man who would ultimately commission Rousseau's writing. It was also at this time that he met Therese Levasseur, a maid who was to become his lifelong companion and whom he eventually married.

Rousseau died suddenly on July 3, 1778, at Ermenonville (north of Paris) while engaged in his favorite botanical studies. When looking at his life, the very essence of it is captured in his *Confessions* which provide the air of tension between an individual seeking forgiveness for his faults and one paranoid about proving his uniqueness among the academic community. And yet, his influence extended not only to the Revolution, but to present day socio political agendas, moral compasses, and philosophical ideologies. “If he eventually came to be known as a psychologist, group psychologist, and eloquently accusing *moraliste*, he was one of the last and latest Renaissance men.” (Riley 2001).

Major Contributions

In 1750, the Academy of Dijon's essay contest posed the question, “Has the restoration of the sciences and arts tended to purify morals?” Rousseau's reply *Discourse on the Arts and Sciences*, not only won the prize, but made him famous owing to its broad circulation and controversial nature. It was the Enlightenment period and Rousseau's opposition to the arts and sciences was in conflict with the spirit of the movement: progress. His opera, *Le Devin du Village* (*The Village Soothsayer*), was

a great success and earned him even more recognition, making him one of the leading citizens. He was always one to be critical of France's opulence, and in his *Letter on French Music*, this was evident in his approval of Italian simplicity and rejection of French extravaganza.

In the autumn of 1753, the Academy of Dijon held another essay contest. This time, the question was, "What is the origin of inequality among men, and is it authorized by the natural law?" Rousseau's response would become the *Discourse on the Origin of Inequality Among Men*. The government according to him was a farce put together by the rich as a pretext to convince the poor that such an institution would guarantee them their rights and provide equal opportunity for all. But the judges were annoyed by the discourse's outright boldness. However, Rousseau arranged for its publication, and by 1755, it too had been widely distributed and read. His campaigning for the common man continued in the uncompleted yet profound work *Letat de Guerre* (1754) where he harshly criticizes Hobbes and Hobbism for characterizing ill-behaved and uncouth Englishmen as the "natural" man.

In 1756, Rousseau left Paris after being invited to a house in the country by Mme. D'Epinau, a friend to the *philosophes*. But his stay was short lived, and in 1757, after many quarrels, Rousseau moved to lodgings near the country home of the Duke of Luxemburg at Montmorency. It was during this time that Rousseau wrote some of his most important works.

In 1761, he published a novel, *Julie or the New Heloise*, which was one of the best-selling novels of the century. A year later, he published *The Social Contract* in April and *Emile* in May. The former was a treatise on political philosophy while the latter focused on education. Owing to his statements concerning religion in them, the books were condemned and publicly burned. When Rousseau fled France from Paris authorities, he found no refuge in Geneva as the public prosecutor had leveled charges of impiety against him. He settled in Switzerland and in 1764 began writing his autobiography, his *Confessions*. But he continued to encounter difficulties with the authorities and moved to England at the invitation of David Hume. The period spent in England was an unhappy one, and Rousseau eventually shifted back to France incognito in 1767.

His later works including *Rousseau: Judge of Jean-Jacques* (1772) and the *Reveries of the Solitary Walker*

(1777) were published posthumously. The former in particular is an extraordinary work where Rousseau bifurcates his personality with one half commenting on the other. Schizophrenia was being addressed in pure literary form. The other work, a self-confession, is remembered primarily for its famous words, "Here I am, then, alone on the earth, no longer having any brother, or friend, or society except myself."

See Also

- ▶ [Human Factors Psychology](#)
- ▶ [Social Constructionism](#)
- ▶ [Structuralism](#)

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Royce, Josiah

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Josiah Royce is best known as one of the last American proponents of Absolute Idealism. In lectures published as *The Spirit of Modern Philosophy* (1892) and in his Gifford lectures on metaphysics, published as *The World and the Individual* (1900–1901), Royce presented a theory of knowledge resting on idealism and posited the Absolute Knower as a defense against relativism. From 1883 to 1898, as he developed his philosophical system, Royce was also exploring the new field of psychology. In addition to numerous articles and lectures on psychology, Royce wrote an introductory textbook, *Outlines of Psychology* (1903). In 1901–1902, he served as President of the American Psychological

Association. Though scant attention has been paid to this work, Royce regarded psychology as a valuable concrete source for philosophy.

For psychologists interested in exploring alternative foundations for the discipline, Royce merits further study. Royce rejected naïve realism and developed a constructivist theory of knowledge, arguing that we postulate, rather than simply register, knowledge of reality. Royce recognized that this theory of knowledge ran the risk of slipping into a relativistic subjective idealism, with no standards of truth and, therefore, no possibility of error. Royce fended off this danger by postulating and then “proving” the existence of the Absolute Knower, without whom error would be impossible. In his later work, Royce more fully develops the Absolute Knower as the “Community of Interpretation,” maintaining that a continual process of shared interpretation yields knowledge.

In various works, Royce distinguished between the phenomenal “world of description,” or the realm of physical facts and science – and the spiritual/feeling “world of appreciation,” or the realm of values, to argue that science and religion/ethics can live side by side harmoniously; indeed they must, because the “world of description” rests upon and draws from the more fundamental “world of appreciation.” Royce’s position was echoed by others and enabled his student Mary Whiton Calkins to argue for the necessity of a double standpoint in psychology – including both an experimental science of ideas and a science of the ethical self. Royce’s doctrine might be employed to defuse conflicts between psychology’s “two cultures” and inform a more pluralistic psychology.

Royce also rejected the postulate of the autonomous individual at the foundation of much modern psychology. Initially, Royce submerged individuals in the Absolute, but criticism from George Holmes Howison, and his own reading and research in psychology, led him to a more nuanced account of individual action and morality. In Royce’s revised account, the individual Ego is developed through interaction with and imitation of others within a social context; the self-conscious individual is first and foremost a social being. Further stages of individuation involve not just imitation, but reflection; it is through reflective commitment to particular social goals and ideals that individuals become unified and unique. Royce’s account of

the socially constituted character of individuals might serve as a critique of much, though not all, contemporary psychology.

Josiah Royce was the foil for William James’ attacks on the Absolute and as the prototype for James’s “tender-minded thinker.” Royce also had a significant influence on the psychology and social ethics of his students, Mary Whiton Calkins and Richard C. Cabot. With the rise of pragmatism and realism, in the early twentieth century, Royce’s philosophical system was set aside. In recent years there has been a revival of interest in Royce (Kegley 1997, 2008), though much of his work in psychology and its implications remain in the shadows.

Biographical Notes

Royce, Josiah (November 20, 1855–September 14, 1916), American idealist philosopher. Born and raised in California, Royce was youngest of four children of pioneers from upstate New York who had settled in the rural mining community of Grass Valley. His father, never successful at business ventures, relocated the family to San Francisco when Josiah was 10. Royce entered public schools for the first time and, at the age of 14, enrolled at the newly established University of California to train as an engineer.

Though from an impoverished family, Royce’s intellect was recognized and nurtured at the University. Abandoning engineering, Royce became a serious student of science and literature, earning his A.B. degree in Classics in 1875. President Daniel Coit Gilman, impressed with Royce, helped raise funds for his further studies in Germany. During 1875–1876, Royce studied at Heidelberg, Leipzig and Göttingen, attending lectures by Wilhelm Wundt, Wilhelm Windelband, and Hermann Lotze, among others.

Though Royce had hoped to continue his studies in Germany, his funds were depleted. Instead he accepted an offer from Gilman, now President of Johns Hopkins University, of a 2-year fellowship and the opportunity to continue his study of philosophy. At Hopkins, Royce worked with other serious students of philosophy and deepened his commitment to neo-Kantian idealism. Royce earned his Ph.D. in 1878.

His formal education complete, Royce had few prospects. In 1878, he reluctantly accepted a position teaching English literature at the University of California, knowing there would be limited opportunities to

pursue his philosophical interests at Berkeley. During this period, Royce met and, in 1880, married Katharine Head, the daughter of a prominent Berkeley family who had relocated from Boston. Their first child, Christopher was born in 1882; two more sons, Edward (b. 1886) and Stephen (b. 1889), later completed the family.

In 1882, Royce was invited to Harvard as a temporary replacement for William James and George Herbert Palmer; in April 1885, he was appointed assistant professor. Royce remained at Harvard for the rest of his life, and played a key role in what has been called “Harvard’s golden age of philosophy.” See Clendenning (1999) for further details. Royce died in 1916.

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- Bibliographical Note: Frank M. Oppenheim has recently completed a comprehensive index of Royce’s papers at the Harvard University Archives. A preliminary version of this index is available at http://oasis.lib.harvard.edu/oasis/deliver/deepLink?_collection=oasis&uniqueId=hua16003.
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Rutgers University, History of Psychology at

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This is a history of the emergence of psychology at Rutgers during the nineteenth century and its subsequent development during the twentieth century into one of the university’s leading academic disciplines.

This history is organized around five rather distinct time periods for Rutgers psychology during these two centuries. Each period is identified either by significant innovations in the psychology curriculum at Rutgers, occasioned in turn by innovations in American psychology generally, or by changes in the status of psychology as an academic discipline of the university.

The first period dates back to the nineteenth century when conceptions of mind were typically taught in American colleges under the rubric of mental philosophy rather than psychology. Actually, the ancestry of psychology at Rutgers goes back to the eighteenth century when conceptions of mind were already part of the content of courses in general philosophy, in ethics, and in theology at the handful of colleges in colonial America. And Rutgers College – founded in 1766 by the Dutch Reformed Church and first named Queen’s College (renamed Rutgers College in 1825) – was one of these colonial colleges.

A year-long course in mental philosophy was first offered at Rutgers College in 1864. At the time, the course content was generally dominated by the Scottish school of mental philosophy. One of the aims of the Scottish school was to construct a mental science consistent with a devout belief in God. Scottish mental philosophy thus met the needs of American colleges in the eighteenth and nineteenth century when religion exerted a strong influence on parts of the curriculum.

Mental philosophy was revised in content in the ensuing decades to reflect changes in conceptions of mind during this period, changes clearly evident in the textbooks assigned for the course. Rutgers professors of mental philosophy, although trained ministers in the Dutch Reformed Church (as were many of the professors at Rutgers College during this period), were committed to these innovations in line with the spirit of the times in America following the Civil War.

The second period began to take shape at the end of the nineteenth century. It was marked by the introduction of the “new psychology,” so dubbed at the time, into American colleges and universities. The new psychology meant ridding the curriculum of mental philosophy in which theories of mind were supported largely by philosophical introspection and replacing it with an empirically based science of psychology. The shift to the new psychology was a radical

transformation in the study of mind and was a gradual one both at Rutgers College and at other American colleges and universities. The beginning of the new psychology at Rutgers College is marked by the first listing of a course in 1906 with “psychology” in its title, replacing the course in mental philosophy that had been taught for over 40 years. Over the next two decades, Rutgers’ first psychologist, appointed in 1909, continued to incorporate the many innovations in the new psychology into the curriculum. However, typical of most other American colleges and universities, psychology remained part of a more inclusive department of psychology and philosophy during this period.

After the First World War, Rutgers began its transformation from a college to a university. Part of this transformation was the establishment in 1918 of the New Jersey College for Women (NJC), with Rutgers College remaining as a men’s college (NJC was renamed Douglass College in 1955). With the founding of NJC and other autonomous colleges, Rutgers was beginning to experience the growing pains that would persist and, indeed, increase for several decades.

The third period in the history of psychology at Rutgers began with the founding of a psychology department at Rutgers College in 1928, separate from philosophy. This was an era when other colleges and universities in America also experienced the organizational separation of psychology and philosophy, although at NJC the psychology faculty remained in a department of philosophy and psychology until 1955. The psychology faculty at the two colleges each developed its own, quite comprehensive, undergraduate curriculum. The Psychological Clinic was founded in 1929 and provided a training and research facility for the department’s first graduate program, that of clinical psychology, while rendering psychological services to the community. These ambitious developments were soon slowed as the colleges struggled through the Great Depression and World War II. Rutgers, unlike many other state universities, was slow to recover after the war, given the limited financial support that the state of New Jersey gave to higher education until the 1960s. In psychology (and in other disciplines as well) at Rutgers, the graduate and research programs languished for almost two decades after the war.

The fourth period in this history spans two decades, the 1960s and 1970s. It is marked by a transformation

of Rutgers into a major state university as the state gradually began to give it adequate financial support. For psychology, this support was coupled with generous research and training grants that became available to American psychology from federal agencies and resulted the explosive growth of psychology both at the undergraduate colleges and in the graduate program.

By the end of the 1960s, there were four undergraduate colleges – Rutgers College, Douglass College, Livingston College, University College – each with its own psychology department, and with a graduate program in psychology gleaned from the faculty of these colleges. This kind of structure, in which the colleges retained considerable autonomy over hiring and promotion of its faculty, was unlike the academic organization present in virtually all American universities. The Rutgers structure represented a handicap to the cohesive development of university-wide academic disciplines particularly at the graduate level.

It might be noted here that in addition to these colleges, there emerged in the 1960s and 1970s several other units at Rutgers with psychology faculties and researchers: The Graduate School of Applied and Professional Psychology, Rutgers Medical School, and the Center of Alcohol Studies. The psychologists in these new units then began to play a critical role in the growth and diversity of graduate psychology at Rutgers. The graduate areas at the time consisted of experimental psychology, personality and social psychology, developmental psychology, and clinical psychology.

The fifth and final period as of this writing began in 1981 with a major change in the organization of Rutgers University: the unification of the separate college departments within a discipline into a university-wide department. This meant organizing the university along academic disciplinary lines like that at other major universities – a single department of psychology, of physics, of sociology, and so on – rather than such departments in each of the autonomous colleges. Thus, within each of the major academic disciplines, one centralized department with one chair to direct and coordinate both the undergraduate and graduate program replaced the several college departments.

A full length book of the history of psychology at Rutgers is available, at no cost, at: <http://psych.rutgers.edu/history/history.html>

In addition to the historical narrative, there are three appendices in the book. Appendix A is a listing of the titles of all PhD dissertations through 2008, including the names of the students, their dissertation advisor, and the year the degree was awarded. Appendix B is a listing of the names, dates, and ranks of all tenured faculty since the inception of a psychology department, including the small handful of mental philosophy professors of the nineteenth and early twentieth centuries. Appendix C is a 32-page synopsis of the book, which appeared initially in the souvenir booklet distributed during the celebration of the department's 75th anniversary in 2003.

A history of Rutgers in its first 200 years is available in Richard McCormick's book, *Rutgers: A Bicentennial History* (Rutgers University Press 1966). McCormick's book describes the events surrounding the founding of

Rutgers as a private men's college by the Dutch Reformed Church in 1776 and its gradual emergence into the state university of New Jersey.

A full-length book of this history (Rosenberg 2008) contains, in addition to an extensive historical narrative, appendices listing (1) the titles of all Ph.D. dissertations in psychology through 2008, including the names of the students, their dissertation advisor (2), and the names and ranks of all tenured faculty since the inception of a psychology department. The book is available as an e-book (see references).

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S

Salzinger, Kurt

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Kurt Salzinger has been a forceful advocate for behaviorism as the basis for a science of psychology throughout his professional career. Not long after receiving his doctorate from Columbia University in 1954, where he had a teaching assistantship with Otto Klineberg, he was hired by Joseph Zubin, the chief of the recently established Biometrics Unit at the New York State Psychiatric Institute, remaining there as a research scientist until 1991. The principal theme of his work then and to the present day quickly became evident: the heuristic value of the behaviorist approach and the utility of behavior analysis for furthering an understanding of the full range of human behavior, both normal and pathological. When countering competing theoretical perspectives, he has used the opportunity to offer alternative, behavioral formulations; in taking issue with aspects of the cognitive perspective, for example, he presented a behavioral analysis of cognition itself (Salzinger 1987).

Salzinger has always had a particular interest in verbal behavior. In a series of studies beginning in the late 1950s, he and his colleagues demonstrated that both the quantity and the content of the speech of schizophrenic patients and of normal individuals, elicited in an interview-like situation, could be influenced by basic operant conditioning procedures – i.e., by reinforcement given (or withheld) by the experimenter/interviewer contingent on objectively defined response classes (Salzinger and Pisoni 1958; Salzinger and Portnoy 1964; Salzinger et al. 1964a). These studies added to a growing body of evidence that clinicians could be systematically, albeit

inadvertently, influencing the very behavior on which their diagnostic and therapeutic decisions were made. In line with the rapidly expanding field of behavior modification, Salzinger applied the same operant conditioning technique therapeutically in an attempt to instate speech in young speech-deficient children (Salzinger et al. 1965), and he trained parents of behavior-disordered children to employ similar procedures with their own children (Salzinger et al. 1970a).

A continuing interest in schizophrenic speech led from studies of its conditionability to studies of its comprehensibility. The cloze procedure, borrowed from the field of journalism, where it had been developed to measure the readability of news articles, was employed to demonstrate objectively that the speech of schizophrenics is less comprehensible than that of normals (Salzinger et al. 1964b). Other measures were proposed as methodologically more reliable and potentially more informative than the subjective judgments commonly used in describing what makes schizophrenic speech “schizophrenic.” One such measure was the degree of accuracy with which a panel of native speakers could reconstruct the original spoken sequence of segments of continuous speech presented in random order (Salzinger et al. 1966). Salzinger argued that such measures were promising as objectively derived determinants of overall communicability as assessed by the cloze technique.

Salzinger’s interest in formulating a theoretical organizing principle for the behavior of schizophrenics led to the Immediacy Hypothesis (Salzinger 1973, 1984; Salzinger et al. 1966, 1970b; Salzinger and Serper 2004), which posits that schizophrenics tend to be disproportionately responsive to temporally or spatially proximal stimuli (including their own response-produced stimuli) at the expense of more remote stimuli. One test of this with respect to verbal behavior again employed the cloze procedure. The Immediacy Hypothesis was supported: The comprehensibility of the normals’

speech hardly varied over the length of the speech samples, but the comprehensibility of the schizophrenics' speech markedly declined (Salzinger et al. 1964b). Put in terms of the general hypothesis, this was seen as an example of the failure of the schizophrenics' behavior to be adequately governed by stimuli which, although more remote (the interviewers' initial instructions and the speakers' own earlier verbal behavior), were nonetheless relevant to maintaining normal behavior. Salzinger claims that the principle of immediacy helps to explain many diverse aspects of schizophrenics' behavior, including hallucinations and delusions, memory deficits, and the rapid extinction of operantly conditioned verbal behavior after continuously available reinforcement ceases.

In the 1960s, with the burgeoning interest in Noam Chomsky's theoretical position on language and how it is learned, and the controversy it sparked with the behaviorists, Salzinger became one of the most outspoken of Chomsky's critics and behavior theory's defenders. He argued that when Chomsky made linguistic "competence" a property of the individual – that is, the ideal speaker-hearer's innate knowledge of language, rather than simply a descriptive characteristic of language as people actually speak and write it – that is, "performance," he put it largely out of reach of objective investigation (Salzinger 1975). Salzinger insisted that a science of linguistics must include data from all the sources of influence – social context being one important example – that are known to be relevant to how people behave. Psycholinguistics continued to be one of his major interests (e.g., Salzinger 1995b).

Salzinger has been a prolific writer and speaker: the author of two books (a basic psychology text in 1969 and a book on schizophrenia from a behavioral perspective in 1973); the editor or coeditor of 12 books, one of which, coedited with Robert Rieber (Rieber and Salzinger 1998), on theoretical-historical perspectives of psychology, appeared in three editions; author of over a hundred papers, several dozen book chapters, and over 150 presentations at professional meetings; and, in the period 2001–2003, columnist for *Psychological Science Agenda* and the *APA Monitor on Psychology*. His papers show his ongoing interest in psychology as a profession and as a science, in exploring the applicability of behavior analysis to the understanding and modification of psychopathology,

and to extending the range of behavior analysis. In the clinical realm, he has applied the principles of behavior analysis to psychopathology in general (Salzinger and Serper 2009), to psychiatric diagnosis (Salzinger 1978), and to such specific areas as anger and aggression (Salzinger 1995a) and delusional speech (Salzinger 1998; McKay et al. 1995). In the case of schizophrenia, he provided a detailed overview of the manner in which behavior theory and analysis can inform therapeutic interventions (Salzinger 1998). He has also addressed the teaching of clinical behavior analysis (Salzinger 2000). His interest in exploring the usefulness of behavior analysis beyond its clinical applications has encompassed communications between pilots and air traffic controllers (Salzinger et al. 1979), bureaucratic behavior (Salzinger 2002), political behavior (Salzinger 2006), and animal research with rats on the effect of bioelectromagnetic fields (Salzinger et al. 1990), goldfish on conditioned reinforcement (Salzinger et al. 1968), and dogs on operant conditioning of barking (Salzinger and Waller (1962), among many other topics.

Along with his research activities, Salzinger has held a variety of influential elected and appointed positions in professional organizations and in academia. He has been particularly active in the American Psychological Association, where he worked as Executive Director for Science and where he is a Fellow of seven divisions, a past chair of numerous committees, and a past president of the divisions of the Experimental Analysis of Behavior and Society for General Psychology. He worked at the National Science Foundation in Washington, DC, from 1979 to 1981, where he created and managed the Applied Experimental Psychology Section, for which he received NSF's Sustained Superior Performance Award. He is a past president of the New York Academy of Sciences and, most recently, president of the Eastern Psychological Association.

Salzinger's major academic affiliations have been with Polytechnic Institute of New York University and Hofstra University. At Polytechnic, where he taught from 1964 to 1992, he was professor and head of the Department of Social Sciences. At Hofstra, where he taught from 1992 to 2001, he was professor and Director of the Graduate Program in Clinical/School Psychology. He is currently Senior Scholar in Residence in the Hofstra Department of Psychology.

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Sarason, Seymour

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Basic Biography

Seymour Bernard Sarason was born on Jan 12, 1919, in the Brownsville section of Brooklyn to poor Jewish immigrant parents, Maxwell and Anna (Silverlight)

Sarason. He grew up in Newark, NJ, with his brother, Irwin, and sister, Mildred. He contracted polio in high school, and wrote to President Franklin D. Roosevelt (who also had polio) with the encouragement of his mother. To the family's surprise, Roosevelt responded to the request for help by making arrangements for treatment that the family could not otherwise afford. Dr. Sarason made an almost complete recovery, but the experience of disability caused him to become an advocate of the less fortunate and to recognize social context as critical factors in determining or impacting one's potential.

Seymour Sarason earned his BA from Dana College in Newark (now Rutgers University) in 1939. He was granted his master's degree in 1940 from Clark University and his doctorate in clinical psychology in 1942 from the same institution. He was mentored by Saul Rosenzweig. Dr. Sarason married Esther Kroop, a fellow graduate student, in 1943. Two weeks after their 50th wedding anniversary, in 1993, Esther and Seymour were in an automobile accident which resulted in Esther's death.

Dr. Sarason first worked as chief psychologist at the Southbury Training School in Connecticut, a state institution for individuals with intellectual disabilities. Although he spent less than 4 years at the institution, his experiences there shaped his scholarly research interests across his career. In 1945, he became a faculty member of the psychology department of Yale University, where he worked for his 45-year career, and eventually became professor emeritus.

Seymour Sarason died on Jan 28, 2010, at the age of 91 in New Haven, Connecticut. He was survived by his daughter Julie Sarason, her husband Paul Feuerstein, his grandson Nathaniel, and his companion Irma Miller. His brother and sister-in-law, psychologists Irwin and Barbara Sarason, and his brother-in-law and sister-in-law, Irving and Eugenia Kroop, also survived him.

Accomplishments

Seymour Sarason is considered to be a visionary and pioneer in the field of community psychology and in the study of school culture. In 1961, he founded the Yale Psycho-Educational Clinic, which led the

movement in community psychology. He investigated how social settings and institutional cultures could be changed in order to address psychological and learning problems within a preventative framework. Dr. Sarason's work as director of the clinic until 1970 led to several seminal works, including the following: *Psychology in Community Settings* (1966), written with several coauthors; *The Culture of the School and the Problem of Change* (1971); and *The Creation of Settings and the Future Societies* (1972).

Over the course of his career, Dr. Sarason authored more than 45 books and 66 articles, becoming a prominent researcher on a wide range of topics, including test anxiety, school culture, productive learning, teacher preparation, and charter schools. He was also a vocal social critic. Dr. Sarason's first book, *Psychological Problems in Mental Deficiency* (1949), included social cultural factors as important considerations in a paradigm shift for understanding mental deficits in terms of the factors which nurture the potential of individuals. Many of Dr. Sarason's works are considered classics and his contributions were particularly significant in addressing educational reform.

Sarason served as President of APA's Division of Clinical Psychology and was Chairperson of the Educational and Training Board. He received honorary degrees from Syracuse University, Queens College, Rhode Island College, and Lewis and Clark College. Sarason was the recipient of awards from the American Association on Mental Deficiency and from the Divisions of Clinical Psychology, School Psychology, and Community Psychology of the APA. Established in 1993, the Seymour B. Sarason Award for Community Research and Action recognizes contributors following the meaningful work of Sarason.

See Also

► [Rutgers University, History of Psychology at](#)

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Schachter, Stanley

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Basic Biographical Information

Stanley Schachter was born April 15, 1922, in Flushing, New York, to émigré Jewish parents. His father was born in Vasilau and his mother in Radowitz (now Radauti); both cities are located in today's Romania and were previously part of Austro-Hungarian Empire. Stanley Schachter died June 7, 1997, in East Hampton, New York. He was survived by his second wife, former Sophia Thalia Duckworth, and his son Elijah, born in 1969. Stanley Schachter's papers are archived at the Bentley Historical Library of the University of Michigan.

Education and Professional Development

Schachter's early education started in James Monroe High School in New York and at Yale University, New Haven, Connecticut, where he completed his B.S. and M.A. degrees. At Yale, at the Institute for Human Relations, Don Marquis initiated him to research and Clark Hull to Socratic teaching technique.

In 1946, Schachter started his graduate studies at Massachusetts Institute of Technology (MIT) in Cambridge, Massachusetts, in the Research Center for Group Dynamics established by German social psychologist Kurt Lewin. At MIT, he became a research assistant to Leon Festinger while working in the Westgate study investigating sources of housing satisfaction and dissatisfaction. This study eventually guided Festinger's study of social influence, comparison, and communication theories. Through working on Westgate study, Schachter became aware of his love for discovery through contemplating the data; this approach he considered a source of strength and dilemmas in research. His subsequent self-reflective position on research included understanding that he preferred research discovery process as the way of life instead of doing research just for publication or for display of appreciating or discrediting colleagues in psychology (Schachter 1989).

After Lewin's death, Schachter moved, in 1948, along with the remains of Lewin's research center, to University of Michigan at Ann Arbor to complete his thesis about social deviation and rejection (Schachter 1951). There he worked under the supervision of Leon Festinger in the Institute for Social Research. In the spring of 1949, he moved to University of Minnesota with the appointment of assistant professor in the Department of Psychology cojoined with the work at the Laboratory for Research in Social Relations.

During his University of Minnesota times, Schachter married for the first time and divorced, and considered his stay at the University to be critical toward his scientific development which included breaking away from his mentors (Schachter 1989).

In the beginning of 1950s, Schachter's main research focus was repetition of his thesis in seven cross-cultural studies of deviation and rejection conducted in Belgium, England, France, Germany, Holland, Norway, and Sweden. In the 1950s, experimental research has not yet been extensively tried in European psychology and Schachter also felt that Europeans might be more accepting of differences than his American colleagues (Schachter 1989).

In 1953, back at the University of Minnesota, Schachter started a series of case studies of social isolation which guided his research of affiliation (Schachter 1959). At the same time, on a less serious note with Leon Festinger and Henry Riecken, as collaborators located in Chicago, this research team decided to write an amusing book called *When Prophecy Fails* (Festinger et al. 1956) to address rumors about the end of the world. Upon return to University of Minnesota, he felt that his research work was taking a shape as his own contributory work to psychology finally out of the shade of his connection with Leon Festinger, his previous mentor and collaborator. Schachter's experimental focus on emotions and physiological states described in *Psychology of Affiliation* (1959) had won him the AAAS Social Psychological Prize completion. The main findings assert that tendency toward affiliation increases with increased anxiety and hunger and that birth order acts as a discriminator of extent of affiliative tendencies. Schachter also formulated an anxiety-affiliation

relationship inasmuch as ambiguous situations or experiences of feelings give rise to a desire to be with others for the purposes of evaluating and determining, now in the context of social situation, the suitable reaction to these circumstances.

In 1961, Schachter joined the Department of Social Psychology at the Columbia University in New York as a professor of psychology. In 1962, during his tenure at Columbia, Schachter with his students Jerome E. Singer proposed a new theory of emotions that took into account cognitions. The authors postulated that state of visceral arousal was essential for the experience of emotion and that the different emotional experience could arise from the same visceral conditions. As a next step, Schachter proposed that individual descriptions of the feelings will occur in terms of available cognitions (either thoughts, past experiences, or environmental contexts) which individuals have available during that time. If these cognitions are deemed satisfactory, the individuals no longer look for alternative cognitive explanation of their aroused emotional states. However, if the same cognitive situations previously used as explanations arise, Schachter postulated that the emotional experience occurs only to the degree to which the individuals are physiological aroused (Schachter and Singer 1962).

In his subsequent work, Schachter turned his attention to study of physiological state of hunger in relationship to gastric motility and obesity. The studies presented facts that obese individuals tend to eat by external prompts not linked with hunger. The obese individuals considered externals and some feelings other than hunger – presence of food, environmental conditions, time of day, and elicited strong emotions – as signals to eat instead of internal feeling of hunger and gastric motility signaling the time to eat (Schachter 1986).

Next phase of Schachter research focused on field research of physiological addiction of smoking cigarettes and manipulating smoking behavior by manipulation of degree of urinary acidity (pH; Schachter et al. 1977). Different interest in relationship between mass media reported violence and decrease of sales in department stores (Schachter et al. 1986) lead Schachter to investigations of stock market phenomena with the goal to determine that market is influenced by

social and cultural pressures of individual participants instead of economical principles (Schachter 1989; Schachter et al. 1986).

Major Contributions

Schachter's main research interests in social psychology focused on interaction of social and physiological determinants of behavior. Through experimental research paradigm, he studied cognitive, social, and physiological determinates of emotionally arousing states (Schachter and Singer 1962), the physiological basis for nicotine addiction (Schachter et al. 1977), the causes of overeating and obesity (Schachter 1986), and predictions of stock market movements (Schachter et al. 1986). His main contributions to psychology are experimental studies of human affiliation (1959) and the Schachter-Singer theory of emotion (1962).

In addition to his career as a researcher, in 1966 Schachter was named Robert Johnston Niven Professor of Social Psychology. In 1992, Stanley Schachter retired from Columbia with an emeritus designation.

See Also

► [Lewin, Kurt](#)

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Schlick, Moritz

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Basic Biographical Information

Born: April 14, 1882 Died: June 22, 1936.

Born in Berlin, Friedrich Albert Moritz Schlick pursued his University education at Berlin, Heidelberg, and Lausanne and then completed the doctorate with Max Planck at Berlin in 1904 with a thesis on the reflection of light in inhomogenous media. This purely physical start set the fundamental tone for his career, which was devoted to bringing physical science and philosophy together in diverse ways. Between 1904 and 1907 he traveled extensively, including to America, where he met and married Blanche Hardy, who was instrumental in preserving his literary legacy. Between 1908 and 1911, when he began his professorial career at Rostock, he published on conceptual issues of happiness, ethics, and truth, all of which proved enduring developing interests during his subsequent career.

Major Accomplishments/Contributions

Similar to Ernst Mach, he advanced a view of psychology as an irreducible source of knowledge, and conceived of scientific concepts as reducible to philosophical ones (Schlick 1910/1979). During the next half decade, Schlick adapted his correspondence theory of truth and his ideas of verification through an appeal to experience to an analysis of contemporary physical theory, which gained him the friendship of Albert Einstein. His culminating achievement was his *Allgemeine Erkenntnislehre* which appeared first in 1918 and in a second edition in 1925 (Schlick 1925/1974). In 1922, after a brief stint at the University of Kiel in 1921, he became Professor of the Philosophy of Inductive Sciences at the University of Vienna, successor to Ludwig Boltzmann and Mach (Moritz Schlick Project 2009). In 1924 he began meeting in the University with several like-minded colleagues, a seminar first named after Ernst Mach and which later became well-known as the “Wiener Kreis” (Vienna Circle) which was

a vibrant center for the exchange of ideas that led to the formation of various realistic and physicalistic philosophies with shared commitments to logical empiricism and which soon gathered a worldwide following. While Schlick was recognized as the leader of the Vienna Circle, he was not a doctrinaire head of a school but rather a facilitator of several lines of independent thought. Schlick's own later development was strongly influenced by his meeting Ludwig Wittgenstein in 1926, with whom he entered into a period of intense correspondence and discussion that extended for several years until Schlick's career was suddenly ended by his being shot by a student with an unknown grudge. Schlick's effect on psychology was mixed. On the one hand, pragmatic American neobehaviorists such as Tolman found Schlick's emphasis on knowledge embedded in conceptual systems congenial (Smith 1986). On the other, Schlick's rootedness in Central European traditions (Johnston 1972) rendered much of his work outside the boundaries drawn by objective psychological science in the 1930s. For example, Schlick, bridging the nineteenth and twentieth century, was more interested in delineating the difference between knowledge and intuition rather than ruling out intuitive knowledge completely: thus, he was somewhat peripheral to the operationalist movement in psychology which derived from more aggressive logical positivists in the Circle (Green 1992). Schlick's ethical theory could have been congenial to the various naturalistic hedonisms that emerged in psychology in his era. However, Schlick held a positive view of pleasure as an end state and was something of a eudaemonist (Schlick 1930/1939), and this ran counter to the repressive or dismissive views of pleasure as a motivator or as a goal that accompanied the rise of both psychoanalysis and behaviorism. The Vienna Circle's activity ceased when Schlick was murdered and when Nazism forced its members to flee Europe. After this time the most specific conduit for Schlick's influence on American psychology was Herbert Feigl at Minnesota, who via his connection with the Minnesota Center for the Philosophy of Science and his friendship with Paul Meehl supported a vigorous program of integration of philosophy of science and psychology during the 1950s and 1960s. Other émigré psychologists and psychologically

oriented philosophers in the ambit of Schlick and the Vienna Circle were Karl and Charlotte Bühler, Gustav Bergmann, and Egon Brunswik, all influential and more directly connected to psychology than Schlick.

See Also

- ▶ Mach, Ernst
- ▶ Meehl, Paul E.
- ▶ Tolman, E. C.

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Science, Philosophy, and Religion in Psychology, The Legacy of William James

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William James, M.D. (1842–1910), Harvard Medical School Class of 1869, Father of American Psychology, internationally known philosopher of pragmatism, and a key figure in bringing Harvard into the twentieth century as an international university, was born in

the Astor Hotel in New York City, January 11, 1842. He was the eldest of five children by Henry James Sr. and Mary Robertson Walsh. Henry James Sr.'s father was William James of Albany, a businessman who successively had three wives, two of which he outlived, and 13 children. William of Albany, a staunch Calvinist in the Presbyterian Church, had made one of the largest fortunes in the American colonies, investing in, among other projects, the Erie Canal. This caused his grandson Henry the novelist, William's younger brother, to claim that "the family was not guilty of doing a lick of business for two-and-a-half generations." Henry James Sr., a Christian socialist, had attended theology school for two-and-a-half-years before dropping out to become a public lecturer. He saw himself as a theologian of an altogether new religion that he characterized as "The Physics of Creation" a melding of science and religion in the "Divine Natural Humanity" (James 1884b).

Living in New York at the time, the James Family was ensconced in one of William of Albany's houses on Washington Square. When Horace Greeley and Albert Brisbane introduced James the Elder to Ralph Waldo Emerson, during one of the Concord philosopher's lecture tours in New York, Henry James Sr. thought he had found the embodiment of the spiritual personality at the heart of his own system (Allen 1968). He invited Emerson over right away, and when Emerson got there, he was immediately ushered upstairs to see four-and-a-half month old William, "the little philosopher to be," as Henry James Sr. called him. Emerson's own son had just died in infancy and there was some affectionate sympathy over William's crib that caused Emerson to say a blessing, which the James family accounted from then on as William's christening by one whom they then referred to as "William's GodFather." From that moment on, young William became heir to the Swedenborgian and transcendentalist philosophical legacy, which was an intuitive literary psychology of spiritual self-realization that William had to adapt to the more rigorous dictates of the scientific age in which his own career matured. One could from then on say that every book that William wrote as a psychologist and a philosopher was an answer to this overarching Swedenborgian and Transcendentalist metaphysics of spiritual experience (Taylor 2002).

William James's Early Family Life and Peripatetic Education

William James's early education was accomplished by visits to the great museums abroad, a little schooling here and there in different countries, mastering French and German, encounters with great men and women of the era through Henry James Sr.'s social connections, and the center of it all, the James family dinner table, where all five of the James children were expected to have an opinion about everything. The first trip the family took abroad was in 1843–1844, where, through Emerson, Henry James Sr. (hereafter referred to as HJ Sr.) was introduced to Thomas Carlyle and at Carlyle's dinner table a host of other luminaries, including Alexander Bain, John Stewart Mill, and others. From this community of his father's friends, young William eventually began to align himself with the British Empiricists, at the same time that he became familiar with the reigning Associationist philosophy that would come to dominate the scientific study of the object in the center of attention within normal everyday waking consciousness. On that first trip, HJ Sr. also experienced what was initially diagnosed as a psychotic episode, but later reinterpreted as a spiritual "vastation," described by the scientist and interpreter of revealed religion Emanuel Swedenborg as an emptying out of the ego in preparation for the experience of higher spiritual consciousness. It was through Carlyle that HJ Sr. had been introduced to James John Garth Wilkinson, surgeon and translator of Swedenborg's scientific and medical writings, and later homeopathic practitioner, who became something of a pastoral psychiatrist to the James family, and a friend and host to Emerson when he went to England to lecture. In 1855, for instance, the James family traveled to London, then Geneva, and then returned to London to winter over in St. Johns Wood next to Wilkinson's family. There, William (age 13) and Henry (age 12) witnessed mediumistic seances, hypnotic trances, and cases of multiple personality treated by Wilkinson.

In 1856 the Family moved on to Paris, then to Boulogne sur mer, and by 1858, they had landed back in the USA, where William James began painting in Newport, Rhode Island, under the Barbizon stylist William Morris Hunt. Here, James experienced in depth, color, light and shadow, and perception, all of

which would later define his radical empiricism. But in 1859 the Family suddenly went to Geneva, but then in 1860 returned just as abruptly to Newport, where James resumed painting with Hunt.

William James at Harvard and the Darwinian Circle

HJ Sr. hereafter supported William, because William had said that he wanted to be a painter. Since HJ Sr.'s main vocation was actually raising his children, however, he told them that they could be anything they wanted, "Only don't be too narrow." This injunction only made the uncertainty worse for William because he knew his father was supporting him in an activity in which the father, nevertheless, did not agree. HJ Sr. wanted William to take up the scientific portion of the family's intellectual and spiritual legacy of establishing "The Physics of Creation." William finally caved in to the pressure and in 1861 entered the Lawrence Scientific School through his Father's connections to the Saturday Club, which included Louis Agassiz, and his Godfather Emerson, who by then had become a Harvard Overseer.

As a chemistry major, James became involved in Darwin's inner circle through Botanist Asa Gray at Harvard. Right away, he also met the eccentric logician of science, Charles Sanders Peirce, after which James began a tutorial in the history and philosophy of science under Peirce and Chauncey Wright. Wright's positivism would soon enable James to flee from the Christian metaphysics of HJ Sr. and the monistic transcendentalism of RWE, at least for the time being. Nevertheless, when in 1864 James transferred to the Harvard Medical School, the James family moved to Boston to be closer to their boys. (Henry, William's younger brother, was enrolled in the Law School at the same time.)

In 1865, William James produced his first two publications in the *North American Review* edited by Charles Eliot Norton, a friend of his father's. They were both about the impact of personal consciousness on natural selection (James 1865a, b). That same year, James accompanied Agassiz on the Thayer Expedition to the Amazon, hoping to find a place in the field of anthropology; but James returned, exhausted after a year of pickling specimens, camping in the bug infested Amazon, and spending a great deal of time in

the homes of the natives, whom he found more interesting than his own colleagues. He returned in a dejected state with viraloid, a form of typhoid fever. The following year the James family moved to Quincy St in Cambridge, providing James with a home right next to the College Yard. But in April, 1867, William sailed by himself for Europe, ostensibly to hear Wundt and Helmholtz lecture in Germany. Mainly, he wandered adrift through Dresden, Heidelberg, and Teplitz, as well as Paris and Geneva, until returning to Cambridge in 1868. During this period he continued to write and publish extensively, mainly reviewing works on hypnotism, and advances in physiology and anthropology in France, plus two reviews of Darwin (James 1868a, b).

In the spring of 1869 James received the MD from Harvard Medical School under The Parkman Professor of Anatomy and Physiology, Oliver Wendell Holmes, Sr., his father's good friend. That year James also reviewed Sargent's *Planchette: Or the Dispair of Science* and works on the subject of women's suffrage. Scholars are still in dispute about a near-suicidal episode that James later described as having occurred during this period, but it was likely sometime between 1867 and 1870. One explanation has been that it followed the death of his beloved cousin, Minnie Temple in 1870, and he collapsed in unspeakable grief, but other evidence also suggests that it was over lack of a vocation and the internalized conflict over free will versus determinism. Which path should he take? In the end, he eventually recovered by reading such authors as Coleridge and Renouvier and by "believing to believe in free will." He was then free to draw from both sides of the dilemma – the Swedenborgian and Transcendentalist metaphysics of his Father and his Godfather, on the one hand, and the ultra-orthodox positivism of Wright and Peirce on the other.

William James, Physiological Psychology, and Pragmatism

Henry Pickering Bowditch, Harvard's first research professor of physiology, in 1871 had opened a laboratory at Harvard Medical School, where, among other researches, he and James Jackson Putnam, and William James, who had all been Harvard Medical School classmates, had begun experiments on brain neuropathology and vivisection in Bowditch's

laboratory. Meanwhile, by 1873, James had landed a job at Harvard teaching Jeffries Wyman's old course in anatomy and physiology of vertebrates to undergraduates in Harvard College. Still uncertain if that was the right direction, however, he postponed it and left for Europe instead. He returned in 1874 and then again took up the position. At the same time, keeping one foot in philosophy, Peirce and James begin meeting alternately at each other's houses, along with Nicholas St. John Green, Chauncey Wright, and others in what came to be known as The Metaphysical Club, which would later become the germ of the Pragmatist movement in America (Fisch 1981).

Under the influence of Peirce, who had introduced James to the new experimental psychophysics in Germany considering the continued influence of French clinical, and experimental physiology in the tradition of Pierre Marie and Claude Bernard, and the influence of continuing experiments in Bowditch's lab, by 1875 James was motivated to open the first laboratory for student instruction in experimental psychology in the world over at the Lawrence Scientific School. That year he also taught the first course ever taught at Harvard in physiological psychology. In his own new setting, James then undertook to appropriate the categories of philosophy into the physiological laboratory. A controversy had also erupted by then, where James became embroiled with the followers of Herbert Spencer, the Social Darwinists, over the place of the individual in the process of natural selection. His writing started to become voluminous, as he published scientific and philosophical analyses in American and British periodicals that were also translated into French (James 1878a, b, 1879).

Starting to feel his mettle, in 1878 James contracted to write the *Principles of Psychology* in 2 years (it took him 12). There were many reasons for the delay: That year, he married Alice Howe Gibbons, July 10, and they eventually had five children within a short span. James also awarded G. Stanley Hall a PhD in psychology in 1878, at the same time that Charles Sanders Peirce published "*How to Make Our Ideas Clear*," his formal statement on pragmatism within the history and philosophy of science. Meanwhile, James delivered his first series of Lowell Lectures on "*The Brain and the Mind*" (1878a) in Boston after presenting them as part of an unsuccessful job application at Johns Hopkins.

They were to define several important chapters in his *Principles of Psychology* (1890b). The following year, The James's first son Henry was born. Publishing-wise, already retailing Peirce, who was by then teaching at Johns Hopkins and working on a project on scientific genius, in 1880 James published, among other works, "*Great Men, Great Thoughts and the Environment.*" It was a statement on how the laws of variation and selection operate in the minds of solitary geniuses, who lead the way for the rest of us. He spent the summer in Europe and at the same time was elevated to Asst Prof. of Philosophy at Harvard.

In the next phase of his career, still trying to finish his *Principles of Psychology*, James helped to launch Psychical Research in American scientific circles, while he also continued to appropriate the categories of philosophy for physiological psychology, such as the study of the emotions. While acknowledging German experimental science, during this period he also became more of an advocate for the French Experimental Psychology of the Subconscious, upon which he began to have a significant influence through Theodule Ribot. In 1881, thinking of making a contribution to the field of otology, he conducted experimental studies on the question of why deaf mutes seemed impervious to dizziness, which he published as "*The Sense of Dizziness in Deaf Mutes*" (1881). He also conducted laboratory research into the consciousness of lost limbs (1887), and reaction time in the hypnotic trance. As well, he collected data for an international census on hallucinations, and he performed extensive studies on automatic writing and post hypnotic suggestion. Such studies debunk the experimentalists' continued claim that James did no scientific research.

Then a calamitous year befell him. In January, 1882, his beloved Mother died; his Godfather, Emerson, followed a few months later. Then, Joyfully, James's second son, William, was born in June, but 6 months later, in December, HJ Sr. died. James was on sabbatical in Europe at the time, having brought in Josiah Royce on a temporary appointment to cover his courses. While abroad, among other things he visited Charcot's lectures at the Salpetriere, made initial contact with Theodule Ribot and Alfred Binet, and then met with the founders of the newly launched Society for Psychical Research in England around F.W.H. Myers and Edmund Gurney. These encounters began to draw his

attention away from the positivist tradition in reductionistic science that had guided his writing in what became *The Principles of Psychology* (1890b). That work when finally completed had two competing centers of gravity. What was to be the primary center of gravity, based on the rational ordering of sense data alone, focused on only what was in the center of the field of attention in waking consciousness? The other suggested that there were multiple states of consciousness within us, waking conscious being only one among many, further suggesting that experimental laboratory psychology, with its exclusive focus on the rational waking state, might be nothing more than a colossal elaboration of the Ego.

But before all that happened in 1890, in 1883 James had returned to Cambridge in March. There, he confronted the reality of his dying brother. Long suffering from wounds sustained in the Civil War, Wilkey died in November. This was followed in 1884 by the birth of James's son Herman, who unfortunately died a year-and-a-half later. Nevertheless, James continued to work. He published "What is an Emotion?" (1884a) to great controversy, because he claimed emotions were the physiological reaction invoked by our perceptions, not grand categories of what was true and good and beautiful in classical philosophy. He also attended preliminary meetings that blossomed into the American Society for Psychical Research (ASPR), and he published his first book, *The Literary Remains of the Late Henry James* (1884b), which contained a 100 page introduction to his father's largely obscure literary and philosophical gifts to the world.

In 1885, when it was officially founded, James was elected a co-Vice President of the ASPR. Among other tasks, he chaired the Committees on Hypnotism and Mediumship. Grief-stricken, in a search with his wife Alice for their little lost Herman, James was also first introduced to Mrs. Lenora Piper, the Belmont medium. Though he never contacted his dead son across The Divide, James did find in Mrs. Piper his single case study to reconstruct the dissociative model of consciousness of the era and to give evidence for a growth oriented dimension to personality. After 1886, he also intensified his experiments in automatic writing, hypnosis, and dissociative consciousness in the Harvard Psychological Laboratory.

Further, regarding his family, in 1886 James was able to purchase a summer home in Chocorua, New Hampshire. His daughter Margaret was born, March 24, 1886. By 1889 the Family was able to move into their newly built home in Cambridge at 95 Irving St., where James lived for the rest of his life. That year, Harvard also named James its first Allford Professor of Psychology. Soon after, James traveled abroad again and attended the First International Congress of Experimental Psychology, held in Paris. Then, 1890 became another banner year. He published “*The Hidden Self*,” (1890a) a review of the work of Janet and Binet on dissociative consciousness in *Scribner’s Magazine*, but this was overshadowed by publication at the same time of *The Principles of Psychology* (1890b) in two volumes to international acclaim. He declared in a letter that he was finally glad to get that “dropsical, tumescent mass” off his desk. To top off the year, his youngest son Aleck was born in December.

Publication of *The Principles of Psychology* marked a major turning point in James’s career as his acclaim grew. In the new phase after 1890, he concentrated more on experimental psychopathology, mental healing, and the psychology of religion, though he also continued to teach traditional subjects in psychology and philosophy. Meanwhile, his growing stature became a major vehicle by which he was able to launch pragmatism as the first uniquely American philosophy to have international consequences. The problem was that from then on philosophers read only his philosophical texts, while psychologists only read his *Principles of Psychology* (1890b) and to this day ignore the rest. Led by such anti-Jamesians as G. Stanley Hall, the returning students who had garnered their PhDs from Wundt set up laboratories and to assure their needed finances launched a movement to debunk James’s functional psychology in favor of psychophysics, mental testing, and a reductionistic epistemology of materialistic positivism, where they maintained psychology was a science that followed physics, not philosophy. James was famous, but given only lip service among the neo-Wundtians as a scientist of any worth.

In addition to his Harvard appointment he became a public lecturer. He defended the spiritualists and mental healers against licensure by the MDs; he became an ardent interpreter of French advances in

psychopathology; he continued to champion the emerging clinical tradition; and he became a permanent critic of the German Experimental Laboratory Tradition, made up of the so-called brass instrument psychologists. These were all things that played into the hands of his detractors as poor examples of hard science. He also continued to work on an entirely new epistemology for the way experimental psychology should be conducted. The experimentalists were just beginning to get their mettle, however, so James’s new claim that a different epistemology was needed for how experiments should be conducted fell on deaf ears. Experimental psychology was busy separating itself from philosophy, and the philosophers were urged to form their own national organization. James, however, rejected the artificial boundaries being thrown up to demarcate the disciplines, but was now cast into a no man’s land between the barriers.

At the same time, James had family matters to deal with. In 1891 he went on sabbatical to England, where he was able to reconcile with his ailing sister Alice and to see his brother Henry. In 1892 James also managed to produce a cut-and-paste version of the two-volume *Principles* in one volume, entitled *Psychology: Briefer Course* (1892), which became a standard college textbook for the next 20 years. In it, he eliminated one of the key characteristics of the Stream of Consciousness; namely, that there appears to be a world out there separate from the person. It was, rather, he would later say, always (what we might call today) an “inter-subjective connection,” an idea that launched American Functional Psychology. In August of 1893 James returned to Cambridge and began teaching a graduate course on Experimental Psychopathology at Harvard until 1898. Meanwhile, he received news in 1893 of his sister Alice’s death from cancer.

The American Psychological Association, which had been organized by G. Stanley Hall in 1892, elected James its second President in 1894. His Presidential Address was on “*The Knowing of Things Together*” (James 1895). There, he repudiated logical positivism as the basis for psychological science, and forecasted a new epistemology for experimental psychologists that would redefine psychology as more of a person-centered science. Also, that same year, James first introduced the work of Breuer and Freud to the American psychological public (James 1894) in the inaugural

issue of James Mark Baldwin and James McKeen Cattell's *Psychological Review*.

There, he reviewed Janet as the originator of the psychogenic hypothesis – the concept that a physical symptom could be caused by an idea buried in the subconscious, mentioned one of Breuer and Freud's recent publications as “corroboration for Janet's already old findings,” and used these French and German medical sources to claim in his simultaneous review of Whipple's *Philosophy of Mental Healing* that here was proof that the mental healers had been practicing sound methods of psychotherapy all along.

In 1896 James delivered a second set of Lowell Lectures, this time on the subject of “Exceptional Mental States” (Taylor 2010). In these lectures he presented a dynamic psychology of subconscious states within the individual and showed its same pathological working in the social sphere. The lectures launched a loose-knit group of physicians, psychologists, and philosophers which became known in retrospect as “The Boston School of Psychopathology.” (Taylor 1983) But his philosophical endeavors also intervened. In 1897 he published *The Will to Believe* (1897), a book of his collected papers in which he named his new metaphysics in the preface “Radical Empiricism” (James 1897). For these endeavors, in 1898 James had his professorship revert to philosophy from psychology. That year he also injured his heart in a hiking accident in the Adirondacks, a condition that would later lead to his premature death. At the time, this did not deter him from traveling out to California, where he first enunciated Peirce's Pragmatism to the philosophical world before the Berkeley Union at the University of California, giving Peirce full credit. His talk was on “Philosophical Conceptions and Practical Results” (1898). Peirce repudiated James's interpretation of his own work, however, saying he had only meant to enunciate a rule of logic – that to be clear, one must consider the effects of one's thought, not actually see them worked out. James, on the other hand, maintained that it meant beliefs are always to be tested by their consequences. The work on pragmatism, particularly James' version, began to spread through James and his association with Josiah Royce at Harvard, John Dewey at Chicago, F.C.S. Schiller in England, Giovanni Papini in Italy, and soon Henri Bergson in France. James returned to Cambridge,

Massachusetts in 1898, and delivered the Ingersoll Lectures on Immortality at Harvard, published as *Human Immortality: Two supposed Objections to the Doctrine* (1899a). He also published *Talks to Teachers on Psychology and to Students on Some of Life's Ideals* (1899b), which he had been giving as public lectures for almost a decade.

James had received an invitation to deliver the Gifford Lectures on Natural Religion at the University of Edinburgh in 1897, but due to his heart ailment, which had significantly weakened him, he had to postpone the lectures and even tried to cancel them at one point. In 1900 he was still in Europe, trying to recuperate while preparing for the lectures, having dragged with him a giant trunk of books on religious subjects. It was finally decided that he would deliver 20 lectures in two sets, the first half in June 1901 and the second half in June 1902. In the interim, he returned to Cambridge, Massachusetts, where in the spring semester of 1902, he gave the only graduate course of his career at Harvard on the psychology of religion. His students were, in fact, the first American audience to hear the contents of *The Varieties* before it was published. When he traveled back to Edinburgh and delivered his second set of talks in June, at the same time the full complement of his 20 Gifford Lectures appeared in print as *The Varieties of Religious Experience* (1902), again to international acclaim.

He spoke to his audience, he said, as a psychologist of religion, and he would define religion as that which is centered in the personal experience of the individual. He further maintained that an exploration of subconscious states was the road to understanding the ultimately transforming effects of the mystical experience, being the highest states of consciousness that human beings had been able to describe, despite the fact that they were beyond words and even any conceptualization while having them. The truths of these states, however, were always to be tested in terms of their fruits for life; that is, in terms of their effect on enhancing the moral and aesthetic dimensions of daily living.

As such, with the *Varieties*, James had covered the full spectrum of human consciousness, from a cognitive psychology in *The Principles* (1890), to a dynamic psychology of subconscious states in his “Exceptional Mental States” Lectures of 1896, to the

ultimately transforming effects of the transcendent experience in *The Varieties* (1902). He was then required by his conclusions as a philosopher of psychology to step back and ask “is a science of consciousness really possible?” To answer this question, he devised a tripartite metaphysics of pragmatism, pluralism, and radical empiricism, his own rendition, seemingly, of Charles Peirce’s basic categories of existence, namely, Firstness, Secondness, and Thirdness (Taylor *in press*). Even in germinal form, then, *The Varieties* serve us as James’s most coherent statement on his tripartite metaphysics, the further elaboration of which occupied his professional career for the remainder of his life.

William James’s Tripartite Metaphysics: The Unfinished Arch

James died in 1910 without finishing the articulation of his metaphysical system, thus leaving us with an unfinished arch. His pragmatism was perhaps the most well developed. He made a start of his radical empiricism, and his ideas about noetic pluralism were scattered throughout his writings, although he did produce an entire volume on the subject, his Hibbert Lectures on *A Pluralistic Universe* (1909a). Pragmatism was both a method for resolving differing truth claims about the nature of ultimate reality and also a way of gauging beliefs, which are always tested by their consequences. Pluralism or “noetic pluralism” as he called it, referred to the unique individuality of each person’s way of working out the nature of ultimate reality. All of us were capable of having a transcendent experience of oneness, for instance, but that one great experience of unity might not be the same from person to person. Radical empiricism, probably the center of his system, referred to pure experience before the differentiation of subject and object. He so named it because he saw himself as an empiricist, but traditional science and philosophy interpreted empiricism to mean sense data alone, while James’s redefinition required that it be understood as the full spectrum of human experience, not simply confined to the senses; hence he called it radical empiricism to differentiate it from its more common definition, and from then on advocated that experimental psychologists adopt empiricism and not rationalism as their standard.

He had mentioned it before in his writings, but in 1903 he devoted an entire lecture to the subject of radical empiricism at Glenmore in the Adirondacks. It was not until 1904 that he first published two of his most important statements on the subject. One was an article on “Does Consciousness Exist?” (1904a), and the other, “A World of Pure Experience” (1904b). James’s answer to the question “Does consciousness exist?” was an emphatic no, if by consciousness psychologists and philosophers meant consciousness as an object of scientific study. He said that it did exist, however, but it was a process not an object that always had to be connected to someone’s personal consciousness somewhere. The idea scandalized the philosophical community, because it contradicted the basis upon which analytic philosophy and rationalist science had always been conducted. An examination of 25 years of philosophers and psychologists who had addressed James’s ideas demonstrated that the majority wrote authoritatively, but had no clue whatsoever about what James was getting at (Taylor and Wozniak 1996). This colossal misunderstanding by the analytic philosophers persists to this day.

Nevertheless, accolades for his previous work continued to mount. In 1904, he was elected a second time as President of the American Psychological Association. The following year, 1905, he delivered a talk on his Godfather, Ralph Waldo Emerson, at the Emerson centenary in Concord, Massachusetts. In order to prepare, he reread Emerson’s works in their entirety. The beloved task had major consequences, as he had already emancipated himself from his own Father’s Swedenborgian metaphysics by publishing *The Varieties*, and now he settled his accounts with Emerson’s legacy, electing to reject his monism, but embrace his pragmatism. That year James also traveled to Europe to meet Bergson for the first time, visit with his old student Gertrude Stein, who by then was collecting Picasso and Brock. He also attended an international Conference on Psychology where he was pressed into delivering an unplanned speech on the subjective experience of consciousness in French (James 1905).

In 1906 James lectured at Stanford, where he experienced the San Francisco earthquake and he talked at Berkeley on “The Moral Equivalent of War” (James 1910). In 1906, he also delivered a third series of Lowell Lectures, this time on *Pragmatism* (1907). That year,

after 24 years of teaching at Harvard, he also retired. This gave him the opportunity to travel to England where in 1908, he delivered his Hibbert Lectures on “A Pluralistic Universe” (1909a). Running out of time, in 1909 he produced *The Meaning of Truth* (1909b) and he gave his final impressions as a psychical researcher, the case of the Piper-Hodgson Control (James 1909c). In September of that year he met Freud and Jung at the Clark University Conference.

The picture taken of the speakers and the audience who heard them contained many of the greats in nineteenth- and twentieth- century psychology. James, Freud, Jung, Brill, Ferenczi, Ernest Jones, and Hall were there, as was Edward Bradford Titchener, James McKeen Cattell, Edwin Holt, Joseph Jastrow, William Stern, Alfred Binet, Adolf Meyer, and others. The photo depicted the crossroads where two eras met for just a brief moment, just as the Jamesian epic was coming to a close and the era of Watsonian behaviorism and Freudian psychoanalysis was just beginning.

In March of 1910 James sailed to England with wife Alice to see ailing brother Harry, but quite ill himself, James disappeared, alone, for 2 weeks in Europe. There is some evidence that he may have tried to visit Freud in Vienna at that time, but this remains uncorroborated. With great difficulty, prepared at any moment to just “sit his bucket down,” he and Alice returned to the USA in the late summer, where William James died August 30 in Chocorua, New Hampshire. There is a grave stone in the family plot at Cambridge Cemetery, but as the family tells it, he was cremated and his ashes scattered over his favorite swimming hole in Chocorua. One year after his death, *Some Problems in Philosophy* (1911) was published, and 2 years after his death, *Essays in Radical Empiricism* (1912) appeared, edited by James’s biographer, Ralph Barton Perry. These posthumous publications also acknowledge the unfinished arch that James has left us as strongly articulating the central core of his philosophy.

With his death, a major figure was acknowledged to have passed from the American scene. The intellectual historian Page Smith said 70 years later that the reason Harvard was great at the opening of the twentieth century was because William James was great, meaning that James was likely the most prominent faculty member at Harvard with the widest

international reputation, and Harvard, in addition to all its other great accomplishments as a national university, was immeasurably enhanced by being able to bask in that glow.

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Seashore, Carl E.

DAVID C. DEVONIS

Graceland University, Lamoni, IA, USA

Basic Biographical Information

Born: January 28, 1866; Died: October 16, 1949.

Born in Sweden and quietly proud of that heritage, Carl Seashore – the Americanized form of his original name, Sjöstrand – grew up in Iowa and, after his undergraduate work in education at Gustavus Adolphus College in Minnesota and his graduate work in psychology at Yale under first Ladd and then Scripture, began in 1897, a career at the University of Iowa which lasted for the rest of his life. He became head of the Department of Psychology and Philosophy in 1905 and Graduate Dean in 1908, a position he held until 1936 and which he resumed during the Second World War for 4 years.

Major Accomplishments/Contributions

In psychology Seashore was an experimentalist, about equally balanced between apparatus-driven laboratory experimentation and psychological testing. Over his career he constructed many devices for the measurement of vision, audition, and learning and regularly provided reviews of newly developed apparatus. He advocated teaching introductory psychology via an organized series of focused demonstrations of principles and phenomena. The contents of his manual for this course, *Elementary Experiments in Psychology* (Seashore 1908), reflect the wide range of Seashore's expertise and some of his many research interests, including auditory space, tactual space, cutaneous

sensation, Weber's law, mental images, association, memory, affective tone, apperception, normal illusions (Seashore 1896), reaction time, visual afterimages, visual contrast, the visual field, and the spatial sense of taste (Seashore 1911a). Ordinarily, his parallel interest in testing in that era would have led to a focus on individual differences and intelligence, and in fact he wrote many occasional papers for educational journals dealing with differential abilities in classrooms. His personal talent for music and his desire to make it more accessible to everyone coalesced in his studies of musical performance, summarized mid-career in *The Measurement of Musical Ability* (Seashore 1919). Many of the tests for musical aptitude and skill that Seashore invented persist, with revision, in the field today. Through the 1920s, Seashore continued to work with students on phonophotography, the photographic reproduction of waveforms of music which could show graphically why a particular vibrato, for instance, was superior. At one time, Seashore was invited to teach at the Eastman School of Music, but he preferred his laboratory and the university environment. Seashore also collaborated with N. C. Meier at Iowa on the measurement of responses to visual art (Seashore 1929).

In his administrative and policy-making roles, Dean Seashore – immortalized by Grant Wood in *Honorary Degree* (1937) – was one of the Solons of the developing profession of psychology in America. He had an optimistic vision of psychology's potential effect in the world, neatly summed up in his adoption of the term "euthenics" – living wisely, or living well – to connote the application of science in the service of optimal child development (Seashore 1941). Seashore's philosophical and theoretical spirit is captured in his *Psychology and Daily Life* (Seashore 1913). Herbert Langfeld, reviewing it, approved of its principled ethics while another sympathetic reviewer, Leonard Troland, saw Seashore's conception of a mind constructing itself on the basis of natural scientific principles and growing into right conduct in harmony with his own developing views of the mind in relation to the world and society. Seashore was always ready, too, with wise saws and sage advice conveyed in professional journals of education as well as popular sources, even extending to prescriptions for healthy sleep (Seashore 1910), and was very interested in the development of Iowa's undergraduate

students, offering a compendium of principles for sound living in *Living and Learning in College* in 1927. Seashore's interests in development and growth bore fruit in the establishment of the Iowa Child Welfare Research Station in 1917, largely due to Seashore's support of the philanthropist Cora Bussey Hillis's plan to replace "corn culture" with "child culture" in Iowa and nationwide. The Station was a foundation stone of child developmental study in America. As Graduate Dean, Seashore wielded great power in the academic arena and there too was able to realize his panoptic view of psychology, articulating all of the academic departments, including psychiatry, social work, and even the arts, in psychology's academic activity. This vision, shared with other colleagues, was largely realized in increased cross-disciplinary initiatives during his era and afterward which have been essential to the progress of the field. He was an early proponent of the profession of consulting psychology (Seashore 1911b). While Seashore left little correspondence, he wrote a comprehensive memoir that included several of his papers (Seashore 1942). Many of his family also entered psychology, including his son Robert (1902–1951) who was a specialist in learning and applied psychology and head of Psychology at Northwestern University, and his two nephews Harold and Stanley Seashore, both of whom achieved eminence in applied psychology. His most well-known student was ► [Miles, Walter R.](#) of Yale University, who continued Seashore's tradition of omniscient application of the experimental method across all areas of human life.

See Also

- [Langfeld, Herbert Sidney](#)
- [Miles, Walter R.](#)
- [Troland, Leonard T.](#)

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Seligman, Martin E. P.

LEAH FREDMAN

Lehman College, Bronx, NY, USA

Basic Biography

Martin Seligman was born on August 12, 1942 in Albany, New York. He completed his undergraduate studies at Princeton University and his graduate studies at the University of Pennsylvania.

Seligman’s interest in psychology piqued at age 13, when his sister introduced him to Freud’s works, which she had been reading in college. Seligman, who had failed to make his 8th grade basketball team, initially read Freud to pass time, though quickly became fascinated with the insights he encountered. His original interest flourished into a hope of better understanding human psychopathology, leading him to participate in research on rats during his undergraduate studies as a philosophy major at Princeton University.

The day before his graduation from Princeton in 1964, Seligman married his first wife, Kerry Mueller. Currently Seligman lives with his wife Mandy McCarthy whom he married in 1988.

After graduating from Princeton summa cum laude Seligman decided to become an experimental psychologist, aspiring to discover ways to ease people’s suffering. He completed his doctorate at the University of Pennsylvania in 1967, after which he accepted a teaching job at Cornell. Seligman was dissatisfied with Cornell’s administrative policies, and after a request came from Dr. Aaron T. Beck at the University

of Pennsylvania to assist with his formulation of a new treatment for depression, Seligman left Cornell and returned to the University of Pennsylvania as an associate professor. In 1976 he was promoted to professor and awarded the American Psychological Association’s Early Career Award for his theory of learned helplessness. Upon his return, Seligman took his student’s advice and received clinical training at Penn’s psychiatry department.

Between the years 1980 and 1994 Seligman acted as the University of Pennsylvania’s Director of Clinical Training of the psychology program. He is currently a Zellerbach Family Professor of Psychology, as well as the director of the Positive Psychology Center at the University of Pennsylvania.

Accomplishments

Seligman’s most famous contribution to psychology was his theory of “learned helplessness.” At age 13 Seligman’s father became paralyzed following a stroke, and watching him go from an able-bodied man to one struggling with helplessness and despair, first fueled Seligman’s interest in helplessness and pessimism. He formed his theory of learned helplessness, in 1967 during his studies at the University of Pennsylvania. Together with Steve Maier, Seligman conducted a series of experiments where he subjected dogs to electric shocks. Some of the dogs had the ability to terminate the shock while others, yoked to the first dogs, did not. Dogs that previously learned their actions could affect the outcome later quickly learned to avoid a shock when placed in a shuttle box. Dogs subjected to the inescapable shock learned helplessness, displaying symptoms similar to humans suffering from chronic depression. When placed in the shuttle box, two thirds of those dogs simply lay down and accepted the shocks in defeat, forgoing any endeavors of escape. These revolutionary experiments supported the idea that a large part of depression is learned, the outcome of a previous perception of uncontrollability, and therefore reversible.

In the mid-1990s Seligman refocused his interests, shifting from depression and learned helplessness to optimism. Following an incident where his 5-year-old daughter reprimanded him that just as she had found the strength to stop whining, he had the power to stop

being a grouch, Seligman realized he should focus on nurturing personal strengths. Drawing on the concepts of the humanistic movement he decided to branch out and create the field of positive psychology, concentrating on what causes humans to burgeon. He has utilized his earlier findings of learned helplessness to devise ways to imbue positivity and promote flourishing in humans; redirecting the field's attention from deficits to virtues.

Positive psychology conceptualizes happiness as a trichotomy composed of the domains pleasure, engagement, and meaning. Its declared positivity research goals include positive emotion, character strengths, and institutions. Seligman established the Positive Psychology Center at the University of Pennsylvania to help achieve and apply these goals. When elected the APA's president in 1996 – by the largest margin ever – Seligman received his chance to significantly impact the mental health field. As president he declared his initiatives the study of ethnopolitical warfare, together with positive psychology's mission of amplifying human strengths, and preventing psychopathology.

Seligman sought to modify clinical psychology's traditional focus on the rehabilitation of human weaknesses, since even when successfully curing psychopathology, former patients often did not feel fulfilled or happy. Therefore positivity, Seligman concluded, should be researched in its own right independently of negative traits. In 2004, in an effort to promote the methodological aspect of the field, Seligman and Christopher Peterson created a classification handbook for character strengths and virtues. The product of a 70-nation study, Seligman has referred to the handbook as the “DSM-I of Positive psychology.”

A major concentration of Seligman's research has been on explanatory styles as a predictor for helplessness. Pessimists explain bad life events as permanent, pervasive, and personal; they explain good events as temporary, localized, and engendered by external forces. Their lack of hope leaves them susceptible to depression. Building on these findings, Seligman devised a new treatment for depression called positive psychotherapy. Contrary to more classical forms of psychotherapy, positive psychotherapy focuses on increasing positivity in a person's life as

opposed to minimizing negativity. In addition to treating current psychological problems, positive psychotherapy aspires to fortify a person in order to prevent future depressive episodes.

The applicability of positive psychology is wide ranging. Seligman's patriotism led him to implement his finding in military settings. In 2002 he lectured at the San Diego Naval Base, utilizing his knowledge of learned helplessness and positive psychology to help immunize American troops from torture. In 2009 he addressed a group of army sergeants on positive psychology and resilience as part of the Comprehensive Soldier Fitness program in hopes of preventing suicide and posttraumatic stress disorder among soldiers. A second important application of his findings is the prevention of depression among children at risk through positive cognitive behavioral exercises. The Penn Resiliency Project is such a program at the University of Pennsylvania, and together with other similar worldwide programs, thousands of children have been helped. In the form of best-selling self-help books and numerous articles in newspapers and magazines, positive psychology has impacted popular culture as well. Seligman's books have been translated into 20 languages and his research has appeared in such publications as the New York Times, Newsweek, and Parents.

Seligman has received copious awards over the years. Among them are the MERIT Award of the National Institute of Mental Health in 1991 for his research on preventing depression, the Pennsylvania Psychological Association's award for “Distinguished Contributions to Science and Practice” in 1995, and two Distinguished Scientific Contribution awards from the American Psychological Association. Additionally, he has been awarded an honorary Ph.D. from Uppsala, Sweden, and a Doctor of Humane Letters from the Massachusetts School of Professional Psychology. Seligman's many awards and honorary degrees demonstrate recognition of the importance of his accomplishments, ranging from pessimism to optimism, to the field of psychology.

See Also

- ▶ Maslow, A. H.
- ▶ Rogers, Carl R.

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Sève, Lucien

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Basic Biographical Information/ Major Accomplishments

Lucien Sève is a French Marxist philosopher and psychologist who played a major role in the process of developing a Marxist theory of human individuality. His magnum opus *Man in Marxist theory and the psychology of personality* (translated into more than 25 languages) has been a major contribution to the project of Marxist psychology. It significantly enriched the discussion when it appeared four decades ago. It was a truly innovative departure from different versions of West European Marxism (Frankfurt school, different trends of Marxist structuralism, Marxist humanism, existentialism, etc.), showing how Marx's psychological ideas might enhance our understanding of human mental life and human nature. Sève concluded that we are in need of a Marxian scientific psychology. Sève has engaged in polemical exchange with Louis Althusser, Adam Schaff, Roger Garaudy, Maurice Godelier as well as with the tenet of Marxist humanism. He served on the Central Committee of the

French Communist Party and directed the party's publishing house from 1970 to 1982. Sève's theoretical psychology is grounded within Marx's ideas developed in *Die Grundrisse* and *Das Kapital* as well as *German Ideology*. He was very critical of Marxist structural psychologists, Marxist hermeneutics, Marxist phenomenologists, Marxist existentialists, Marxist humanists, and Freudo-Marxism. It is difficult within this space to assess the magnitude of Sève's theoretical research paradigm. I was exposed to Sève's ideas since 1975 when I was a university student. I earned an enormous amount of knowledge from his writings; it shaped my theoretical framework. It is through Sève's writings that I discovered Marxist psychology, Polizer's concrete psychology, Wallon's dialectical materialist psychology, Leontiev's activity theory, and Vygotsky's cultural historical psychology. In Sève's work, I discovered the answer to why the excellent minds and respected scholars turn to Marx and not to Freud, Pavlov, William James, Skinner, or Lewin, when they deal with the structures, functions, and formations of psychological processes. Sève was credited with completing historical materialism by a Marxist theory of human individuality. His theory of personality was conceived implicitly and explicitly as a counter project to Althusser's reading of Marx and Freud's psychoanalysis as well as to the whole project of different trends of structuralism. Sève stated that, "it is true to say that the theoretical-anti-humanist interpretation certainly does not, as it claims, finally provide a strict reading of Marx, which goes beyond Marx himself, but is in fact a contamination of Marxism with alien approaches" (1972, p. 80). In 1980, he fulfilled Marx's project of *Treatise of dialectics* by the publication of his *Principia dialectica* written within Marx's theoretical framework. For unknown reasons, Sève has never been affiliated with any French academic institutions. He still is a very active scholar in publications as well as in the assessment of communism in theory and practice. Since the fall of the Berlin wall, Sève has published a dozen books on what went wrong with the state Communist experiment.

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Shakow, David

ROBIN L. CAUTIN

Manhattanville College, Purchase, NY, USA

Basic Biographical Information

David Shakow was born on January 2, 1901 to Abraham Chaikowitz (aka Shakow) and Eva Leventhal, Russian immigrants who had recently settled on Manhattan's Lower East Side (A. Shakow, personal communication, July 21, 2009). Although raised in an Orthodox Jewish household, as a teenager Shakow abandoned the traditional customs of Judaism. He attended the High School of Commerce in preparation for a business career, but his vocational interests would change, owing in part to his participation at Madison

House, a settlement in NYC for new immigrants. It was there that he encountered the ideas of Freud and Jung. He would also soon encounter the works of William James, whom he considered his "lifelong hero," and to whom he attributed his abiding interest in psychopathology (Cautin 2006).

Shakow wanted to study where James had taught, so after some effort to disentangle himself from the family business, he entered Harvard in 1921. There he benefited from significant mentorships with William McDougall, E. G. Boring, and Frederick Wells, *inter alia* and from various field experiences at McLean Hospital and Boston Psychopathic Hospital, institutions central to the history of American clinical psychology. He later characterized his early training as being of a "do-it-yourself" character, and this idea would inform his later contributions to the professionalization of clinical psychology (Cautin 2006).

In 1924, immediately upon graduating from Harvard, Shakow worked for 15 months as a psychological assistant under the supervision of Grace Helen Kent at Worcester State Hospital (WSH). The following year he began graduate studies in psychology at Harvard, and met Sophie Harap, whom he married in June 1926. In 1927 Shakow earned his M.A. The following year, however, Shakow's dissertation research on subliminal perception, under the supervision of E. G. Boring, had produced equivocal findings. As he was soon to be in the position of supporting a young family, Shakow delayed completion of his dissertation and left Harvard to accept an appointment as Chief Psychologist and Director of Psychological Research at WSH. There he directed a group of researchers who were part of an interdisciplinary team dedicated to understanding the nature of schizophrenia. He would ultimately return to Harvard in 1942 to defend a refocused dissertation, *The Nature of Deterioration in Schizophrenic Conditions* (1946), which was based on this work.

In 1946, Shakow left WSH to become professor of psychiatry at University of Illinois College of Medicine; 2 years later he accepted an additional professorial appointment in the University of Chicago's Department of Psychology. During the next 8 years, Shakow was deeply involved in teaching, training, and educational policy, curricular development, and served as a consultant for various branches of the federal government (Cautin 2006, 2008).

In 1954, Shakow became the first chief of the Laboratory of Psychology in the Intramural Research Program of the National Institute of Mental Health (NIMH). There he collaborated with a distinguished interdisciplinary group of researchers who studied a broad range of psychological topics. Shakow retired in 1966, but remained active as a senior research psychologist and scientist emeritus. Shakow died on February 26, 1981, a few days after suffering a heart attack at work.

Major Accomplishments/ Contributions

Shakow was one of the first to apply experimental methods to the systematic investigation of psychopathology (Cautin 2008). With his novel research on schizophrenia, he not only redefined the standards of methodological rigor and sophistication in the field, but he helped to establish many basic facts about schizophrenia, forming a solid foundation for subsequent researchers. Two methodological areas in which Shakow and his colleagues made particular progress were psychiatric classification and conditions of testing. For example, in an effort to obtain pure rather than representative samples, Shakow instituted strict exclusion criteria based on factors such as physical illness and other mental disorders. He was judicious when interpreting differences in performance between normal controls and patients with schizophrenia, discerning whether discrepancies were due to a lack of interest or to a genuine inability to perform the task.

Shakow and his colleagues demonstrated, for example, that schizophrenic disturbances are not evidenced at the sensory or reflexive levels of organization, but rather at more complex cognitive-perceptual levels of organization. And they showed that performance deficits pervade all voluntary behavior. Some of his most consequential work was his series of reaction time studies, in which he and his colleagues discovered the crossover effect. This body of work formed the foundation for Shakow's theory of schizophrenic cognition, known as segmental set theory, which he continued to develop throughout his tenure at NIMH (Cautin 2008).

In addition to his scientific contributions, Shakow played a critical role in the professionalization of clinical psychology (Cautin 2006). In the early twentieth

century, there were competing conceptions of clinical psychology's role in an applied setting, and it was in this respect that Shakow would help shape the field. He worked primarily in medical-psychiatric contexts, where the main professionals' jobs tended to overlap in scope. His ideas about the goals and functions of the clinical psychologist were inspired by his experiences in such settings. Shakow identified the clinical psychologist with three functions – diagnosis, research, and therapy. He maintained, however, that the research function was primary, holding that research reflects the unique set of skills and abilities that should distinguish the clinical psychologist.

Shakow promoted these ideas through the influential training programs he helped develop. During his tenure at WSH, he initiated a clinical psychology internship program that would ultimately be a model for other institutions. Prior to World War II, training in clinical psychology had been largely piecemeal. But the war produced an unprecedented increase in the need for mental health professionals, and this acute demand quickly brought into focus the problem of training. Shakow laid out a number of iterations of his model for training, first in 1941, then in 1945 in what became known as the Shakow Report. The model reflected Shakow's emphasis on diagnosis, research, and therapy. Its fundamental principle – combined scientific and professional training – was endorsed by the APA in 1947 and affirmed at the Boulder Conference and at several minor subsequent meetings, ensuring the report's strong and lasting impact on the development and professionalization of clinical psychology (Baker and Benjamin 2000; Cautin 2006).

Shakow was one of only two individuals ever to have been awarded both the American Psychological Association's Distinguished Scientific Contribution Award and its Distinguished Professional Contribution Award (Cautin 2006). Shakow was also one of the first to systematically investigate the psychotherapy process. In honor of this work, Shakow received the 1965 Helen Sargent Memorial Award of the Menninger Foundation. He also coauthored a monograph on psychoanalysis, *The Influence of Freud on American Psychology* (Shakow and Rapaport 1964).

See Also

► Wells, Frederic Lyman

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Shinn, Milicent

ELISSA N. RODKEY

York University, Toronto, ON, Canada

Basic Biographical Information

Born: 1858, Died: August 14, 1940

Milicent Washburn Shinn was born in Niles, California, a small town about 30 miles from San Francisco where her family owned a farm. The family orchard nursery business would eventually become quite prosperous; her father, James Shinn, was one of the first American agriculturalists to import plants from Asia (Burnham 1971). The Shinn family valued education and sent Milicent to the 6-year-old University of California, Berkeley. In 1874, the year Shinn started at Berkeley, the school had only two buildings on a campus that was little more than a field and had only begun admitting women the year before. Shinn found she loved the academic life and though she would have liked to pursue graduate studies at the Harvard Annex after her graduation from Berkeley in 1880, her close family ties kept her in California. However, family connections also encouraged her interest in psychology: Edmund Clark Sanford, who went on to become president of the APA in 1902 and associate editor of the *American Journal of Psychology* was her first cousin.

In 1882, Shinn became the editor of a San Francisco literary magazine, the *Overland Monthly*. The magazine

was on the verge of financial collapse, crippled by debts and unable to pay contributors, let alone its editor. However, Shinn was convinced that her labor was worthwhile: California desperately needed a literary magazine. Shinn felt that the *Overland Monthly* would combat post–Civil War California social ills by inducing Californians to better themselves by writing. Shinn remained editor until 1894.

In 1890, Milicent's older brother, Charles Howard Shinn, who became a well-known naturalist and the first superintendent of Yosemite Park, and his wife Julia had a daughter, Ruth, the first grandchild in the family. While the whole family was delighted by the baby, Milicent Shinn took a particular interest in her niece and began recording the details of Ruth's development, including physical growth, reflexes, and language.

As a result of this developmental record, Shinn was invited to speak at the World's Columbian Exposition in Chicago in 1893 on *The First Two Years of the Child* (Shinn 1895). Subsequently, Shinn received several invitations for graduate study at such prestigious schools as Stanford, Johns Hopkins, and Clark University; however, she chose to stay close to home and pursue her Ph.D. at her alma mater. Shinn was under the impression that the process would be a short one, given the preexisting data at her disposal.

However, the process took much longer than she expected, both because of the high requirements and because of her familial responsibilities. Finally, after 5 years in graduate school, Shinn insisted that she be allowed to graduate. Her family had a heavy mortgage, and during her years at the *Overland Monthly* and in graduate school her younger brother Joseph, who would become an influential water-rights pioneer for California, had been sacrificing his career to take care of the family farm.

Despite the success of her publications, Shinn returned to the family farm after graduating to care for her invalid mother. By the time her mother died in 1915, Shinn was in her fifties and had a heart condition herself. Although she had wanted to keep up with her academic work, she was absorbed by family affairs (Scarborough and Furumoto 1987). Shinn was, however, involved with several societies and committees, such as the Association for Collegiate Alumnae, which promoted women's higher education. She also remained deeply interested in pedagogical issues and

lobbied for educational reforms in California. Shinn avowed that she was content with the later portion of her life; her many nieces and nephews were a source of great enjoyment and gave her the opportunity to test her pedagogical theories. Although she did not conduct any more formal educational research, she did tutor her younger brother's four children, converting her den into a school room and creating a series of exercise books with hand drawn illustrations to teach reading.

Major Contributions

Although there had been baby diaries prior to Shinn's, such as Darwin's 1877 *A Biographical Sketch of an Infant*, the only other comparably systematic record was *Die Seel des Kindes* or, *The Mind of the Child*, a 1882 book written by German doctor Wilhelm Preyer, recording his son's early growth. Shinn read and was influenced by Preyer's book but also departed from it as she compiled more than 2 years of detailed data on Ruth.

Shinn graduated in 1898, becoming the first woman to receive a Ph.D. from the University of California, Berkeley. Her dissertation, *Notes on the Development of a Child*, was published in installments between 1893 and 1907 (Shinn 1893–1899). In 1900, she also published a popular version of her findings, called *The Biography of a Baby* (Shinn 1900). Her works received widespread acclaim, and for years her *Notes on the Development of a Child* was considered a foundational text for developmental psychology classes. Even Wilhelm Preyer was impressed and called for the work to be translated into German.

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Siegel, Gerald M.

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Gerald M. Siegel (BA and MA, Brooklyn College; Ph.D., University of Iowa) spent most of his career at the University of Minnesota where, in addition to his role as professor in the Department of Speech, Language, and Hearing Sciences, he also served as the director of the university's Center for Cognitive Sciences and the director of the Office of Research Development in the College of Liberal Arts. Siegel received various awards from his university and from the profession during his career. At the University of Minnesota, he received a Distinguished Teacher Award in 1973 and was appointed a Scholar of The College in 1993. Professionally, he received an ASHA Foundation Award in 1957, became a Fellow in ASHA in 1966, won an Editor's Award for an article published in the *Journal of Speech and Hearing Disorders* in 1969, and Honors of the Association in 2002. In 2003 he was given a lifetime Achievement Award by the Minnesota Speech and Hearing Association. He retired from the University of Minnesota in 1997.

During the course of his 40-year career, Siegel published well over 100 articles and book chapters. His most significant research contributions came in a series of programmatic studies in collaboration with Richard Martin that examined the role of learning and punishment in stuttering and normal nonfluency. The stuttering articles helped upend the long dominant views of the diagnosogenic theory that had made it virtually impossible to focus directly on the stuttering behaviors of adults and children who stuttered and led to innovative therapy procedures that allowed direct intervention with these clients. He also had a long collaboration with Herbert L. Pick of the Institute for Child Development at the University of Minnesota. Together they published numerous articles on the role of feedback in the regulation of speech. Siegel also published a series of more philosophical articles exploring the relationship between theory, research, and therapy in the field.

Simon, Herbert A.

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Basic Biographical Information

Herbert Alexander Simon was born on June 15, 1916, into a Jewish family in Milwaukee, Wisconsin. His father, who held several patents, was an electrical engineer who had emigrated from Germany around the turn of the century. His mother was a pianist.

Simon's early education was in the Milwaukee public schools, where he graduated from high school at age 17. Simon received both his B.A. (1937) and Ph.D. (1943) from the University of Chicago. As he notes (1991) in his autobiography, "the Milwaukee I grew up in was hardly a backwater, but neither was it an avant-garde center of the arts or of intellectual adventure... When I arrived at the University of Chicago in 1933, it was all the things- artistically, intellectually, and politically- that Milwaukee was not... It was the best possible environment for growing up" (pp. 36-37). There his mentors included Harold Laswell, Charles Edward Merriam, and Henry Schultz. Both of his degrees were in political science.

In 1937, a year after earning his bachelor's degree, he married Dorothea Isobel Pye, who became an educational psychologist. They had three children, Katherine, Peter, and Barbara. He spent much of his career in Pittsburgh, Pennsylvania where he was a member of the Unitarian Church, a Democrat politically, and where he sometimes advised the public on issues such as public funds use and methods of generating tax revenue.

From 1939 to 1942, while completing his Chicago doctorate largely by mail correspondence, Simon directed a research group at the University of California Berkeley which focused upon municipal administration. Next, he served on the political science faculty of the Illinois Institute of Technology until 1949. At this point, Simon became a professor at Carnegie Mellon University (formerly Carnegie Institute of Technology), where he chaired the Department of Industrial Management, and was a professor in a variety of departments, such as computer science

and psychology until his death. In addition, he served as a distinguished visiting professor at New York University (1960).

Simon died February 9, 2001, in Pittsburgh, Pennsylvania. He was 84.

Major Accomplishments

A true polymath, Simon had a broad range of interests, both professional and otherwise. Professionally, he made significant contributions to artificial intelligence, cognitive psychology, economics, management, political science, sociology, and related fields (Augier and March 2004). As a hobbyist, he loved the arts and playing piano, for instance. His other avocations included travel (from France, Mexico, and Peru to Japan, China, and the Soviet Union and elsewhere), and studying and learning languages, from more commonly studied ones such as French, to lesser known ones such as Hungarian and Turkish.

Simon's contributions to artificial intelligence involved numerous collaborations with Allen Newell, who had been his graduate student. In particular, Newell and Simon created the Logic Theory Machine and the General Problem Solver (GPS) computer programs in the mid-1950s. Famously, Simon began a January 1956 class at Carnegie Mellon by telling his students, "Over Christmas holiday, Al Newell and I invented a thinking machine" (Crowther-Heyck 2005, p.1). These programs, aimed to model human problem solving processes were developed with the Informational Processing Language (with its NSS memory) invented by Newell, Simon, and Cliff Shaw. Such programs paved the way for later more complex problem solving programs, such as those that played chess. Other important work on human problem solving included Simon's work on verbal protocol analysis and on understanding the role of knowledge on the development of expertise with Anders Ericsson.

Simon's contributions to economics focused upon the role of uncertainty in organizational and other decision-making. Simon argued that in the real world, decision-makers often do not have sufficient information to make fully rational decisions. Thus, the decision-makers have only "bounded rationality," and must make decisions by "satisficing," which is selecting decisions which may not be perfect or ideal, but which satisfy a sufficient number of conditions with

satisfactory results. For instance, a person in a super-mall selecting a new pair of jeans may be confronted with a veritable plethora of options in terms of style, color, size, and price. Rather than collect all of the information about each variable at each store, and make a fully rational decision, the person may make a purchase decision that “satisfices.” Simon’s work on uncertainty in decision-making, and his linking of economic theory to applied mathematics, was central to the work that led to his 1978 Nobel Prize award.

Simon published prolifically. His publications included nearly 1,100 articles, and numerous books, including *Administrative behavior: A study of decision making processes in administrative organizations* (1947), *Public administration* (with Victor Thompson and Donald Smithburg) (1950), *Models of man* (1957), *The sciences of the artificial* (1969), *Human problem solving* (with Allen Newell) (1972), *Models of thought* (1979), three volumes of *Models of Bounded Rationality* (1982, 1982, and 1997), *Reason in human affairs* (1990), and *Organizations* (with James March) (1993). His autobiography, *Models of my life* was published in 1991.

Simon served as chair of the board of directors for the Social Science Research Council (1961–1965), and chair of the Division of Behavioral Sciences, National Research Council (1967–1969), and was a member of the U.S. President’s Science Advisory Committee (1968–1972), appointed by Lyndon Johnson. He also was a consultant to the RAND Corporation (circa 1952–1970) and received funding from the Office of Naval Research.

Simon was a fellow of the American Psychological Association, the American Economic Association, the American Sociological Association, the American Association for the Advancement of Science, the American Academy of Arts and Sciences, and the Econometric Society. He was one of the first social scientists admitted to the National Academy of Sciences (George A. Miller and Neal Miller among those who were already such members)

His many awards included the Distinguished Scientific Contributions Award (1969) and Gold Medal Award in Psychology (1988) from the American Psychological Association, the Turing Award (1975) from the Association for Computing

Machinery, the National Medal of Science (1986), and the Nobel Prize in Economics (1978). When one considers the truly extraordinary breadth and depth of Simon’s lifetime contributions, the term “Renaissance man” comes immediately to mind.

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Singer, Edgar

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Edgar Arthur Singer Jr. (1873–1955) was born in Philadelphia. He earned Bachelor of Science in engineering from the University of Pennsylvania in 1892, and he received his Ph.D. in 1894 under the supervision of George S. Fullerton (1859–1925). In the historical consciousness, Singer was a philosopher at the University of Pennsylvania during the first half of the twentieth century, but by any criteria he deserves recognition in the history of psychology. He received graduate instruction from supervisors who are recognized as important psychologists, he published psychological articles, he carried out laboratory research in psychophysics, and he taught psychology. He also mentored a president of the American Psychological Association. Although known as a philosopher, Singer was also a psychologist whose contribution played a significant role in early behavioral psychology.

Singer’s Ph.D. supervisor at the University of Pennsylvania was George S. Fullerton. Fullerton was an important figure in the new psychology in America. He was among the founding members of the American Psychological Association, hosting the first annual APA conference, and serving as its fifth president. He helped James McKeen Cattell establish the psychology laboratory at the University of Pennsylvania in 1887, and in 1892, Fullerton and Cattell coauthored “On the

Perception of Small Differences.” Although Fullerton used James’s *The Principles of Psychology* as a textbook, at the 1893 APA conference, he criticized James’s concept of consciousness. Fullerton protested that it was an unanalyzable indivisible unit, and he argued ideas must be capable of representing complex things, and therefore consciousness must be made complex to serve a scientific psychology’s need for an object of analysis. Soon after, in 1894, Singer’s dissertation was titled, *On the Composite Nature of Consciousness*. Singer argued consciousness was a sociohistorical product, and therefore not an object suitable for a scientific psychology.

Singer challenged the existence of consciousness as an object of study when the new psychology assumed it was the medium of introspection. He argued the word consciousness was confusing because it was used indiscriminately to describe the Soul or the mental phenomena that held psychological states. Although it was found in different situations, no state of consciousness was a simple or indivisible state of mind. In general, this was a prologue to Singer’s life’s work to find an object suitable for a scientific psychology.

In December 1884, William James began his president’s address to the American Psychological Association with, “The nature of the synthetic unity of consciousness is one of those great underlying problems that divide the psychological schools.” James said Fullerton taught his students that the beginning of all sound method was to know what it meant to know things and to know the same things together. This suggests that Fullerton’s emphasis was on a structural epistemology as opposed to an empirical theory. James conceded that mental contents were complex. Singer’s dissertation suggests that he emerged as an influential psychologist from this debate between James and Fullerton.

Next, Singer became James’s assistant at Harvard from 1895 to 1897. Singer helped develop the undergraduate course in laboratory research, he contributed ideas to the graduate seminar in psychology, and he managed the psychology laboratory. Trained in laboratory techniques by Hugo Munsterberg (1857–1916), in October 1895 Singer was doing independent psychophysics research. In January 1896, James desired to cut his connection with the psychology laboratory, and he considered Singer for his replacement. In Singer’s

graduate course at Harvard, the students were assigned experimental problems that illustrated the fundamental psychophysics method. James praised Singer’s invention of experimental apparatus, and in James’s lecture notes there was a section that alluded to Singer’s dissertation. Singer’s influence on James may appear in the 1904 article “Does ‘Consciousness’ Exist?” and also in James’s epistemology of radical empiricism. In 1896, Munsterberg wrote to James that he believed strongly in Singer’s capacity and expected much from him. He thought Harvard should keep him as an assistant professor; however, Singer returned to the University of Pennsylvania in 1889.

In 1909, Singer became a full professor. In 1910, when he was chairman of the Philosophy, Ethics, and Pedagogy Department, Singer delivered a paper, “Mind as an Observable Object,” to the American Philosophical Association. In this paper, he rejected consciousness as an object for psychology, and in its place he suggested behavior. In 1924, he published a collection of his articles, *Mind as Behavior and Studies in Empirical Idealism* (Singer 1924). In the introduction, he argued the living and spiritual objects of human interest could be studied by experimental methods. He divided this work into two categories: the scientific object for psychology and its attending epistemology. In part one, Singer’s essays describe mind as an observable object. However, Singer insisted that he was not the father of Behaviorism. His conception of behavior was different than that associated with Behaviorism. He believed radical Behaviorism was restricted by a mechanistic interpretation, and Singer’s psychological categories were teleological.

Part two contained his epistemology for a scientific psychology. Singer was emphatically not an Empiricist. He believed that experiments failed unambiguously to resolve questions, but he also believed that questions must be conceived so that they could be put to experimentation. Also, he did not believe that everything was learned through experience. He believed that even the most exact science was merely a picture of Nature created by the scientist’s art.

Singer said science was a reconstructive enterprise. He believed that the immediate sensation was not the starting point of knowledge because the experience of fact was always mediated. Scientists continuously reconstructed Nature. Singer argued for a systematic

approach to natural science, and this suggests a structural approach to objectively construed reality. Singer argued scientific facts resulted from human needs, they represented choices, and no account of Nature was possible without a series of choices. Choice had four characteristic features: First, it did not mean science was capricious, only that facts resulted from choices. Second, the choice was not an individual's. The choice was consensus. Facts emerged from history, they were inherited, and they constituted the discourse where judgment became meaningful. Third, any single interpretation emerged from among several alternative accounts of nature, and at no point was the construction of natural science so factual that it could not be reinterpreted. Although observation was fundamental, making more and more observations did not necessarily mean progress. Rather, continued observation facilitated new theories. All theories of nature were incomplete, but they served as a principle of choice to create new facts.

Singer's philosophy of nature began with the insight that nature and science were not capable of independent definition. Nature was the object of scientific knowledge in the sense that the goal was the object of an endeavor. The scientific endeavor was a series of ever-expanding, yet always finite interpretations, and in the end, nature was the final image that science approached as the error of the observations approached zero. Nature was not a thing in itself: it was the name of an Ideal, and as an Ideal, nature was a completed science. Science, by definition, was nature in the making, and those who practiced science, made nature – and because the construction of science was not passively receiving of facts, Nature was a product of creative imagination. There was no such thing as raw unmediated experience. To him people had just forgot that they had previously accepted what they later regarded as self-evident. Knowledge was not built from data like a house was built out of individual bricks.

Singer's theory of mind as behavior and the attending epistemology played a significant role in neo-behaviorism through his student Edwin Ray Guthrie Jr. (1886–1959). Guthrie's theory of learning was an important feature of neo-behaviorism, and in that respect Singer significantly contributed to American psychology.

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Skinner, B. F.

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Basic Biographical Information

The American psychologist, Burrhus Frederic (B. F.) Skinner, was born on March 20, 1904, in Susquehanna, Pennsylvania, and died on August 18, 1990, in Cambridge, Massachusetts. In revolutionizing behaviorism, he became the most eminent psychologist of the twentieth century.

Majoring in English at Hamilton College (1922–1926), Skinner aspired to be a writer, but writing failed him. It described the human condition, but did not explain it. So, he turned to the newest science, psychology; enrolled at Harvard University (1928–1931); and earned a doctorate for research and theory in psychology's newest system, behaviorism. Remaining at Harvard on fellowships (1931–1936), he invented and refined apparatus (e.g., the Skinner box) and conducted pioneering research on basic behavioral processes (e.g., reinforcement; see Skinner 1938). At the University of Minnesota (1936–1945), he continued his research and extended it (e.g., to behavioral pharmacology), undertook behavioral engineering (e.g., in simulating bombs guided by pigeons), delved into conceptual issues (e.g., operationism; see Skinner 1947), and wrote a behaviorally inspired utopian novel (i.e., *Walden Two*). As the chairperson of psychology at Indiana University (1945–1948), he held the first conference on his science, but soon returned to Harvard (1948–1974). There, he established a Pigeon Lab, made his science into a system (see *Science and Human Behavior*), developed a technology of teaching (e.g., programmed instruction), analyzed everyday human behavior (e.g., *Verbal Behavior*), and addressed the implications of his science for human agency

(e.g., *Beyond Freedom and Dignity*). Although he retired in 1974, he remained active as a public intellectual until his death, addressing topics in biology, psychology, cultural anthropology, ethics, and world peace (see Skinner 1999).

Major Accomplishments/Contributions

Among Skinner's major accomplishments and contributions were establishing a natural science of behavior, accounting for behavior's natural history, and formulating a philosophy of them, all of them contributions to psychological theory. First, Skinner's subject matter was operant behavior – behavior that operates on the environment – the consequences of which (e.g., reinforcement) affect its probability and subsequent control by its antecedents (e.g., discriminative stimuli). The functional relations among these events – the three-term contingency – were Skinner's unit of analysis. His theory of these relations was empirically and inductively derived, economic and efficient in style, and true in the sense that it promoted effective action – the prediction-and-control of behavior (see Pragmatism).

Second, aside from some nonhuman-based simulations (e.g., of insight), Skinner's accounts of behavior's natural history were "behavioral interpretations" that were based on and constrained by the basic behavioral processes. Among his interpretations were those of values, thinking, and language. These, too, were theories, but like those of the ocean tides, plate tectonics, and the planets and stars, they were based on established processes, not on "events taking place somewhere else, at some other level of observation, described in different terms, and measured, if at all, in different dimensions" (Skinner 1950, p. 193). Behavior was Skinner's subject matter, not an index of occult forces or an ambassador to the mind.

Third, Skinner formulated radical behaviorism as the philosophy of his science of behavior – both a natural science and a natural history of behavior – where radical meant "basis." Psychological terms (e.g., knowledge, memory, intelligence) are ultimately based in behavior's relation to the organism and its environment (e.g., knowing how, remembering that, behaving intelligently). Behavior also encompassed both public and private events, the latter of which included those

that occurred within the organism (e.g., toothaches, problem-solving, dreaming), whose functions he interpreted in terms of the basic behavioral processes of public behavior – theory, again.

These accomplishments and contributions made Skinner not only eminent, but also the founder and father of today's discipline, profession, and field of behavior analysis.

See Also

- ▶ Behaviorism
- ▶ Mach, Ernst
- ▶ Watson, John Broadus

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Smith, Adam

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Basic Biographical Information

Adam Smith was a Scottish moral philosopher and political economist who achieved never-ending fame for his authorship of *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). While the exact date of Smith's birth is unknown, we know that he was baptized in the small village of Kirkaldy, Fife, Scotland, on June 16, 1723 (old calendar: June 5, 1723). Smith's father was no longer alive at the time. All contemporary accounts describe Smith as always tall for his age, and also as an odd looking fellow with "bulging eyes." In 1738, at about age 15, Smith entered Glasgow University on scholarship, where he had the "never-to-be-forgotten" good fortune to study with Frances

Hutcheson. Smith entered Balliol College, Oxford, in 1740, where he remained until 1746, and where he became knowledgeable, especially in European literature. About the years 1748–1750, Smith became acquainted with the likes of Lord Kames and David Hume, and in 1751 he was appointed professor of logic at Glasgow University, where he received promotion to chair of moral philosophy the following year. Smith would go on to a successful professorship, which he decided to leave voluntarily for private tutoring work in 1763. While he was regarded as a popular teacher and tutor, above all Smith's successes include two grand books: one primarily on moral philosophy and the other primarily on political economy. Smith never married, and he died in Edinburgh on July 19, 1790. He is buried in the Canongate Kirkyard (or Churchyard) (Buchan 2006).

Major Accomplishments/ Contributions

Smith, while famous as a founder of modern economic thought, was, perhaps even most fundamentally a philosopher of human motives. In 1759, he published his first major book, *The Theory of Moral Sentiments*, which was based on some of his Glasgow lectures. Smith's focus in the book is to explain phenomena of moral approval and disapproval. The major shift in thought partly owing to Smith's reasoning was a conceptual move away from the idea of a special "moral sense" in favor of a learned habit, or "propensity," for empathy – although rather than use the word empathy (which was what he meant), Smith actually used the word "sympathy."

Historians have amply explored the consistency between two fundamental human motives in Smith's writings, empathy and self-interest. This historical project has even been dubbed "the Adam Smith problem" (Smith 1998). Of course, what such a potential conflict refers to is the subject matter of Smith's two books: *Moral Sentiments*, which puts an emphasis on a general harmony of human motives implanted by a beneficent Providence; and *Wealth of Nations*, which in spite of the general theme of "the invisible hand" promoting the harmony of interests, provides many occasions for pointing out cases of conflict resulting from a narrow human selfishness. A conclusion reached by historians is that the two books simply emphasize different

aspects of human nature, each of which is capable of varying depending upon the situation.

Smith's *Moral Sentiments* is seen as providing philosophical, psychological, and methodological underpinnings to his later works, including *Wealth of Nations*. *Moral Sentiments* tends to divide its subject matter into categories of motives and consequences from these motives. With respect to the motives, there are three basic ones: self-love, reason, and moral sentiment. With respect to the consequences, it seems there are four such areas: ethics and virtue; private rights and natural liberty; familial rights; and state and individual rights.

Smith employs an understanding of the source of human motives that is, throughout *Moral Sentiments*, something of a response to the philosophies of Hutcheson and David Hume, two great thinkers who had employed a kind of dedicated "sixth sense" to explain morality. Smith rejected this concept of a special sense, preferring instead a kind of "pluralistic" approach to explaining morality based on a variety of psychological motives. Smith sets up a distinction between the three categories of motives at the outset of the book, which opens thusly: "How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it. Of this kind is pity or compassion, the emotion we feel for the misery of others, when we either see it, or are made to conceive it in a very lively manner." The developed "sentiment" of sympathy was to take the place of the moral "sense." Humans are then to use innate reason to reflect upon the internal struggle between selfishness and compassion.

To make things more complete, yet also more confusing, Smith shifts over to two other divisions. One division is threefold, between "social passions," "unsocial passions," and "selfish passions." The other is twofold, between those "passions which take their origins from the body" and those "which take their origins from a particular turn or habit of the imagination." Some of each of the categories of passions within the threefold division originate in the body, while others originate as habits. Throughout the book we return, from time to time, to Smith's well-known interplay between self-interest and moral sentiments, as mediated by reason.

Much of *Moral Sentiments* at least aims to answer one direct question: Where did the original basis for human capacity for empathy come from? Empathy arose from an innate desire in each person to identify with the experiences and emotions of others, doing so by becoming an “impartial spectator.” While there are a number of “original instincts” that drive some of our behaviors, humans must use “reason” to find out “the proper means” to our “desired ends.” Smith writes: “Nature has directed us to the greater part of these by original and immediate instincts. Hunger, thirst, the passion which unites the two sexes, the love of pleasure, and the dread of pain, prompt us to apply those means for their own sakes, and without any consideration of their tendency to those beneficent ends which the great Director of nature intended to produce by them” (1759, Ch. 5).

Smith’s great work of 1776, *Wealth of Nations* (originally published as a five-book series), extends a theme actually in *Moral Sentiments*, which is how to promote the functioning of an “invisible hand” to gather the potential benefits to society when people act out of self-interest. Whereas *Moral Sentiments* was about shift from a “sense”-based theory to a “sentiment”-based theory of human motives, *Wealth of Nations* is about exploring the working out of one motive that Smith called the “chief propensity” (Coase 1976).

Wealth of Nations extends from principles of motivation to consequences for society. A person who earns money by his or her own labor will benefit oneself. Yet also this person benefits society; Smith reasoned that a person only makes money by producing something that others will pay for. As Smith expressed in a recognizable quotation: “By directing that industry in such a manner as its produce may be of greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention” (1776, Bk. IV, Ch. II).

Wealth of Nations makes it clear that empathy and self-interest are not to be viewed as antithetical. “Man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only.” And, in Smith’s other particularly famous sentence: “It is not from the benevolence of the butcher, the brewer, or the baker, that we can expect our dinner, but from their regard to their own interest” (1776, Bk. II, Ch. II).

Something else that Smith attempted to distinguish in *Wealth of Nations* was between necessary and unnecessary consumption. Although one cause of the market price of an item was the amount of the item that was supplied to the market, another cause was the willingness of people to pay for an item. Market prices come ultimately from the interplay of supply and demand, or what Smith called the “higgling and bargaining” of the marketplace. On the demand side of the equation, Smith also distinguished between goods that are physiologically necessary and those that are psychologically luxurious: “The desire of food is limited in every man by the narrow capacity of the human stomach; but the desire of the conveniences and ornaments of building, dress, equipage, and household furniture seems to have no limit or certain boundary” (1776, Bk. I, Ch. XI). When it came to the source of individual wants, Smith believed that an innate principle of frugality could, ultimately, override any socialized, passionate principle of expense. On the subject of the “principle of frugality,” in particular, Smith suggested that “the principle which prompts to save, is the desire of bettering our condition; a desire which, though generally calm and dispassionate, comes with us from the womb, and never leaves us till we go into the grave” (1776, Bk. II, Ch. III).

Smith’s modern-day reputation rests on his explanation of how rational, individual-level self-interest in a free-market economy can lead to overall, group-level economic well-being. *Wealth of Nations* has served as a policy guide for attempting to realize a greater wealth of nations. Economic development, Smith reasoned, was best fostered in an environment of free competition that operated in accordance with universal “natural laws.” In turn, these natural laws for what emerge at a societal level reduce to (or at least stem from) natural laws at the level of human motives. Smith’s economic thought became the basis, by the middle 1800s, for “classical economics.” Certain specific policy arguments that follow from Smith’s economic theory include: to oppose economic concentration because it distorts natural laws of markets; to establish reasonable prices and returns on land, labor, and capital; to limit governmental economic activity to construction of bridges, lighthouses, mints, and the like (Buchan 2006).

Smith also wrote three other books, all published posthumously – *Essays on Philosophical Subjects* (1795);

Lectures on Justice, Police, Revenue, and Arms (1763); and, *A Treatise on Public Opulence* (1937). Beyond these works, we don't know as much as we wish we knew about what else Smith thought and wrote, owing to the fact that shortly before he died Smith had nearly all of his manuscripts destroyed (Schneider 1970).

See Also

- ▶ Jevons, W. S.
- ▶ Keynes, John Maynard
- ▶ Malthus, T. R.

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Social Constructionism

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The phrase, *social construction*, typically refers to a tradition of scholarship that traces the origin of knowledge, meaning, or understanding to human relationships. The term “constructivism” is sometimes used interchangeably, but most scholarship associated with constructivism views processes inherent in the individual mind, as opposed to human relationships, as the origin of people's constructions of the world. Although one may trace certain roots of social constructionism to Vico, Nietzsche, and Dewey, scholars often view Berger and Luckmann's *The Social Construction of Reality* as the landmark volume. Yet, because of its lodgment in social phenomenology, this work has largely been eclipsed by more recent scholarly developments. One

may locate the primary stimulants to the more recent development of social constructionist thought in at least three, quite independent movements. In effect, the convergence of these movements provides the basis for social constructionist inquiry today.

The first movement may be viewed as *critical*, and refers to the mounting ideological critique of all authoritative accounts of the world, including those of empirical science. Such critique can be traced at least to the Frankfurt School, but today is more fully embodied in the work of Foucault, and associated movements within feminist, black, gay and lesbian, and anti-psychiatry enclaves. The second significant movement, the *literary/rhetorical*, originates in the fields of literary theory and rhetorical study. In both cases, inquiry demonstrates the extent to which scientific theories, explanations, and descriptions of the world are not so much dependent upon the world in itself as on discursive conventions. Traditions of language use constructs that we take to be the world. The third context of ferment, the *social*, may be traced to the collective scholarship in the history of science, the sociology of knowledge, and social studies of science. Here, the major focus is on the social processes giving rise to knowledge, both scientific and otherwise.

My aim here is not to review the emergence of these three movements. There are numerous and detailed accounts already available to the reader (see, e.g., Gergen 1994; 2009; Hacking 1999). Rather, in what follows, I shall briefly outline a number of the most widely shared agreements to emerge from these various movements. To be sure, there is active disagreement both within and between participants in these various traditions. However, there are at least three major lines of argument that tend to link these traditions and to form the basis of contemporary social constructionism. This discussion will prepare the way for a brief account relevant to developments in organizational scholarship.

The Social Origins of Knowledge

Perhaps the most generative idea emerging from the constructionist dialogues is that what we take to be knowledge of the world and self finds its origins in human relationships. What we take to be true as opposed to false, objective as opposed to subjective, scientific as opposed to mythological, rational as opposed to irrational, moral as opposed to immoral

is brought into being through historically and culturally situated social processes. This view stands in dramatic contrast to two of the most important intellectual and cultural traditions of the West. First is the tradition of the individual knower, the rational, self-directing, morally centered, and knowledgeable agent of action. Within the constructionist dialogues we find that it is not the individual mind in which knowledge, reason, emotion, and morality reside, but in relationships.

The communal view of knowledge also represents a major challenge to the presumption of Truth, or the possibility that the accounts of scientists, or any other group, reveal or approach the objective truth about what is the case. In effect, propose the constructionists, no one arrangement of words is necessarily more objective or accurate in its depiction of the world than any other. To be sure, accuracy may be achieved within a given community or tradition – according to its rules and practices. Physics and chemistry generate useful truths from within their communal traditions, just as psychologists, sociologists, and priests do from within theirs. But from these often-competing traditions, there is no means by which one can locate a transcendent truth, a “truly true.” Any attempt to establish the superior account would itself be the product of a given community of agreement.

To be sure, these arguments have provoked antagonistic reactions among scientific communities. There remain substantial numbers in the scientific community, including the social sciences, that still cling to a vision of science as generating “Truth beyond community.” In contrast, scientists who see themselves as generating pragmatic or instrumental truths find constructionist arguments quite congenial. Thus, for example, both would agree that while Western medical science does succeed in generating what might commonly be called “cures” for that which is termed “illness,” these advances are dependent upon culturally and historically specific constructions of what constitutes an impairment, health and illness, life and death, the boundaries of the body, the nature of pain, and so on. When these assumptions are treated as universal – true for all cultures and times – alternative conceptions are undermined and destroyed. To understand death, for example, as merely the termination of biological functioning would be an enormous impoverishment of

human existence. If a nourishing life is of value, there is much to be said of those who believe in reincarnation, the Christian dogma of “a life hereafter,” or the Japanese, Mexican, or African tribal views of living ancestor spirits. The constructionist does not abandon medical science, but attempts to understand it as a cultural tradition – one among many.

The Centrality of Language

Central to the constructionist account of the social origins of knowledge is a concern with language. If accounts of the world are not demanded by what there is, then the traditional view of language as a mapping device ceases to compel. Rather, a Wittgensteinian view of language is invited, in which meaning is understood as a derivative of language use within relationships. And, given that games of language are essentially conducted in a rule-like fashion, accounts of the world are governed in significant degree by conventions of language use. Empirical research could not reveal, for example, that “motives are oblong.” The utterance is grammatically correct, but there is no way one could empirically verify or falsify such a proposition. Rather, while it is perfectly satisfactory to speak of motives as varying in intensity or content, discursive conventions for constructing motivation in the twenty-first century do not happen to include the adjective, “oblong.”

Social constructionists also tend to accept Wittgenstein’s (1953) view of language games as embedded within broader “forms of life.” Thus, for example, the language conventions for communicating about human motivation are linked to certain activities, objects, and settings. For the empirical researcher there may be “assessment devices” for motivation (e.g., questionnaires, thematic analysis of discourse, controlled observations of behavior) and statistical technologies to assess differences between groups. Given broad agreement within a field of study about “the way the game is played,” conclusions can be reached about the nature of human motivation. As constructionists also suggest, playing by the rules of a given community is enormously important to sustaining these relationships. Not only does conformity to the rules affirm the reality, rationality, and values of the research community, but the very *raison d’être* of the profession itself is sustained. To abandon the

discourse would render the accompanying practices unintelligible. Without conventions of construction, action loses value.

The Politics of Knowledge

As indicated above, social constructionism is closely allied with a pragmatic conception of knowledge. That is, traditional issues of truth and objectivity are replaced by concerns with that which research brings forth. It is not whether an account is true from a god's eye view that matters, but, rather, the implications for cultural life that follow from taking any truth claim seriously. This concern with consequences essentially eradicates the longstanding distinction between *fact* and *value*, between is and ought. The forms of life within any knowledge-making community represent and sustain the values of that community. In establishing "what is the case," the research community also places value on their particular metatheory of knowledge, constructions of the world, and practices of research. When others embrace such knowledge they wittingly or unwittingly extend the reach of these values.

Thus, for example, the scientist may use the most rigorous methods of testing emotional intelligence, and amass tomes of data that indicate differences in such capacities. However, the presumptions that there is something called "emotional intelligence," that a series of question and answer games reveal this capacity, and that some people are superior to others in this regard, are all specific to a given tradition or paradigm. Such concepts and measures are not required by "the way the world is." Most importantly, to accept the paradigm and extend its implications into organizational practices may be injurious to those people classified as inferior by its standards.

This line of reasoning has had enormous repercussions in the academic community and beyond. This is so especially for scholars and practitioners concerned with social injustice, oppression, and the marginalization of minority groups in society. Drawing sustenance in particular from Foucault's (1979, 1980) power/knowledge formulations, a strong critical movement has emerged across the social sciences, a movement that gives expression to the discontent and resistance shared within the broad spectrum of minorities. In what sense, it is often asked, do the taken-for-granted

realities of the scientist sustain ideologies inimical to a particular group (e.g., women, people of color, gays and lesbians, the working class, environmentalists, communalists, the colonized) or to human well-being more generally? Traditional research methods have also fallen prey to such critique. For example, experimental research is taken to task not only for its manipulative character, but its obliteration of the concept of human agency.

These three themes – centering on the social construction of the real and the good, the pivotal function of language in creating intelligible worlds, and the political and pragmatic nature of discourse – have rippled across the academic disciplines and throughout many domains of human practice. To be sure, there has been substantial controversy, and the interested reader may wish to explore the various critiques and their rejoinders (see, e.g., Gergen 1994; Nagle 1997; Parker 1998). However, such ideas also possess enormous potential. They have the capacity to reduce orders of oppression, broaden the dialogues of human interchange, sharpen sensitivity to the limits of our traditions and to their potential offerings, and incite the collaborative creation of more viable futures. Such is the case in psychology as it is in the global context.

Social Construction and Psychological Inquiry

Scholars from across the social sciences and the humanities have contributed to and drawn significantly from social constructionist theory. Owing to the stronger commitment of psychologists to a logical empiricist vision of science, its impact on psychological inquiry has been slower to develop. Yet, as the problems with positivist foundationalism have become increasingly apparent, and psychologists have become increasingly conscious of developments in the broader intellectual context, so has constructionist theory given rise to a new and significant range of initiatives. Constructionism has played a particularly important role in the emergence of six domains of exploration.

Critical Psychology

As outlined, ideological critique in the social sciences was a major stimulus to the development of social constructionist initiatives in psychology. Yet, the early

critiques of professional psychiatry, along with class- and gender-based criticism cited above, have since expanded in both depth and breadth. Such inquiry is typically based on demonstrating the constructed character of dominant discourses and practice, the otherwise hidden ideology thereby sustained, and the resulting impact on society. Such inquiry abandons the positivist attempt to “predict and control” human behavior (itself often characterized as sustaining an oppressive ideology), and replaces it with a goal of *liberation*. Once the ideological underpinnings of dominant reality claims are revealed, it is reasoned, one is liberated to pursue alternative activities of greater societal promise. Feminist psychologists have been among the vanguard of the critical movement, pointing to the gender biases pervading many of the concepts and research practices of the field at large. Similarly active have been constituents of the gay and lesbian movement, much concerned with the constructed character of sexual categories, their implicit values, and their impact on cultural life. Major critiques have also been launched against assumptions and practices of the mental health professions. An extensive literature illuminates the constructed character of the psychiatric concepts of mental illness and points to the ideological and political interests served by diagnostic categorization. A large volume of work has also pinpointed conceptual and ideological problems inhering in such areas as cognitive theory, evolutionary psychology, positive psychology, experimental methodology, along with the ways these professional investments are injurious to the culture. Broad compilations and discussions of critical psychology may be found in Fox and Prillettensky (2009) and Shulman and Watkins (2010).

Discursive Psychology

Publicly shared discourse serves as the chief site of world construction. Inquiry into discursive practices has thus been both rich and substantial. Important inquiry has been devoted to deconstructing essentialist views of mental life, illuminating the constructed character of the emotions, memory, the sense of smell, erotic experience, boredom, intellectual disability, and teenage desire (for a summary, see Gergen 2009). Such research raises profound questions concerning the utility of empirical research into what amount to conversational objects. These deconstructive pursuits are

coupled with alternative attempts to demonstrate that mental predicates are not descriptive, but performative. Thus, for example, researchers show how an “attitude” is more fruitfully understood as a public action or, essentially, a position taken in a conversation; rational thought is more adequately viewed as a social process of argumentation. This line of reasoning has been a significant stimulus to one of the most significant lines of constructionist inquiry, namely, into *communal memory*. Here the grounds have been established for viewing memory not as a personal, mental process but as a social process (see Middleton and Brown 2005, for a review). As proposed by Edwards and Potter (2000) a fully discursive psychology should properly replace cognitive psychology.

Discursive inquiry also includes the analysis of conversation. Here the focus shifts from the content and form of particular discursive segments, to relational interdependence as conversation unfolds over time. Such inquiry has been useful, for example, in demonstrating the microprocesses of establishing power in relationships, and cogenerating identities in ongoing conversation. For more comprehensive accounts of discourse analysis in psychology see Wetherell et al. (2001).

Narrative Psychology

The abiding interest in linguistic construction has also brought with it a particular interest in narrative. Narrative is the critical means by which the intelligibility of events across time is generated. Volumes by Sarbin (1985) and Bruner (1990) gave the study of narrative a prominent place in psychological study. Open for inquiry were such topics as the relationship of narrative to personal identity, moral behavior, social acceptability, personal memory, self-acceptance, social efficacy, intimacy, and even the intelligibility of psychological theorizing itself. Prominent, for example, is the work of Dan McAdams (2005) on the significance of narrative for self-understanding. A series of eleven volumes edited by Josselson and Lieblich, along with the journal, *Narrative Studies*, have provided significant venues for narrative researchers to present their work. Among the vast array of topics covered have been the stories of Israeli holocaust survivor families, bodies and autobiographies, the poetics of research, professional practice within a mental hospital, and loneliness among Asian refugee women.

Theoretical Psychology

On the constructionist view, empirical research, along with “the phenomenon under study,” is dependent upon an a priori domain of shared understandings. Within scientific enclaves this socially negotiated forestructure is more formally viewed as theory. Thus, as the theoretical discourse of psychology is expanded, so are the possibilities for meaningful observation and practices. The challenge for science is not to strive for a single, unifying theory of the real, but to enrich the forms of intelligibility and thus the potentials of human action. Emblematic of this expanded interest in theory and its potentials is the emergence of such journals as *Theory and Psychology*, *Theoretical and Philosophical Psychology*, *Theory and Feminism*, and *The International Journal for Dialogical Science*. Of particular significance, constructionist theorists have opened a space for a major reconceptualizing of human action. Moving beyond the traditional image of biologically based, universal psychological processes – an image associated with Sampson’s (2008) critique of self-contained individualism – there is active exploration of the potential of a relational ontology. Resonant with Vygotsky’s early work (1978), the major ingredients of human functioning are given birth within social process. However, as one moves closer to constructionist premises, the focus on relationship becomes sharper, and the distinction between *inner* and *outer* begins to fade. Many of the contributions to a discursive psychology, as discussed above, lend themselves to this end. A fully developed account may be found in Gergen (2009).

Practices of Inquiry

While a constructionist view of knowledge does not eliminate any particular method of study, it does provide a vital stimulus for critical reflection on traditional empiricist methods and an invitation to develop alternative departures. As reasoned, methods of inquiry are inevitably tied to particular assumptions about the world, and about human functioning. Since all such assumptions are also lodged within particular cultural and political traditions, limits on methodology function to suppress alternative traditions and values.

By expanding forms of research, the field of psychology becomes increasingly rich in potential. On the critical side, many constructionists express discomfort

in traditional validity claims, and particularly truth claims about research subjects. No claims to validity are “true in all worlds,” and the elimination of the voice of those under observation is subtly exploitative. On the more positive side, constructionist theory has been an active stimulant in the development of such journals as *Qualitative Research in Psychology*, *Qualitative Inquiry*, and *Forum: Qualitative Social Research*. In addition to their contribution to discursive and narrative methods of inquiry, as discussed above, psychologists with a constructionist orientation have also come to play a prominent role in the development of action research (Reason and Bradbury-Huang 2007), and performative inquiry (Gergen and Jones 2008). For a more extended view of the range and innovation in qualitative inquiry in psychology and related disciplines, see Camic et al. (2003) and Denzin and Lincoln (2008).

Constructionism and Societal Practices

Finally, constructionist theory has played a major role in the development of professional practices. Perhaps the most visible of these developments has been the emergence of narrative therapy (White and Epston 1990). Committed to the view that people largely understand themselves in terms of storied constructions, the attempt in therapy is primarily to enable clients to develop new and more viable personal narratives. Similarly, Brief Therapists shift from “problem talk” (which sustains the reality of the problem), to talk about solutions or new possibilities for action. Closely tied to these developments in therapy are explorations into diagnostic practices that give voice to a wider circle of engaged parties (Seikkula et al. 2003). In the educational sphere, limitations are realized in traditional forms of pedagogy centered on the improvement of individual minds. In contrast, constructionist interest shifts to the relational genesis of knowledge and education. Special emphasis is placed on the potentials of collaborative pedagogies and more equalizing classroom dialogue. In organizational psychology, we find a strong movement concerned with the social construction of organizational realities (cf. Weick 1995). Practitioners have developed a variety of new practices relying on narrative and metaphor for reducing conflict in organizations and inspiring positive change. Appreciative Inquiry is among the leading practices

(Barrett and Fry 2005). For a more complete account of the forms of inquiry and practice stimulated by constructionist ideas, the reader should consult Holstein and Gubrium (2007).

See Also

- ▶ [Critical Psychology](#)
- ▶ [Cultural Psychology \(General\)](#)
- ▶ [Cultural Psychology and the Cinema](#)
- ▶ [Danziger, Kurt](#)
- ▶ [Gergen, Kenneth](#)
- ▶ [Mead, G. H.](#)

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Social Psychology

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Social psychology is the scientific study of how people's thoughts, feelings, and behaviors are influenced by the actual, imagined, or implied presence of others (Allport 1998). By this definition, *scientific* refers to the *empirical* method of investigation. The terms *thoughts, feelings, and behaviors* include all of the psychological variables that are measurable in a human being. The statement that others may be *imagined* or *implied* suggests that we are prone to social influence even when no other people are present, such as when watching television, or following internalized cultural norms.

Social psychology is an empirical science that attempts to answer a variety of questions about human behavior by testing hypotheses, both in the laboratory and in the field. Such approach to the field focuses on the individual, and attempts to explain how the thoughts, feelings, and behaviors of individuals are influenced by other people.

A relatively recent field, *social psychology* has nonetheless had a significant impact not only on the academic worlds of psychology, sociology, and the social sciences in general, but has also influenced public

understanding and expectation of human social behavior. By studying how people behave under extreme social influences, or lack thereof, great advances have been made in understanding human nature. Human beings are essentially social beings, and thus, social interaction is vital to the health of each person. Through investigating the factors that affect social life and how social interactions affect individual psychological development and mental health, a greater understanding of how humankind as a whole can live together in harmony is emerging.

Links Between Social Psychology and Sociology

Social psychology is a branch of psychology that studies cognitive, affective, and behavioral processes of individuals as influenced by their group membership and interactions, and other factors that affect social life, such as social status, role, and social class. Social psychology examines the effects of social contacts on the development of *attitudes, stereotypes, discrimination, group dynamics, conformity, social cognition and influence, self-concept, persuasion, interpersonal perception and attraction, cognitive dissonance, and human relationships*.

A significant number of social psychologists are sociologists. Their work has a greater focus on the behavior of the group, and thus examines such phenomena as interactions and social exchanges at the micro-level, and group dynamics and crowd psychology at the macro-level. Sociologists are interested in the individual, but primarily within the context of social structures and processes, such as social roles, race and class, and socialization. They tend to use both qualitative and quantitative research designs. Sociologists in this area are interested in a variety of demographic, social, and cultural phenomena. Some of their major research areas are *social inequality, group dynamics, social change, socialization, social identity, and symbolic inter-actionism*.

Social psychology bridges the interest of psychology (with its emphasis on the individual) with *sociology* (with its emphasis on social structures). Most social psychologists are trained within the discipline of psychology. Psychologically oriented researchers place a great deal of emphasis on the immediate social situation, and the interaction between person and situation

variables. Their research tends to be highly *empirical* and is often centered round lab experiments. Psychologists who study social psychology are interested in such topics as attitudes, social cognition, cognitive dissonance, social influence, and interpersonal behavior. Two influential journals for the publication of research in this area are *The Journal of Personality and Social Psychology* and *The Journal of Experimental Social Psychology*.

History

The discipline of *social psychology* began in the United States at the dawn of the twentieth century. The first published study in this area was an experiment by Norman Triplett (1898) on the phenomenon of social facilitation. During the 1930s, many Gestalt psychologists, particularly *Kurt Lewin*, fled to the United States from Nazi Germany. They were instrumental in developing the field as something separate from the behavioral and psychoanalytic schools that were dominant during that time, and social psychology has always maintained the legacy of their interests in perception and cognition. Attitudes and a variety of small group phenomena were the most commonly studied topics in this era.

During World War II, social psychologists studied persuasion and propaganda for the US military. After the war, researchers became interested in a variety of social problems, including gender issues and racial prejudice. In the 1960s, there was growing interest in a variety of new topics, such as cognitive dissonance, bystander intervention, and aggression. By the 1970s, however, social psychology in America had reached a crisis. There was heated debate over the ethics of laboratory experimentation, whether or not attitudes really predicted behavior, and how much science could be done in a cultural context (Gergen 1973). This was also the time when a radical *situationist* approach challenged the relevance of self and personality in psychology.

During the years immediately following World War II, there was frequent collaboration between psychologists and sociologists (Sewell 1989). However, the two disciplines have become increasingly specialized and isolated from each other in recent years, with sociologists focusing on *macro variables* (such as social structure) to a much greater extent. Nevertheless,

sociological approaches to social psychology remain an important counterpart to psychological research in this area.

Social psychology reached maturity in both theory and method during the 1980s and 1990s. Careful ethical standards now regulate research, and greater pluralism and multicultural perspectives have emerged. Modern researchers are interested in a variety of phenomena, but attribution, social cognition, and self-concept are perhaps the greatest areas of growth. Social psychologists have also maintained their applied interests, with contributions in health and environmental psychology, as well as the psychology of the legal system.

Social psychology is the study of how social conditions affect human beings. Scholars in this field are generally either psychologists or sociologists, though all social psychologists employ both the individual and the group as their units of analysis. Despite their similarity, the disciplines tend to differ in their respective goals, approaches, methods, and terminology. They also favor separate academic journals and professional societies.

Research Methods in Social Psychology

Social psychologists typically explain human behavior as a result of the interaction of mental states and immediate, social situations. In Kurt Lewin's (1951) *Heuristic* behavior can be viewed as a function of the person and the environment, $B = f(P,E)$. Experimental methods involve the researcher altering a variable in the environment and measuring the effect on another variable. An example would be allowing two groups of children to play violent or nonviolent videogames, and then observing their subsequent level of aggression during free-play period. A valid experiment is controlled and uses random assignment.

Co-relational methods examine the statistical association between two naturally occurring variables. For example, one could correlate the amount of violent television children watch at home with the number of violent incidents the children participate in at school. Note that this study would not prove that violent TV causes aggression in children. It is quite possible that aggressive children choose to watch more violent TV programs.

Observational methods are purely descriptive and include naturalistic observation, contrived observation, participant observation, and archival analysis. These are less common in social psychology but are sometimes used when first investigating a phenomenon. An example would be to unobtrusively observe children on a playground (with a video camera, perhaps) and record the number and types of aggressive actions displayed.

Whenever possible, social psychologists rely on controlled experimentation. Controlled experiments require the manipulation of one or more independent variables in order to examine the effect on a dependent variable. Experiments are useful in social psychology because they are high in internal validity, meaning that they are free from the influence of confounding or extraneous variables, and so are more likely to accurately indicate a causal relationship. However, the small samples used in controlled experiments are typically low in external validity, or the degree to which the results can be generalized to the larger population. There is usually a trade-off between experimental control (internal validity) and being able to generalize to the population (external validity).

Because it is usually impossible to test everyone, research tends to be conducted on a sample of persons from the wider population. Social psychologists frequently use survey research when they are interested in results that are high in external validity. Surveys use various forms of random sampling to obtain a sample of respondents that are representative of a population. This type of research is usually descriptive or co-relational because there is no experimental control over variables. However, new statistical methods, like structural equation modeling, are being used to test for potential causal relationships in this type of data.

Regardless of which method is used, it is important to evaluate the research hypothesis in the light of the results, either confirming or rejecting the original prediction. Social psychologists use statistics and probability testing to judge their results, which define a significant finding as less than 5% likely to be due to chance. Replications are important to ensure that the result is valid and not due to chance or some feature of a particular sample.

Famous Experiments in Social Psychology

Famous experiments and studies have influenced social psychology as well as public understanding of human nature.

Solomon's Conformity experiments in the 1950s starkly demonstrated the power of conformity on people's estimation of the length of lines. On over a third of the trials, participants conformed to the majority, even though the majority judgment was clearly wrong. Seventy-five percent of the participants conformed at least once during the experiment.

In *Muzafer Sherif's Robbers' Cave experiment* (1954) boys were divided into two competing groups to explore how much hostility and aggression would emerge. It is also known as realistic group conflict theory, because the intergroup conflict was induced through competition over resources.

Leon Festinger's Cognitive Dissonance experiment subjects were asked to perform a boring task. They were divided into two groups and given two different pay scales. At the end of the study, participants who were paid \$1 to say that they enjoyed the task and another group of participants were paid \$20 to say the same lie. The first group (\$1) would later believe that they like the task better than the second group (\$20). People justified the lie by changing their previously unfavorable attitudes about the task (Festinger and Carlsmith 1959).

Stanley Milgram's Obedience to Authority experiment has shown how far people would go to obey an authority figure. Following the events of the Holocaust in World War II Stanley Milgram's experiments of the 1960s/1970s showed that normal American citizens were capable of following orders to the point of causing extreme suffering in an innocent human being.

Albert Bandura's Bobo Doll experiment has demonstrated how aggression is learned by imitation (Bandura et al. 1961). Bandura's experimental work was one of the first studies in a long line of research showing how exposure to media violence leads to aggressive behavior in the observers.

In *Philip Zimbardo's Stanford Prison experiment* a simulated exercise between student prisoners and guards showed how far people would follow an

adopted role. This was an important demonstration of the power of the immediate social situation, and its capacity to overwhelm normal personality traits (Haney et al. 1973).

Harold Takooshian has conducted experiments in the field of *City Life*. The results of the experiments have revealed factors and sources for social indifference, irresponsibility, and apathy.

Ethics of Socio-psychological Research

The goal of social psychology is to understand cognition and behavior as they naturally occur in a social context, but the very act of observing people can influence and alter their behavior. For this reason, many social psychology experiments utilize deception to conceal or distort certain aspects of the study. Deception may include false cover stories, false participants (known as confederates or stooges), false feedback given to the participants, and so on.

The practice of deception has been challenged by some psychologists who maintain that deception under any circumstances is unethical, and that other research strategies (such as role-playing) should be used instead. Unfortunately, research has shown that role-playing studies do not produce the same results as deception studies and this has cast doubt on their validity. In addition to deception, experimenters have at times put people into potentially uncomfortable or embarrassing situations (for example, Milgram's *Obedience to Authorities* experiments, Zimbardo's *Stanford Prison* experiment), and this has also been criticized for ethical reasons.

To protect the rights and well-being of research participants, and at the same time discover meaningful results and insights into human behavior, virtually all social psychology research must pass *an ethical review process*. At most colleges and universities, this is conducted by an ethics committee or institutional review board. This group examines the proposed research to make sure that no harm is done to the participants, and that the benefits of the study outweigh any possible risks or discomforts to people taking part in the study.

Furthermore, a process of informed consent is often used to make sure that volunteers know

what will happen in the experiment and understand that they are allowed to quit the experiment at any time. A debriefing is typically done at the conclusion of the experiment in order to reveal any deceptions used and generally make sure that the participants are unharmed by the procedures. Today, most research in social psychology involves no more risk of harm than can be expected from routine psychological testing or normal daily activities.

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Spearman, Charles Edward

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Charles Edward Spearman was born in London on September 10, 1863, as the third son of a minor aristocratic family. By his own admission (Spearman 1930), Charles was no academic high-flier, preferring sport to study, and so chose military service after leaving school in 1882. The next 12 years were spent mainly in India where Spearman served in several campaigns, played much polo and poker, but also became increasingly fascinated by philosophy (claimed as a boyhood interest) and by psychology, especially the scientific brand flourishing in Germany.

Spearman then returned to England to embark on an Army Staff College course for officers keen to further their military careers. But, after completing it in 1897, Spearman resigned his commission to study experimental psychology in Wundt's Leipzig laboratory, whence he obtained a Ph.D. in 1906.

Although Spearman was recalled to military duty in 1900 during the Boer War, his two years away from Germany were by no means wasted. Not only did he meet and marry Frances Aikman in 1901 during a posting to the Channel Island of Guernsey, but he

also developed an interest in intelligence and mental testing. Before returning to Leipzig, Spearman undertook, apparently on his own initiative, a series of such tests on some schoolchildren and adults which laid the foundations for his pioneering work on developing a theory of intelligence and what is now known as factor analysis.

On finally returning to England in 1907, Spearman took up the post of Reader in Experimental Psychology at University College, London (UCL), where he stayed as Grote Professor of Mind and Logic (1911) and then Professor of Psychology (1928) until retiring as Emeritus Professor in 1931. Under Spearman's leadership, UCL became the first notable British center of psychological research. The trademark of the "London School" was its emphasis on applying Galtonian principles of statistical and psychometric rigor to the study of human abilities.

After retirement, Spearman continued writing as well as traveling widely on lecture tours and research. But his health began to fail and he took his own life on September 17, 1945, at the age of 82.

Contributions

For practitioners of psychology, for historians of the subject, and for Spearman himself, there are three separate aspects of his work of especial interest. For the first group, it is rank correlation and test reliability; for the second, it is his pioneering work on intelligence and factor analysis; while Spearman himself would have chosen his cognitive system of noëgenesis (the generation of new knowledge).

Spearman first attracted attention with two linked articles on the formal definition and measurement of human intelligence which appeared in the *American Journal of Psychology* in 1904. It is on the second paper, defining his approach to intelligence, that Spearman's early reputation rests, though the other, relatively neglected, article provided the statistical tools (including rudimentary formulae for rank correlation and test reliability) on which his claim to have isolated and measured intelligence lies. However, unlike later workers such as Louis Thurstone, Spearman did not treat the study of intelligence as an empirical search for its nature; rather he began with an assumption about its form which he then proceeded to demonstrate empirically.

For Spearman, intelligence had a simple, two-part structure, namely, a general or common factor *g* underlying all mental abilities and a special factor *s* specific to a particular task. The definition and measurement of *g* occupied much more of Spearman's time and effort than *s*. However, he was always somewhat reluctant to equate *g* unambiguously with intelligence, perhaps feeling that intelligence was more elusive a concept than could be reduced to a simple score.

Spearman maintained that the hierarchical nature of the pattern of intercorrelations between tests of differing special abilities was consistent with the notion of a general factor underlying any mental task to a distinct and *quantifiable* extent. The foundations of factor analysis were thus laid. However, so simple and explicit a structure attracted much criticism, particularly from Edward Thorndike, for whom it was too simplistic, and Godfrey Thomson who dismissed the hierarchy as a statistical artifact. In 1928, moreover, the entry of the formidable American statistician Edwin B. Wilson into the debate uncovered the still-unresolved issue of factor indeterminacy and helped to propel the development of factor analysis out of the hands of psychologists and into those of the mathematicians.

Spearman's other great contribution to psychology is contained in his 1923 book, *The nature of "intelligence" and the principles of cognition*. Although aspects of his system of noëgenesis have been revived in recent years, most notably in Robert Sternberg's recasting of analogical reasoning, Spearman's ideas are richer and more complex, embracing in principle all aspects of intellectual activity. In his system, cognitive activity was also constrained in a way that generated testable hypotheses concerning observed problem solving, for example, the limited mental energy available to the person could be flexibly allocated to different cognitive tasks.

The major problem with noëgenesis as a fundamental system of psychology is that, although in principle designed to generate testable predictions, it was not itself founded on much experimental work; rather it was derived from various philosophical sources, and thus seemed primarily a contribution to the somewhat ambiguous area between psychology and philosophy. Hence, the concept virtually disappeared until its

partial resuscitation within certain areas of modern cognition.

Over his long academic life, Spearman published more than a 100 articles and six books. He also received many honors, in particular, being elected a Fellow of the Royal Society (1924), serving as President of the British Psychological Society (1923–1926), as well as becoming an honorary member of several foreign academies of science. See Lovie and Lovie (1996) and Spearman's autobiographical essay (1930) for further material about his life and work.

See Also

- ▶ Thorndike, Edward
- ▶ Wundt, Wilhelm

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Spence, Kenneth

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Basic Biographical Information

Kenneth Wartinbee Spence was an American neo-behavioral psychologist, recognized for his theoretical and experimental studies of conditioning and learning.

Spence was born in Chicago, Illinois in 1907 to Mary E. Wartinbee and William James Spence, an electrical engineer, and raised in Montreal, Quebec, Canada.

Spence attended West Hill High School, followed by McGill University in Montreal, earning a bachelor's degree in psychology in 1929, and a master's degree in 1930.

Prior to graduation from McGill, Spence married Isabel Temte, and had two children (Amsel 1995, p. 335).

At McGill, Spence was awarded the Wales Gold Medal in Mental Sciences and the university's Governor-General's Medal for Research. After completion of his master's, Spence attended Yale University to study with the renowned primate biologist Robert M. Yerkes and behavioral psychologist Clark L. Hull. Spence's research at Yale focused on discrimination learning in animals, and in 1933 he received his Ph.D. in psychology, with a dissertation on visual acuity in chimpanzees. Spence continued his research with chimpanzees as a National Research Council fellow and research assistant at the Yale Laboratories of Primate Biology in Orange Park, Florida (Kenneth 2008).

In 1937, Spence became an assistant professor of psychology at the University of Virginia. He then moved to the University of Iowa, where he remained for 26 years, becoming the head of the psychology department in 1942. Together with his colleagues Kurt Lewin and Gustav Bergmann, Spence developed the University of Iowa into a leading center of psychological research and theory. As the head of the department, he supervised more than 70 doctoral dissertations, leaving a mark on future generations of psychological theorists (Alic 2001, p. 620–621).

Spence married his former graduate student, Janet Taylor in 1959, and relocated to the psychology department at the University of Texas in Austin, in 1964.

Spence died of cancer in Austin, Texas in 1967 at the age of 59.

Major Accomplishments

Spence was a pioneer in the development of the neo-behaviorist theories of motivation and learning. His contributions to psychology are often categorized as follows: (1) learning and motivation theory, (2) the experimental psychology of learning and motivation, and (3) methodology and philosophy of science (Amsel 1995, p. 337).

The majority of Spence's research was focused in the area of discrimination learning, developed through stimuli–response experiments with chimpanzees and rats. His work analyzed classical conditioning and

measured basic learned behaviors such as salivating prior to eating, and eye-blinking in response to anxiety, attempting to develop a mathematical equation to describe how learned behavior is acquired (Kenneth 2008).

Spence did not turn his focus toward human behavior until the end of his career, and he cautioned that his previous theories of learning were only to be applied to nonhumans, as human behavior is significantly influenced by cognitive factors (Kenneth 2008).

Hull–Spence Hypothesis

Spence, along with Clark L. Hull, established the foundation of the neo-behaviorist theories of condition, learning, and motivation, and their collaboration of ideas came to be known as the *Hull–Spence Hypothesis* of conditioning and learning, which examined stimulus–response association, and found that reinforcement serves to motivate and increase the performance of learned behavior (Kenneth 2008).

Spence built upon the behavior theory developed by Hull, which stated that behavior was learned through habituation. Spence enhanced Hull's theory with his knowledge of discrimination learning, and found that improved performance in learned behavior was not due to habituation, but a result of motivational forces. Spence believed in “latent learning,” meaning that reinforcement was not necessary for learning to occur, but was a strong motivator for performance. His studies found that reinforcement encourages a response, but does not play a role in learning the response (Alic 2001, p. 621).

Additional Contributions

Aside from the Hull–Spence hypothesis, Spence also contributed to learning theory as a systematist, analyzing and interpreting the theories of others, through contributions in academic journals including the *Handbook of Experimental Psychology* (1951) (Amsel 1995, p. 338).

Spence's early papers on discrimination learning, produced during his years at the Yale Primate Laboratories and his continued research at the University of Iowa in the 1940s are widely considered

his most influential contribution to behavioral psychology (Amsel 1995, p. 339).

Between 1936 and 1966, Spence published 13 papers on the theory of learning in *Psychological Review* and numerous other articles and books. His publications were cited more often than those of any other psychologist in the years from 1962 to 1967 (Wiseman 2000, p. 262).

Throughout his career Spence received numerous awards and recognitions, including the Howard Crosby Warren Medal of the Society of Experimental Psychologists in 1953 and the first Distinguished Scientific Contribution Award of the American Psychological Association in 1956. Spence was the only psychologist ever selected to deliver the prestigious Silliman lectures at Yale University (Amsel 1995, p. 347). Spence was elected to the National Academy of Sciences in 1954 and was a fellow of the American Association for the Advancement of Science and the American Psychological Association. He also served on the U.S. Air Force Committee on Human Resources and the Army Scientific Advisory Panel (Kenneth 2008).

Philosophy of Science

Spence believed that psychologists faced unique challenges in psychological research and in the formulation of theories, as human behavior is unpredictable and does not always follow the logical laws as outlined in theory. Spence wanted to lessen the gap between physical sciences and psychology by reducing psychological laws to mathematical formulas (Kenneth 2008).

See Also

► Hull, Clark L.

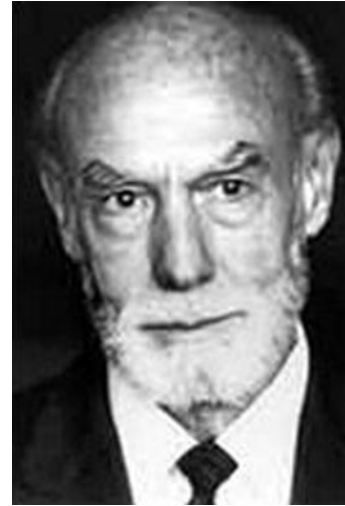
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Sperry, Roger W.

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Basic Biographical Information

Sperry, Roger (August 20, 1913–April 17, 1994) was an American neurobiologist, psychologist, and philosopher. Roger Sperry was born in Harford, Connecticut, to Francis Bushnell and Florence Kraemer Sperry. Sperry's father was in banking, while his mother was trained in business school. Roger had a younger brother, Russell Loomis, who eventually studied Chemistry. Roger's father died when he was 11. Roger attended Hall High School in West Hartford, Connecticut, where he excelled in athletics. In 1935, Sperry graduated from Oberlin College with a Bachelor in English. Sperry continued at Oberlin to earn a master's degree in Psychology. In 1941, Sperry obtained a doctorate in Zoology from the University of Chicago under the mentorship of Paul A. Weiss. After completing his PhD, Sperry did a year of post-doctoral research as a National Research Council Fellow at Harvard University under the guidance of Professor Karl S Lashley. Sperry was a Biology Research Fellow from 1942–1946 at Harvard's Yerkes Laboratories of Primate Biology. In 1946, Sperry returned to the

University of Chicago with an appointment of Assistant Professor in the Department of Anatomy. On December 28, 1949, Sperry married Norma Gay Dupree. They had two children: Glenn Michael Sperry (born October 13, 1953) and Janeth Hope Sperry (born August 18, 1963). In 1952, he became Section Chief of Neurological Diseases and Blindness at the National Institutes of Health. In the same year, Sperry was promoted to Associate Professor at the University of Chicago. In 1953, Sperry accepted a position as a Professor of Psychobiology at California Institute of Technology, where he remained until his retirement in 1984.

Major Contributions

Roger Sperry's professional career can be divided into four areas of study: Nerve Regeneration (1939–1946), Visual Functioning (1946–1963), Corpus Callosum/Split-Brain (1957–1975), and Consciousness/Values (1973–1993) (Trevvarthen 1994). Prior to the late 1930s, there was a long held belief that the mammalian brain was essentially plastic and capable of change. Sperry conducted a series of elegant experiments debunking this theory. Sperry transposed the nerves of muscle flexion and extension in a rat's leg (Sperry 1945). When the bottom of the rat's foot was injured, the rat would straighten its leg rather than withdraw. As the rat's foot worsened, the rat would push harder. This experiment showed that the rat's motor cortex was "hard-wired" and incapable of being modified through training.

Next Sperry conducted a sequence of experiments with salamanders. The optic nerve of salamanders can regenerate. Sperry severed the nerves and rotated the eyeballs 180°. When the salamander's vision returned, it saw everything upside down for the duration of its life. The experiments showed that neural connections are under genetic control and are essentially fixed postembryonic development. This culminated in Sperry's chemo-affinity theory (Hubel 1994).

Sperry became enthralled by the corpus callosum during his postdoctorate years. At this time, the corpus callosum, a series of connective fibers between the left and right hemispheres, remained a mystery to neuroscientists. Beginning in the 1940s, commissurotomy the practice of severing the corpus callosum was

a common surgical procedure in patients with severe epilepsy. Sperry and his colleagues conducted a series of tests to determine the effects on human perception, speech, and motor control (Sperry 1976). The left hemisphere was found to be superior in terms of analytical, sequential, and linguistic processing, while the right hemisphere was found to be advantageous in terms of holistic, parallel, and spacial abilities. These experiments resulted in the concept of lateralization of brain function. Sperry shared the Nobel Prize in Physiology or Medicine in 1981 along with David Hubel and Thorsten Wiesel for this research.

During Sperry's later life, he became increasingly interested in consciousness and ethical values (Sperry 1980). Sperry argued that brain mechanisms would never be understood solely on the basis of chemistry and biophysics of individual neurons. Sperry proposed a new mentalist theory of mind arguing subjective experience has a prime role in controlling brain function and behavior. Sperry describes consciousness as "macrodeterminism," in which, higher, more evolved forces exercise control over their lower counterparts in nature.

Roger Sperry has made numerous contributions to the fields of neurobiology, psychology, and philosophy throughout his lifetime. Sperry's groundbreaking split-brain experiments resulted in him being awarded the Nobel Prize in Physiology or Medicine and the National Medal of Science among many others.

See Also

► [Cerebral Dominance](#)

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Starbuck, E. D.

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Basic Biographical Information

Born: February 20, 1866; Died: November 18, 1947.

Starbuck was born Edward Eli Starbuck in Indiana to Quaker farmers who traced their ancestry and religion back to the original settlers of Nantucket. He underwent a conversion experience at 20 which was expected in his community, but soon afterward went to the University of Indiana and began a long process of questioning religion which led him both to the empirical study of the grounds of religious experience and also to a career as a religious educator. Starbuck studied sciences and mathematics at Indiana: One of his instructors was David Starr Jordan, who later at Stanford University provided Starbuck with his first academic position. Starbuck completed his undergraduate work in 1890 having developed a liberal and somewhat skeptical religious outlook. In fact, he referred late in life to himself and his wife as “emancipated pagans” (Booth 1981, p. 103). Ultimately, this led him to associate only sporadically with organized religion, though he remained a person of faith who supported religion generally. After 3 years of teaching in Indiana preparatory schools and colleges, his continuing fascination with religious experience and a developing interest in psychology led him to seek out graduate education in psychology and religion.

Major Accomplishments/Contributions

He settled in Harvard, which provided him generous support and where he devised a questionnaire about the conversion experience in adolescence which proved to be his most enduring contribution to both developmental psychology and the psychology of religion. This questionnaire was open-ended and covered all aspects of the conversion experience, including the circumstances preceding the experience, sights, sounds and feelings during the experience, relation of the

change during conversion to the self or supernatural events, changes connected with the conversion experience, and ease or difficulty in following a new life course after conversion. Starbuck had some trepidation about offering this questionnaire to the public, but he found a friendly ally in William James, who of course had long-standing interests in conversion and religion generally. James’s signature on the original questionnaire sanctioned its distribution, but while Starbuck was able to secure data, he was not able to proceed to the Ph.D. in the psychology of religion, which had become his goal. In the meantime, some of his questionnaires had migrated to Clark University and, while Starbuck negotiated a transfer to G. Stanley Hall’s program which promised liberty to follow his chosen path, Starbuck’s method and questionnaire had already become swallowed up in rapidly rising tide of psychological studies of religion there. Starbuck had in a sense a double fortune or misfortune to have conceived an original idea in the presence of two eminent elder psychologists, James who was already on the path to his groundbreaking study of religious experience, and Hall, who had drives not only toward religion but also to a groundbreaking study of his own on adolescence. James, Hall, and their students by Starbuck’s work. By the time Starbuck had finished his PhD at Clark in 1897 and published on conversion (Starbuck 1897), had begun his career in education and psychology at Stanford, and had published his book on the psychology of religion in 1899 (Starbuck 1899) the field was crowded. James gave a prominent place to Starbuck’s findings in *The Varieties of Religious Experience*. But a large amount of data on religious experience that Starbuck subsequently collected at Stanford was lost in transit, and though he had a sabbatical with Meumann in Switzerland which led to some further consideration of religious feelings (Starbuck 1904), Starbuck spent the rest of his career at Iowa between 1906 and 1930 and then at the University of Southern California until 1943, teaching psychology, education, and aesthetics, developing programs of character education, and consulting on religious instruction. His subsequent writing, much of which is collected in *Look to This Day* (Starbuck 1945), is programmatic and homiletic, and he made no further empirical discoveries to match his earliest work.

See Also

► [Hall, G. Stanley](#)

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Staudt Sexton, Virginia

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Basic Biographical Information

Virginia Staudt Sexton is known primarily as a historian of psychology, but she made important contributions to other areas of psychology as well. Perhaps most significantly, she worked to raise the status of women in psychology, to integrate Catholics into psychology, and to promote a greater international perspective in the field.

Virginia Mary Staudt was born August 30, 1916, in New York City. In 1936, at age 19, she received a bachelor's degree from Hunter College with a major in classics. She taught elementary school for several years before completing a doctoral degree in experimental psychology at Fordham University in 1946. Her mentor was Joseph Kubis. She later completed a post doctoral year in neuroanatomy at Columbia University and in clinical psychology at the Psychiatric Institute in New York under the mentorship of Joseph Zubin (Denmark and Russo 1992).

Her first college teaching position was at Notre Dame College on Staten Island in 1944 where she helped to establish a laboratory and an independent

psychology major. She resigned from Notre Dame after receiving a Ford Foundation Faculty Fellowship that allowed her to pursue postdoctoral studies. In 1953, she accepted a position at the Bronx campus of Hunter College (later renamed Herbert Lehman College of the City of New York). In 1960, she married Richard Sexton, an English professor at Fordham University. Her husband had been widowed with four children, and Virginia took over their care. Richard and Virginia Sexton maintained a mutually supportive relationship in both their personal and professional lives.

Virginia Sexton retired from Lehman College in 1979 and immediately accepted a position at St. John's University where she was named a Distinguished Professor of Psychology. She remained at St. John's University until she reluctantly retired in 1990 due to poor health. She died on May 24, 1997, 5 months after the death of her husband (Hogan 1998).

Major Accomplishments/Contributions

Virginia Sexton's personal life and professional accomplishments were closely related. Her experience as a woman in academia who faced gender discrimination sensitized her to the struggles of women in psychology, both in contemporary and historical terms. Her strong Catholic background led her to promote greater participation of Catholics in psychology. Even her training as a classicist strongly influenced her emphasis on humanistic approaches to psychology.

Many of Sexton's books were coauthored with Henryk Misiak, a Polish-born Catholic priest, who had also received a doctorate in psychology from Fordham University and who continued at Fordham as a professor of psychology. Sexton and Misiak were a formidable pair, each with a strong philosophical and language background. Their first book together, *Catholics in Psychology* (Misiak and Staudt 1954), had multiple purposes. In addition to identifying Catholics who had been pioneers of psychology, they wanted to demonstrate that the Catholic faith was not a hindrance to the pursuit of psychology, but rather that faith could help to stimulate scientific inquiry. At the time, there were several prominent Catholics who considered psychology and religion to be inherently at odds with one another.

In 1966, they published *History of Psychology: An Overview* (Misiak and Sexton 1966), which gave greater legitimacy to the emerging subfield. Their approach to the history of psychology differed from some of the other notable approaches of the time. Not only did they emphasize the history of applied psychology in a way that few had done before, they gave considerable coverage to psychology in other parts of the world, including Asia. This international perspective anticipated their next book *Psychology Around the World* (Sexton and Misiak 1976), an edited volume, containing contributions from 31 countries, that was for many years the major source in English on national psychologies.

On her own, Virginia researched a variety of historical subjects, including several prominent Catholic contributors to psychology as well as women pioneers in psychology. She also became an organizational and professional leader. Among the offices she held were the presidency of the International Council of Psychologists (1981–1982), the New York State Psychological Association (1982), the Eastern Psychological Association (1983–1984), Psi Chi, the National (now International) Honor Society in Psychology (1986–1987), and five divisions of the American Psychological Association.

In all, Sexton published almost 200 articles and nine books. Much of her work explored her interest in the psychology of religion and humanistic psychology. When she served as president of the American Catholic Psychological Association (1964–1965), she joined with several other prominent Catholic leaders of psychology, notably William Bier, to lobby the American Psychological Association to allow the establishment of a division devoted to psychology and religion. Their efforts resulted in the establishment of APA Division 36, now called Psychology of Religion.

She received awards from several different organizations, including the New York State Psychological Association and the New York Academy of Sciences. She also received an honorary doctorate from Cedar Crest College. She was well known as a mentor for younger psychologists, several of whom have gone on to positions of national prominence. Despite her many honors and accomplishments, she considered herself to be primarily a teacher.

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Stern, William

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Basic Biographical Information

Stern, whose full given name was Louis William, was born on April 29, 1871, in Berlin, Germany. He would be the only child born to Sigismund and Rosa Stern, parents of modest means. He began his university studies in 1888 at the Friedrich-Wilhelm University of Berlin (today the Humboldt University), and in 1893 concluded his doctoral work there under the mentorship of Moritz Lazarus (1824–1903). After spending four more years in Berlin conducting independent research on the perception of change, Stern accepted the offer of a position as lecturer at the University of Breslau (a city renamed Wrocław after the cession of the German state of Silesia to Poland in the aftermath of World War II). At Breslau, Stern completed his *Habilitation* under Hermann Ebbinghaus (1850–1909) in 1897, and then continued as a member of the teaching faculty there for 19 more years.

In 1916, Stern left Breslau for Hamburg in order to replace Ernst Meumann (1862–1915) as Director of the Psychological Institute there. Stern played a major role in the founding of the University of Hamburg in 1919, and would remain a key member of the faculty there until Hitler's accession to power in 1933. In April of that year, Stern, a Jew, was forced to resign his faculty position and was forbidden all further access to

university facilities. Soon thereafter, he fled Germany, and after spending some months in the Netherlands emigrated to the USA in 1934, where he held a visiting professorship at Duke University in Durham, North Carolina, until his death on March 27, 1938 (cf. Bühring 1996).

Major Accomplishments/ Contributions

Stern's major contributions to the psychological literature fall into three major categories: child psychology, differential psychology, and theoretical and philosophical psychology.

Stern's contributions to child psychology were based to a large extent on observations made by himself and wife Clara concerning the development of their three children. Daughter Hilde was born in 1900, son Günther in 1902, and daughter Eva in 1904. Beginning with Hilde's birth, the Sterns' observations were recorded in diaries they maintained for 18 years, finally extending to more than 5,000 handwritten pages (Behrens and Deutsch 1991). Two monographs based on the accumulating records were coauthored by Clara and William Stern: *Die Kindersprache (Children's Speech)*, published in 1907 (Stern and Stern 1907), and *Erinnerung, Aussage und Lüge in der ersten Kindheit (Recollection, Testimony, and Lying in Early Childhood)*, published 2 years later (Stern and Stern 1909). Subsequently, William Stern alone authored *Psychologie der frühen Kindheit bis zum sechsten Lebensjahr (The Psychology of Early Childhood Up to the Sixth Year of Life)*, a work that was published in its first edition in 1914 (Stern 1914). Reflecting the popularity of that work and the high regard in which it was held not only by Stern's contemporaries but also by his successors, it would eventually reach a sixth edition (published in 1930), an edition which would in turn be reissued six times, most recently in 1987.

By his own account (Stern 1927), Stern's studies of his three children strongly reinforced his convictions concerning the need for a subdiscipline within psychology specifically devoted to the study of individual differences. This conviction first found expression in a book published in 1900 titled *Über Psychologie der individuellen Differenzen: Ideen zu einer "differentiellen" Psychologie (On the Psychology of Individual Differences: Toward a "Differential" Psychology; Stern 1900)*, and

Stern's views concerning the proper methods and research objectives of this new subdiscipline were set forth even more thoroughly and systematically in a sequel to the 1900 book published a decade later under the title *Die Differentielle Psychologie in ihren methodischen Grundlagen (Methodological Foundations of Differential Psychology; Stern 1911)*. In these two path-breaking works, but especially the latter, Stern set an investigative agenda for the study of individual differences that would guide the research efforts of personality investigators and applied psychologists for decades to come.

It was within the context of his own work as a differential psychologist that Stern suggested that researchers studying intelligence differences among children abandon the practice of expressing the level of a child's intellectual functioning as mental age *minus* chronological age, and adopt instead the procedure of computing the *ratio* of mental age to chronological age (e.g., Stern 1916). For this suggestion, which was widely adopted, Stern has properly been credited with having invented the IQ. Over time, however, Stern expressed his growing dismay over the excessive reliance on – and misuses of – the IQ index (e.g., Stern 1930), and he came to regret his role in that historical development (cf. Lamiell 2006).

In the domain of theoretical and philosophical psychology, Stern's *magnum opus* was a three-volume work on which he labored for two decades. He titled the series *Person und Sache (Person and Thing)*. Volume I of this work, *Ableitung und Grundlehre (Rationale and Basic Tenets)*, was published in 1906 (Stern 1906); Volume II, *Die menschliche Persönlichkeit (The Human Personality)* appeared in 1918 (Stern 1918), and Volume III, *Wertphilosophie (Philosophy of Value)* followed in 1924 (Stern 1924). Together, these three volumes set forth a comprehensive system of thought, or *Weltanschauung*, that Stern called "critical personalism." A highly condensed exposition of these ideas was published in 1917 under the title *Die Psychologie und der Personalismus* (Stern 1917).

As the title of the aforementioned series suggests, critical personalism is predicated on what Stern took to be the irreducible distinction between persons and things. At the core of this distinction is the notion that persons are entities that *evaluate*, whereas things are entities that can only be passively evaluated.

These convictions led Stern to question the adequacy of all reductively mechanistic conceptions of human mental life and behavior, and to advocate instead an explicitly teleological understanding of persons and their psychosocial development across the life span (cf. Lamiell 2003).

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Sternberg, Robert J.

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Robert Sternberg is a prominent psychological theorist, psychometrician, and active researcher. He is most known for his Triarchic Theory of Intelligence and his work on creativity and love.

Basic Biographical Information

Robert Sternberg was born in Newark, New Jersey. His interest in psychology began at an early age based on his personal experiences. In elementary school, he suffered from severe test anxiety, performing poorly on IQ tests. Wanting to understand his shortcomings, he began to study intelligence testing. In the seventh grade, he found the Stanford–Binet scales in his local library, which he began administering to his classmates. The same year, he created his own intelligence test for his

school science project, referred to as the Sternberg Test of Mental Abilities (Spear 2001).

Despite various educational difficulties and discouragement from professors, Sternberg continued to study psychology. He earned an undergraduate degree from Yale University in 1972 under the mentorship of Endel Tulving. Three years later, he achieved a doctoral degree from Stanford University, where he studied with Gordon Bower. During his time at Yale, he continued to pursue his interest in assessment, working for the Education Testing Service in Princeton and the Psychological Corporation in New York on his summer breaks.

Robert Sternberg taught at Yale University from 1975 to 2005. He was the Director of the Psychology of Abilities, Competencies, and Expertise (PACE) Center from 2000 to 2005. He has actively studied intelligence, taking a lifespan approach and committed to demonstrating that intelligence is modifiable and subject to teaching and intervention (Glaveanu 2010). His interests have also focused on creativity, love and hate, thinking and problem solving abilities, social relations, and leadership. Sternberg notes that his interests have almost always developed out of personal difficulties and failures. His interest in intelligence testing came from his own subpar performance school, his interest in wisdom came from giving poor advice to a graduate student, and his interest in love emerged within the context of a failing romantic relationship (Glaveanu 2010). Sternberg historically seeks to understand the nature of his own personal challenges through psychological theory and scholarship. His pursuit of knowledge in these domains has advanced both theory and research in these areas.

Major Contributions

Sternberg has contributed widely to psychological theory. Perhaps his most widely recognized contribution is the Triarchic Theory of Successful Intelligence (Sternberg 1985). He views intelligent behavior as “beyond IQ,” a combination of analytical, creative, and practical abilities. He also devised a Triangular Theory of Love (Sternberg 1986), where he breaks relationships into three main components – intimacy, passion, and commitment – and outlines different types of love relationships. He also developed an Investment Theory of Creativity (Sternberg and Lubart 1995), a Theory of Cognitive Styles (Sternberg 1997), and

a theory of leadership known as Wisdom, Intelligence, and Creativity Synthesized (Sternberg 2003).

From 2005 to 2010 Sternberg served as the Dean of the School of Arts and Sciences at Tufts University, where he launched an experimental admissions process known as the “Rainbow Project.” Believing that SAT scores are flawed and should not be the sole determinant for university admissions, Sternberg added a creativity measure to the process. This new admissions criteria doubled the predictive capability of college success and decreased ethnic group differences typically observed in traditional assessment tools (Jaschik 2006). Throughout his career, Sternberg has investigated psychometric integrity and created strong assessment tools that aim to alleviate ethnic and cultural biases.

Over the course of his career, Sternberg has published over 1,000 books, book chapters, and articles. His work has revolutionized our understanding of the nature of intelligence, and emphasized the need to consider culture and context in our theories and assessment tools. His advocacy for a broader conceptualization of intelligence has shaped the way that human potential and success are conceived of and studied. He has dedicated his career to conducting novel and controversial studies, often going against the grain and being criticized for his work. He has questioned established theories on intelligence and the field of standardized testing, advocating for more inclusive and valid testing systems. He refutes the idea that intellectual functioning is inherent and stable, insisting that intelligence can be modified by good teaching and intervention. He sees the human potential for development and change throughout the lifespan. In addition to his theoretical and empirical contributions, Sternberg has devised several psychometric tools, among them the Sternberg Triarchic Abilities Test and the Sternberg Multidimensional Abilities Test.

To date, Sternberg holds ten honorary doctorates, an honorary professorate at the University of Heidelberg in Germany, and a distinguished associate of the Psychometrics Centre at the University of Cambridge. He has been the recipient of numerous prestigious awards, among them the Early Career Award of the American Psychological Association (APA) and the James McKeen Cattell Award of the American Psychological Society. The APA listed him as one of the “Top 100 Psychologists of the 20th Century,” and he was the

president of the organization in 2003. He has also served in editorial roles for the journals *Psychological Bulletin* and *Child Development*. He is the current Editor of *Contemporary Psychology*. In 2010, he was appointed as Provost, Senior Vice President, and Professor of Psychology at Oklahoma State University.

There is no doubt of the widespread influence and impact Sternberg's work has had on the field. He continues to bridge the areas and cognitive, developmental, and social psychology in his work, challenging previously held conceptions about intelligence and IQ. He also advocates for systematic change and strives to create psychometrically valid assessment tools. He is an active theorist, researcher, psychometrician, and advocate. In his endeavors to investigate intelligence and wisdom, Sternberg's work and dedication to the field clearly reveals his own.

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Stewart, Joseph

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Joseph Stewart received his Ph.D. in 1960 in speech pathology and audiology from the University of Iowa, devoting his doctoral dissertation under the direction

of Professor Wendell Johnson to an anthropological investigation of the presence of stuttering among certain Indian tribes. Stewart interviewed mothers of children of the Cowichan Indians of Vancouver Island, a known stuttering group, and mothers of the Ute Indians of Utah, a known nonstuttering group. The Cowichans in contrast to the Ute Indians reported more severe punishment associated with toilet training and expectations for early development of motor skills, such as crawling and walking, and placed greater stress on language acquisition.

Stewart's research demonstrated that cultural factors are an important consideration in the study of speech and language development and its disorders and a significant area of study for investigators.

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Stratton, G. M.

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Basic Biographical Information

Born: September 26, 1865; Died: October 8, 1957.

George Malcolm Stratton was among the last major American psychologists to have a primarily philosophical education and background. Son of a Gold Rush pioneer, he matriculated at the University of California (BA 1888) and after obtaining the M.A. at Yale in 1890 returned to California as a fellow in philosophy with the idealistic philosopher George Howison. With Howison's support, Stratton left for 2 years' study in Europe where he obtained another M.A. and the Ph.D. under ► [Wundt, Wilhelm](#) at Leipzig in 1896. He then returned to California, and except for a 4-year period between 1904 and 1908 when he was at Johns Hopkins, he spent the rest of his career there, was elected to the National Academy of Sciences in 1928, and retired in 1935, remaining active as an emeritus faculty member until shortly before his death.

Major Accomplishments/ Contributions

► **Tolman, E. C.**, a longtime colleague, said that Stratton's three main contributions to psychology were his investigation of space perception, his founding and development of the Berkeley psychology department and laboratory, and his contributions to international understanding and peace (Tolman 1961). The first of these is the most predominant: Along with Raymond Dodge's contemporaneous study of eye movements in reading, Stratton's study on perception with inverting lenses (Stratton 1897) was one of the most memorable phenomenal discoveries of the new experimental perceptual psychology. Stratton devised a pseudoscope, one of several which he constructed and investigated between 1894 and 1900, which presented, to his naive eye, an inverted view of the environment to which he adapted within a few days, able to perform normal tasks involving motion and eye-hand coordination. Stratton's studies have remained a point of departure for discussions of space perception, visual adaptation, and neural coding. After this, Stratton contributed to the debate about consciousness in the first decade of the twentieth century, combining a Wundtian conception of comprehensive psychic causality with Jamesian functionalism (Stratton 1906a, b). He also conducted empirical tests both in the laboratory and in the field of different arrangements of railway signal lights which confirmed the work of signal engineers on the superiority of position-light signals (Stratton 1907). Later, in the 1920s, he studied emotion, especially anger and fear, conducting some curious comparative studies of the conjectures that cattle were enraged by the color red and the sight of blood (Stratton 1923). Theoretically, he advanced a view of emotion as an undifferentiated organizing system for action (Stratton 1928). At Berkeley, he nurtured a psychology department independent of but friendly to philosophy, which reflected his eclectic interests and which became one of the most diverse and innovative in the USA. Stratton supported feminism (Stratton 1916), and this is reflected in his encouragement of inclusion of women on the Berkeley faculty. The first three Berkeley Psychology Ph.D.s, starting with Olga Bridgman in 1915, were women, and the first two, Bridgman and Jean Walker MacFarlane, formed the nucleus of the Berkeley faculty in the 1920s along

with Tolman, Warner Brown, and Stratton. The last of the three, Beulah May Morrison, Stratton's research assistant during the early 1920s on the cattle studies, was a core faculty member with Raymond Wheeler at the University of Kansas for many years. During the First World War, Stratton helped devise tests to determine who could become successful pilots. After the war he became convinced, because of long-standing religious convictions and recent experience, of the necessity of solving the problem of violence in international relations. He conducted experimental work demonstrating similarities in emotional response between persons of various ethnic groups, and wrote several theoretical papers and books on the theme of relieving violence by diminishing self-interest (Stratton 1944). This pacifistic psychology, though it was probably an influence on E. C. Tolman turning to the study of the motives for war, did not gain a wide hearing as it appeared mostly during the Second World War and immediately afterward when the priorities of American psychology were largely focused on national survival.

See Also

- **Tolman, E. C.**
- **Wundt, Wilhelm**

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Strong, E. K., Jr.

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Basic Biographical Information

Born: August 18, 1884; Died: December 6, 1963.

Edward Kellogg Strong received the B.A. from the University of California at Berkeley in 1906 and then, after a stint in the US Forestry Service and after taking the M.A. at Berkeley, entered the graduate program of Columbia University and became associated with new developments there in applied psychology. His 1911 doctoral thesis with Hollingworth concerned the effectiveness of advertising, which was a continuing interest for much of his career. After obtaining the doctorate he was, from 1912 to 1915, a research fellow for the Association of National Advertisers as well as a lecturer at Columbia, publishing extensively on applied aspects of memory, fatigue, and efficiency. He then was a professor of psychology and education at George Peabody College for Teachers until joining the Army in 1917 and serving with the rank of Lieutenant Colonel on the Committee for Classification of Personnel. This work (Strong 1918) foreshadowed his later achievements in personnel classification. After the war, he joined the nascent business psychology program at Carnegie Tech, and then, when that program dissolved, was recruited to Stanford University's psychology program in 1923 by ► [Terman, Lewis M.](#) In 1925, Strong became one of the first psychologists to have a primary identification with business education when he joined the newly formed business school at Stanford, from which he retired in 1949.

Major Achievements/Contributions

Strong's approach to psychology was bedrock empirical and highly quantitative, and he wrote for the practicing professional rather than for the academic community. Though his work was downplayed at first by academic psychologists, its practical usefulness carried the day and his influence became ubiquitous in American commercial practice. In advertising, the theory often associated with Strong (1925) and summarized by the mnemonic AIDA (Attention, Interest, Desire, Action), though now acknowledged as a simplification, persists

as a basic tenet of advertising education and practice. His distinction between advertising for want vs. advertising for solution (Strong and Loveless 1926) and his other early research on memorability of advertisements have been absorbed into the mainstream of consumer psychology. He was a pioneer in job analysis and to vocational curriculum theory. His largest contribution, both in volume and influence, was his synthesis of the work begun by Truman Kelley, Max Freyd, and others in developing a scale of occupational preference. Strong and his student Karl Cowdery, longtime statistician and enrollment specialist in the Registrar's office at Stanford, refined and perfected what became known as the Strong Vocational Interest Blank: Strong's definitive summary of its development and content is contained in *Vocational Preferences of Men and Women* (Strong 1943). The SVIB provided the theoretical grounding for much modern testing theory: Its underlying factorial structure was a starting point for the development of factor analytic assessment methods, and its empirical criterion-keying methodology was instrumental as a model for, among other tests, the Minnesota Multifactorial Personality Inventory. Strong, it is said, worked on the statistics of the SVIB every evening, and his involvement with its revision continued well after his retirement. The SVIB, extensively revised since its inception, remains one of the best-known and most-utilized psychological tests.

Another initiative of Strong's, though not as well known among psychologists, deserves notice because it was an instance of psychology mediating between high level social policy and the lowest common denominator of popular social ignorance. In 1929, the Carnegie Foundation, then headed by the former Columbia dean Frederick Keppel, who had a longstanding interest in the problems of immigrant assimilation and education and a particular interest in these issues in Asian American populations, commissioned a study at Stanford of the vocational and educational characteristics of second-generation Japanese Americans. Strong headed this work, which took several years and resulted in several publications by Strong and his students, several of whom were themselves members of minority groups. The summary of this work, *The Second Generation Japanese Problem* (Strong 1934) is, in light of the subsequent fate during the Second World War of the population which Strong and his coworkers showed to

be superior to “native Californians” in honesty, trustworthiness, education, and law-abidingness, an ironic comment on the effectiveness of psychology in its social context.

See Also

► [Terman, Lewis M.](#)

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Structuralism

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Introduction

Structuralism was a systematic, experimental, introspective psychology of the late nineteenth and early twentieth centuries. The term is typically identified with the systematic psychology of Edward Bradford Titchener (1867–1927). Titchener’s structuralism used analytical introspection as its primary method for most of its existence to reduce complex mental states to the simplest elemental mental processes that appear in consciousness. It explained those processes in terms of the physiological processes of the organism. The final form of Titchener’s psychology, called by him and his school “existential psychology,” diverged from the earlier elementistic form and used phenomenological description rather than analytical introspection and making no attempt at explanation. There is some question whether this last form of Titchener’s psychology, roughly between 1921 and 1927, should be called “structural” at all (Evans 1972).

The term “structuralism” has sometimes been used to describe the early psychological thought of Oswald Külpe, primarily the positivistic psychology he presented in his *Grundriss der Psychologie* (Külpe 1893). It was Külpe who introduced Ernst Mach’s positivism to Titchener while they were in Wilhelm Wundt’s Institute in Leipzig, Germany. Külpe’s early enthusiasm for Mach’s ideas soon waned, however, and the *Grundriss* did not appear in another edition.

The term is also used, though incorrectly, to refer to the psychological system of Wilhelm Wundt. While both Titchener and Külpe based their psychologies on the framework of Wilhelm Wundt’s psychological system, they differed fundamentally from Wundt in their assumptions and methodology.

Neither Külpe nor Titchener used the term “structuralism” to refer to their psychological positions. Titchener called his position “structural psychology” when making a comparison with functional psychologies. He called it “experimental psychology” when comparing his position to the nonexperimental “empirical psychologies.” In its final incarnation, Titchener used the phrase “existential psychology” for his uncompleted, multidimensional systematic psychology (Evans 1972).

The term “structuralism” to stand for Titchener’s psychology appears to have been introduced by James Rowland Angell in his 1907 article, “The Province of Functional Psychology” (Angell 1907). Angell’s functionalism was structuralism’s primary competitor in the United States until the appearance of John B. Watson’s behaviorism. Ignore it as he might, the de facto name for Titchener’s structural psychology became structuralism. Titchener considered his psychology as the “perfection” of Wilhelm Wundt’s psychology, divesting it of what he considered superfluous accessory doctrines and inferences and making use of physiological explanations of the observed processes.

History

Titchener’s earliest use of his term “structural psychology” appears to be in his article, “The Postulates of a Structural Psychology” (Titchener 1898). It is in this article that he justified a structural psychology as one of three fundamental approaches in psychology analogous to similar approaches in

biology. Titchener borrowed this view from Hermann Ebbinghaus's comparison of psychological approaches with different approaches in biology. Ebbinghaus argued that biology has morphology (anatomy), physiology, ontogenetics, and taxonomy (Ebbinghaus 1897, pp. 161–165). The equivalents in psychology as Titchener interpreted them are structural psychology for anatomy, functional psychology for physiology, ontogenetic psychology (the study of individual childhood and adolescence) for ontogenetics, and for taxonomy, parts of “descriptive psychology” that deal with classification of emotions, instincts, temperaments, and similar topics. “Descriptive psychology” and “empirical psychology” were for Titchener pejorative terms used to compare his structural, experimental psychology to nonexperimental, philosophical psychologies. Titchener was so confident his elementistic introspective method was sufficient to the task of an experimental psychology, he boasted in his 1899 article, *Structural and Functional Psychology*:

- ▶ Give me my elements, and let me bring them together under the psychophysical conditions of mentality at large, and I will guarantee to show you the adult mind, as a structure, with no omission and no superfluity. (Titchener 1899)

Beyond the superficial framework of Wilhelm Wundt's psychology, Titchener's structural psychology was influenced most by positivism, not only the overt positivisms of Ernst Mach, Richard Avenarius, and Oswald Külpe but also the influences of the more implicit forms of positivism found in the writings of George Berkeley, David Hume, James Mill, John Stuart Mill, Herbert Spencer, and William James. He was also influenced by the evolutionary views of Thomas Huxley and Francis Galton. While Titchener did not accept all or even most of the positions of any of these thinkers, they all played a role in the form his structural psychology would take.

Titchener was attracted to Wundt's psychology in part because Wundt approached mind as the sum total of ideas obtained through sensory experience rather than treating mind as a real, substantial entity, like a soul. Titchener rejected any sort of psychology that smacked of the powers and faculties of a corporeal soul, a real unit-being.

Titchener was also attracted to Wundt's laboratory. Titchener had encountered James Mill's *Analysis of the Phenomena of the Human Mind* (Mill 1829) while at Oxford. Mill described the process of analyzing a complex experience into its smallest, elemental components. Titchener later recalled that “The conviction flashed upon me – ‘You can test all this for yourself!’ . . .” (Titchener 1909, p. 96) Wilhelm Wundt, in his *Grundzüge der physiologischen Psychologie*, demonstrated that one could do this sort of analysis in a scientific laboratory and at Leipzig, Wundt had such a laboratory. Titchener was accepted into Wundt's Leipzig laboratory but, since he had no laboratory experience, he spent the year after receiving his undergraduate degree in the Oxford physiological laboratory of John Scott Burdon Sanderson.

Burdon Sanderson instilled in Titchener a reverence for laboratory methods. It also brought him to the view that physiology was the necessary explanatory principle for the processes of consciousness. Wundt, on the other hand, sought to explain the “facts of experience” primarily in terms of lawful relationships among psychological processes rather than in physiological terms. Wundt had one foot in science and another in philosophy. Titchener came to Leipzig for experimental, scientific, and systematic psychology. His background and views made him an unlikely Wundtian. What Titchener would take away from Wundt's laboratory was the superficial framework of Wundt's systematic psychology not the underpinnings of Wundt's philosophy.

At the same time, although he had gained much from his study of mental and moral philosophy at Oxford, by the time he left for Wundt's laboratory in 1890, Titchener had become disillusioned with major aspects of the British associationism of his day. This was due to their use of logical concepts to stand for processes that could be or should be directly observable.

It was Oswald Külpe, then serving as Wundt's assistant and Dozent, who introduced Titchener to the positivism of the German physicist and philosopher of science, Ernst Mach. Külpe taught the course in experimental psychology that Titchener attended. It was Mach's thought and to a lesser degree, that of the German philosopher Richard Avenarius, that influenced Titchener in his divergence from Wundt's ideas. Mach's positivism taught, among other things,

that one has no need for doctrines or inferred processes to analyze mental phenomena because everything one needs is available to direct, conscious observation (Danziger 1979; Watson and Evans 1991, p. 394).

Titchener's source for the ideas of Mach was Oswald Külpe and the initial format for Titchener's systematic psychology was Külpe's *Grundriss der Psychologie* (1893). Külpe began writing the book while Titchener was at Leipzig. It was considered something of a group effort, at least as discussed around the table where Titchener, Külpe, and a few others from Wundt's laboratory ate together.

In the Fall of 1892 Titchener was appointed assistant professor, not in a department of psychology, but in the Sage School of Philosophy at Cornell University in the United States. In 1895, however, Titchener was promoted to professor of psychology in the new Department of Psychology and head of the department.

Külpe's *Grundriss der Psychologie* was published in 1893, the year after Titchener arrived at Cornell University. Titchener translated Külpe's book as *Outlines of Psychology* (Titchener 1895) and used it in his classes starting in 1895 while preparing his own positivistic psychology, *An Outline of Psychology* (Titchener 1896) published the following year. These two books share a similar plan and the same Machian positivistic point of view, although they differ in detail. Külpe's book certainly counts as a founding document of what became known as structuralism. For all practical purposes, however, what would be known as structuralism became synonymous with Titchener's psychological views.

Basic Concepts and Development

Titchener's structural psychology can best be understood by following its development across the 35 years of his professional life. That development can be divided into three stages: The positivistic reformulation of Wundt's psychology, roughly 1893–1898; the establishment of an independent structural, elementistic psychology, roughly 1899–1915, and the reformulation of Titchener's structural psychology into an increasingly phenomenological, multidimensional descriptive psychology, roughly 1915–1927. The final stage was left incomplete at the time of his death in 1927.

Stage 1: The Positivistic Reformulation of Wundt's Psychology

The first stage is exemplified in Titchener's *An Outline of Psychology*, in its three editions of 1896, 1897, and 1899 (Titchener 1896; 1897; 1899a) and in his *A Primer of Psychology*, first published in 1898 and revised in 1899 (Titchener 1898; 1899b). These early books, particularly the *Outline*, form the first draft of Titchener's structural psychology and remained the core of that psychology through most of his career. Because Titchener's *Outline* is at the core of the structural system, it will be covered in detail and then the alterations on that initial system in later publications will be considered.

Wundt's psychological system dealt with consciousness from the perspective of an active will. Wundt's approach sought an alternative to the passive, static mental structures of the British Empiricists and Associationists. Underlying Wundt's system were his doctrines of apperception, creative synthesis, and psychic causality. These all were processes that involved the active participation of the will. Wundt's psychology, known as voluntarism, made use of these doctrines and other hypothesized psychological processes to explain observed facts. Wundt sought psychological laws to explain the processes of consciousness rather than looking to the underlying physiology for explanations (Blumenthal 2001). Titchener, following a positivistic approach, rejected to one degree or another all of Wundt's inferred processes and replaced them where replacement was possible, with directly observable processes. He replaced Wundt's mentalistic explanations with those pertaining to the physiology of the nervous system.

Titchener tried to steer a middle course between the German idealism of Wundt and the logical constructions of the British empiricists and associationists. Titchener sought, on one hand, to avoid Wundt's use of non-observable inferential concepts. On the other hand, he did not want to be guilty of the flaws he saw in British empiricism and associationism. One flaw was in their use of hard logical concepts, "things," rather than actual mental processes as their fundamental units. Another was their substitution of logic for observable processes. Titchener's system evolved gradually over his entire career, often discarding earlier ideas and adding new ones as his ideas progressed. Titchener's

structuralism differed depending on the stage of its development being considered.

Titchener showed his attempt at a middle course between the British associationism and Wundt's voluntarism in the first edition of his *An Outline of Psychology*. Titchener introduced the book with the statement:

- ▶ The general standpoint of the book is that of the traditional English psychology. The system which is outlined in it, however, stands also in the closest relation to that presented in the more advanced treatises of the German experimental school, Külpe's *Grundriss der Psychologie* (*Outlines of Psychology*) and Wundt's *Grundzüge der physiologischen Psychologie* (*Foundations of Physiological Psychology*) (Titchener 1896 p.vi).

Titchener defined psychology in his *Outline* as the "science of mental processes." A process as an object of scientific knowledge is not a "thing." A "thing," he said, is "permanent and relatively unchanging, definitely marked off from other things." A process is "a continuous operation, a progressive change, which the scientific observer can trace throughout its course." Psychology, according to Titchener, "always deals with processes and never with things" (Titchener 1896, p. 5). "The elements of consciousness," as he defined them are always processes. By "mental process," Titchener followed Mach and Avenarius, in defining it as experience that is dependent on the experiencing individual. The objects of the physical world exist whether or not there is an experiencing organism present, that is, they exist independent of an experiencing organism. Ideas, feelings, and other "subjective" experiences are dependent on an experiencing organism. So, 440 Hz is a frequency of sound, a fact of physics and thus independent of the experiencing organism. Our experience of the musical note A produced by a 440 Hz stimulus, for instance, is a mental process dependent on the experiencing individual and cannot exist without the individual experiencing it. Mind, Titchener defined as the "sum total of mental processes experienced by the individual during his lifetime" (Titchener 1896, p. 10). The graphic illustration Titchener used in the book to accompany this definition was derived from William James's stream of thought metaphor although Titchener referred to it initially as a stream of mental

processes to keep his terminology consistent. He represented consciousness, the "conscious present," as a cross section of the stream of mental processes.

To Titchener, the simplest mental processes people ordinarily encounter, what he called "concrete processes," are perceptions, ideas, and feelings. These concrete processes are, in fact, complex but appear simple to the ordinary person in "real life." The aim of psychology, according to Titchener,

- ▶ ...is threefold... (1) to analyse concrete (actual) mental experience into its simplest components, (2) to discover how these elements combine, what are the laws which govern their combinations, and (3) to bring them into connection with their physiological (bodily) conditions. (Titchener 1896, p. 15)

To Titchener, all science begins with analysis. Psychology is no exception to this rule. The psychologist's first object, he held, is to ascertain the nature and number of the mental elements, which he defines as "... those mental processes which cannot be further analyzed, which are absolutely simple in nature, and which consequently cannot be reduced, even in part to other processes" (Titchener 1896, p. 13).

The second step is to synthesize the elementary processes together to form the original "concrete" experience again.

- ▶ When we have analyzed a complex into the elements a, b, c, we test our analysis by synthesis, putting the components a, b, and c, together again, to get the whole complex again. If the complex can be restored, the analysis is correct, but if the combination of a, b, and c does not give us back the original complex, the analyst has failed to discover one or more of its ingredients. (Titchener 1896, p. 14)

In Titchener's psychology, every mental process is connected in some way to a bodily process. "We do not know anything of mind apart from body. Mind and body, that is, always go together in our experience" (Titchener 1896, p. 16).

Apperception and Attention. The method by which this analysis is obtained is introspection. Titchener viewed the introspective method simply as direct observation in the same way as it is in the physical and biological sciences. Experiment, to Titchener, was observation under certain methodological controls.

Wundt's doctrine of apperception was the process through which the will brings some aspects of consciousness into focus (*Blickpunkt*) making the portion apperceived appear clearer or more intense than other processes occurring at the same time at its fringe (*Blickfeld*). Wundt also used apperception as part of the process of creative synthesis by which complex mental states are formed. Titchener considered Wundt's concepts of apperception and creative synthesis to be functional and not structural concepts (Watson and Evans 1891, p. 291). Titchener avoided the term "apperception" except in one specific situation. He used attention to do much the same thing as apperception but described it in structural terms, that of the mental contents of sensations and affections, rather than in terms of an active will. Titchener described attention as follows:

- ▶ Attention . . . has two sides, an inside and an outside. Looked at from the inside, attention consists of a certain well-marked phase or aspect of the stream of consciousness; or mental processes when we are attentive, are in a different state from our mental processes when we are not attending. Looked at from the outside, attention consists of a certain attitude of the body, and especially of the head. The problem that attention sets us is, therefore, twofold: we must describe and explain the state of consciousness, and we must describe and explain the bodily attitude. (Titchener 1896, p. 74)

In consciousness, attention, like Wundt's apperception, has a clear central focus and a less clear fringe or field. The part of consciousness that is at its focus appears clearer or more intense than the rest of consciousness at that moment and relegates the rest to less clearness or less intensity. This is essential for the analysis of a mental complex into its simplest components because it isolates one component from another in a complex experience.

The term apperception is not mentioned at all in the first two editions of Titchener's *Outline*. In 1910, in the second stage of the development of his structural psychology, Titchener separated off "clearness" as the structural product of the process of attention and made it an attribute of sensation (Titchener 1910).

Titchener considered the main states of consciousness to be attentiveness and inattentiveness and

described two kinds of attention, passive and active. Passive or involuntary attention exists when the focus of attention is drawn involuntarily to a sensory process because of its intensity or suddenness or the degree to which it aroused a pleasant or unpleasant affective experience.

Active attention is the maintenance of the focus of attention on a given idea or sensation or situation. Maintaining active attention is difficult for any length of time and tends to fluctuate. There are competing experiences, each vying with the one we are trying to keep at the focus of our attention. Over time, however, active attention may lapse into something like reflexive passive attention. That occurs when we become highly interested in what we are focused on in active attention. In that case, called secondary passive attention, the focus is held on a process to the exclusion of other competing processes just as involuntary, passive attention is evoked by a loud or sudden noise. Getting "lost" in reading an interesting book or so drawn into a problem or puzzle that the rest of the world is shut away is an example of this secondary passive attention (Titchener 1896, pp. 126–134).

When we attend to a complex like a perception or idea, changes occur in that idea and in the other ideas that are in consciousness at the same time.

- ▶ The idea attended to becomes clearer and more distinct. If I am listening to a four-part chorus, and suddenly give my full attention to the tenors, the tenor part stands out distinctly from the whole mass of sound. It does not become stronger, louder; but its tone qualities are detached from the tone qualities of the other parts. (Titchener 1896, p. 132)

Externally, there are bodily attitudes that are also related to attention. There is a:

- ▶ . . .brace of the whole body; the muscles are tense, ready for movement. More especially is there muscular tension in and about the head. If the object of attention is visual, the eyes are fixed steadily upon it, the eyebrows lowered, the scalp muscles tightened, the head settled squarely back upon the shoulders. If its object is auditory, the head is turned toward one side and thrust forward, the muscles which move the drum of the ear drawn taut, etc. In both instances the breath will be held, from time to time. All this means a complex of

sensations from skin, muscle, sinew and joint, and an accompanying affection. It means an experience of effort. . . . (Titchener 1896, p. 129)

Titchener used the term “kinesthetic senses” for these sensations from muscles, tendons, and joints.

The physiological basis for attention, he admitted, was not definitely known. He hypothesized, however, based on what was known in physiology at the time that there

- ▶ . . . is facilitation or reinforcement of cerebral function on the one hand (the idea attended to becomes clearer or stronger); there is widespread inhibition of cerebral function on the other hand (the remaining ideas grow dim and weak). (Titchener 1896, p. 133)

Titchener identified attention with feeling processes. “It is only when we attend to impressions that we feel them to be pleasant or unpleasant. Impressions which are not attended to are indifferent” (Titchener 1896, p. 133). The significance of this connection of attention with feeling is that it explains why one cannot direct attention to feeling experiences. When it is tried, the feeling (affective experience) disappears.

A key issue in Titchener’s views on attention was that while the ability to maintain active attention comes about naturally, it also can be developed or improved by training and education. The observer can be taught to call up secondary passive attention habitually, allowing the observer to be “naturally” attentive to certain aspects of consciousness over others. This training of attention became essential in the training of introspective observers.

It is attention that allows for the analysis of complex mental states into simpler mental states. Just as one can attend to a tenor section in a four-part choir and hear the tenor line become clearer while the other parts fade into obscurity, so one may attend to the various parts of a musical cord, like the musical C major and parse out its C, E, and G components. That is the essence of analytical introspection to Titchener (1896, p. 132).

Elements. Through the method of analytical introspection, Titchener was able to reduce the complex “concrete” perceptions and ideas of everyday life down to their simplest sensory components. At the simplest level, the elementary processes (elements)

Titchener listed in the first edition of his *Outlines of Psychology* (1896) were the same as those of Wundt: sensations (both those aroused externally and those aroused internally) and affections (called feelings in Wundt’s system). Sensations come by way of sensory receptors, whether they are external receptors such as the ear, skin, nose, eyes, and tongue, or those receptors internal to the organism such as those of the muscles and tendons and those of the esophagus, stomach, and intestine. Whether the receptors receive stimuli from outside the organism or from internal physiological structures, they are “external” sensations.

Titchener similarly held that there are also internally aroused conscious processes (experiences) paralleling externally aroused sensations that come by way of memory and imagination rather than from the stimulation of sensory receptors. For every sensation produced by external stimulation of sensory receptors, there is an equivalent internal imaginal process. These equivalent internal states differ primarily in terms of intensity. Internal memory states and imaginal experiences have less intensity than externally produced sensations. This use of sensation to stand for both sensations as they are ordinarily thought of and also as images was an awkward arrangement. Only later in Stage 2 would Titchener rename these internally aroused sensations as “images,” thus changing his list of elements to sensations, images, and affections (Titchener 1910, p. 48).

Attributes. Titchener, like Wundt, held that the elementary processes of sensation and affection are abstractions and are not, themselves, directly observed. The attributes of sensations and affections, however, are directly experienced and are the way we differentiate one sensory or affective experience from another. Wundt had the same two attributes for sensation as he did for “feelings,” quality and intensity. Külpe and Titchener added two others to Wundt’s attributes, duration (time) and extent (space). Like Mach, Külpe and Titchener believed that spatial and temporal events could be observed and described just as directly and certainly as one could do quality and intensity. Spatial attributes (extent) of sensations were found introspectively in sensations of vision and touch but not in other senses such as smell, taste, and hearing.

Quality is what the individual elementary process, the individual sensation or affection, is called.

A sensory quality is, for example, blue or cold or sweet. Without quality the element cannot exist.

A quality must have some intensity. A quality of zero intensity cannot exist in consciousness. A quality also has some temporal aspect. It exists for a certain time. A quality that appears for zero seconds does not exist in consciousness.

Extent, Titchener's term for the spatial attribute, is another attribute of a sensation in which the quality exists in some spatial arrangement. One visual sensory quality may appear larger than another. The perceived sizes are spatial aspects. Sensations of vision or touch cannot exist if their extent is zero.

By bringing extent and duration in at the simplest level of the structural system as directly observed attributes of sensation, Külpe and Titchener no longer required Wundt's doctrine of creative synthesis to infer space and time out of other sensory processes (Titchener 1896, pp. 29–32).

Affection and Its Attributes. Titchener used the term "affection" instead of Wundt's "*Gefühle*" or "feelings" as the name of the elementary emotional state that is at the introspectively simplest level of his system, at the same level of sensations. Affections accrue, that is, attach themselves to sensations whether the sensations are from internal or external sources. Affections accrue not to just simple, elementary processes but also to complex processes, the ideas and perceptions, into which the simpler states combine. Affections do not come from any specific organ, unless one wishes to consider the whole body as its "organ."

Titchener identified only two qualities for affections, pleasantness and unpleasantness. They are separate qualities but are on the opposite ends of an intensive continuum of affective experiences running from pleasant through indifferent to unpleasant. "Indifferent," is a neutral point, an experience which is neither pleasant nor unpleasant. Titchener and Külpe added duration to Wundt's quality and intensity in the list of attributes for affection since the qualities, if they are present, must exist for some finite time (Titchener 1896, pp. 92–101).

Titchener recognized that the analysis of emotional states into simple affective qualities, intensities, and durations was more difficult than with sensations. He believed other methods, specifically physiological methods, could be used to supplement introspective

analyses. Every feeling, he said, "has various bodily manifestations ... so that we can follow the course of a pleasure or disagreeableness by noting its physiological symptoms."

- We find that pleasantness is attended (1) by increase of bodily volume, due to the expansion of arteries running just beneath the skin; (2) by deepened breathing; (3) by heightened pulse; and (4) by increase of muscular power. (Titchener 1896, p. 103)

Unpleasantness, he found, was accompanied by the opposite, "lessened volume, light breathing, weak pulse, and diminished muscular power" (Titchener 1896, p. 103).

By recording these physiological manifestations with specialized instruments and bringing the subject into situations calculated to call up differing degrees of pleasantness and unpleasantness experimenters can determine from the changes in the records how the subject has felt from moment to moment of the experiment. In these situations, Titchener held that introspection may be "altogether unnecessary" (Titchener 1896, p. 103).

Since, to Titchener, the simple affective experiences parallel underlying bodily processes, he suggested that "pleasantness" results from "the building-up process (anabolism)" and "unpleasantness" from the "breaking down-process (catabolism)."

So, at the first, introspectively simple, level of the structural system are the elements of sensation (whether obtained through stimulation of sensory receptors or from internal processes of memory or imagination) and of affection. The elements are abstractions, categories. It is the attributes that are directly observable. It is through the attributes that the sensory and affective elements are defined and discriminated. Titchener estimated that there were 42,415 distinguishable elementary sensory qualities, more than half of which come from vision.

Perceptions, Ideas, and Feelings. After analysis, Titchener's aim for psychology was synthesis to discover how these elements combine and the laws of their combination. Elements and their attributes are the products of introspective analysis. It is the "concrete states," the perceptions, ideas, and feelings, that are immediately and directly observed in everyday life.

The way we get these concrete mental states in the first place, according to Titchener, is by means of association. His explanation is reminiscent of George Berkeley's explanation of how we perceive an object. It makes use of association by contiguity just as Berkeley used "constant connexion." Titchener said that perceptions and ideas are formed in everyday life by clusters of sensations occurring together as the result of the patterns of stimulation of sensory receptors due to stimulus events in the world around us. Titchener explained, "What the organism finds together in the world in which it lives . . . remains together in perception or idea . . . All the connections set up between sensations by the formulation of ideas tend to persist, even when the original conditions of connection are no longer fulfilled" (Titchener 1896, p. 208). These connections are associative but differ from the association of ideas as formulated by the British associationists. In Titchener's view, "it is not ideas which 'associate' but the elementary processes of which ideas are composed" (Titchener 1896, p. 190). Stated another way, objects or events in the outside world produce recurring patterns of stimuli that, in turn, activate our sensory receptors. These recurring stimulus patterns produce recurring patterns of sensory attributes. These attributes, such as qualities, are bound together by association and form those "concrete" perceptions or ideas. So, if the pattern of stimuli on the receptors of the organism produces sensory qualities of abcd, those four qualities become bound together and produce a perception, which comes to appear simple in everyday experience. At the same time, traces of that perception persist as an idea, a memory image and are called up to supplement other patterns that share all or part the abcd pattern and give them context and meaning.

- ▶ Factors that produce greater stability of the connection of these combinations in consciousness include frequency of the association in the outside world, recency of an occurrence and pleasantness or unpleasantness of an event that holds attention. Recency of the occurrence can give the same power of connection that it would have gained by frequent repetition. There is also our "mental constitution," our individual mental set, personality or mental attitude that "decides what shall be the line of least associate resistance." (Titchener 1896, p. 210)

By presenting the associations that form the "given," concrete level of perceptions and ideas as an association of attributes of sensory elements, Titchener was able to use the concept of association but avoided the logical baggage and the association of "things" of the traditional associationists.

Titchener held that individual "bare" sensations are, themselves, without meaning. They acquire meaning when combined together with other sensations to form ideas. To Titchener, meaning always involves context:

- ▶ My idea of lemonade is predominantly an idea of taste. But taste alone could not give me an idea of lemonade; there must be added to the taste qualities, sweet and acid, a pressure, a scent, a colour, a movement of gas-bubbles, etc. (Titchener 1896, p. 150)

Titchener often used the terms perception and idea as equivalents since he considered them the same except for their source. Perceptions come from externally derived sensations and ideas from internally aroused sensations, later to be called "images."

"Lemonade" was the name, the meaning, of the flavor complex of sensory qualities bound together by association and dealt with in ordinary experience as a single simple experience. The meaning is produced by the cluster of sensations, externally aroused (sensations) and internally aroused (memory images) providing context and giving the constituents of that "flavor"; taste, smell, touch (cold and pressure), its meaning of "lemonade." The images are essential. If someone has never had lemonade before, it would be a "pure perception" and, even though experienced as a single, simple experience, might not have a meaning in itself. If one has had lemonade before, however, the memory image, the idea, of the prior experience would connect with, in Titchener's terms, "supplement," the new perception and give it context. If something is missing in the complex, the flavor and its meaning may be lost with it. For instance, if the perception is of a fresh carbonated drink like a fresh, cold cola, its "flavor," a perception, would be made up of taste (sweet), smell (resinous, floral), and touch (cold, pressure, pain). The pain is very slight and is produced by the bursting of carbon dioxide bubbles on the tongue and back of the throat. That is the "sparkle" of a carbonated beverage. The idea of sparkling cola

remains as a memory image after the perception has ceased. If we drink from another bottle, one in which the carbonization has been lost, everything else in the complex will be present except for the slight pricking pain. In this case, the meaning would not be the same. Instead of the flavor having a meaning of “sparkling cola” the pattern would produce, perhaps, a flavor with the meaning “flat cola,” if we have experienced a “flat cola” before and associated a name with it. The first experience someone has with lemonade or sparkling cola may be meaningless until it has been repeated and associated with a name. The context created by the perceptual complex and the memory images of lemonade or something similar to lemonade would combine and give meaning to the whole.

So, Titchener, concluded that we can

- ▶ ...express the law of association by the formula *ab* – *bc*. One idea calls up another when it contains elements which are common to it and that other. Connections once formed (*bc*) tend to persist even when the conditions of their formation are not realized (when only *ab* is given).

...All connections set up between sensations by the formation of ideas tend to persist. It is the business of psychology to discover under what conditions they actually do persist. ... (Titchener 1896, p. 210)

The meaning “cola” might be maintained even though its flavor is experienced as “flat” rather than “sparkling.”

Titchener presented ideas and perceptions as taking three forms, qualitative, temporal, and extensive, depending on whether they involve combinations of qualities, durations, or extents. Qualitative perceptions are made up of two or more simple sensory qualities. A musical chord or “clang” is an example. It is a combination of certain simple musical notes. The C major chord is produced by sounding the musical notes C, E, and G together. These physical stimuli excite auditory receptors and produce simple sensory qualities. The three notes blend into a complex that Titchener referred to as a “clang” which, if the notes are sounded evenly, will bond together and be experienced as a simple whole. Even without training, many people can listen to a C major chord and analyze out the three simple notes, C, E, and G that make it up, and may also be able to sound those three notes. If one has heard the

three notes sounded individually and then as a chord, the analysis becomes much easier because the images of those notes are part of our mental makeup. This helps one focus attention on one or another of the components and they will stand out from the others. One by one each can be analyzed out.

Temporal perceptions or ideas are made up of two or more sensory qualities in some temporal sequence. Rhythm is a temporal perception or temporal idea made up of some sensory quality in a temporal pattern.

Extensive (spatial) perceptions or ideas are produced by the combination of some sensory quality or pattern of qualities in a spatial context. Spatial perceptions include position, movement, and rate of movement. In localization, Titchener used the term “local signs” to indicate a complex process of sensations that produce an experience of “place” on the skin (Titchener 1896, p. 157). He did not use it in the meaning of an innate ability. The ideas of form and magnitude are produced by the association of clusters of sensory qualities. Once combined into the idea “form” or the idea “magnitude,” they appear to be simple, unitary processes. Melody is made up from both qualitative and temporal perceptions or ideas. There are many more of these kinds of ideas and perceptions at this first, “concrete” level of perceptions.

Each of these perceptions or ideas carries with it some feeling of pleasantness, unpleasantness, or indifference. When these affective processes are part of a complex but do not predominate in the overall experience, we call the experience a perception or idea that is pleasant, unpleasant, or indifferent.

The combinations of processes do not stop at this second level of perceptions and ideas. In fact, as Titchener pointed out, again using perception and idea indiscriminately:

- ▶ When once an idea has taken shape – whether it be the idea of locality or of rhythm, of form or of melody – it is henceforth at the disposal of consciousness as a whole, as a total process. There is no need of its conscious reformation. However slowly we may have learned the fact that objects lie in space at a distance from us, and however many mistakes we made before the idea of distance was fully formed, we now have it as part of our mental furniture, ready for use upon all occasions. (Titchener 1896, p. 193)

Titchener discussed three forms of associations, simultaneous, successive, and supplementary, as relevant to this psychological process. He introduced these with an example:

- ▶ Suppose that I am sitting in my study, and find my train of thought suddenly interrupted by the perception of a loud rumbling noise. The perception . . . may call up in my mind the vague picture of some heavy vehicle on the street below my window; and if, earlier in the day, I have seen a traction engine somewhere in the neighborhood, this visual picture may be made definite, and further connected with the verbal idea, “traction engine.” There is no appreciable lapse of time between the original sound perception and the appearance of these other ideas: the noise is no sooner heard than picture and word are together with it in consciousness. In such cases we speak of a *simultaneous association*. (Titchener 1906, p. 189)

In some circumstances, this may be entirely of the situation. The sound pattern has pulled together several other patterns that were associated with the same or similar sound earlier in the day. A simultaneous association is made up of the same components as a perception or idea. In introspective analysis, they are both made up of “complexes of sensations” and they differ in that the idea is simpler than the simultaneous association because:

- ▶ . . . the elementary processes in the idea [or perception] are processes which have never before been in connection with others, whereas the elementary processes in the simultaneous association of ideas have already played a part in some idea. (Titchener 1896, p. 192)

So, Titchener is saying that if you hear a pattern of sound you have never heard before, this is a simple perception or simple idea. It has no meaning and does not call up associations since there are no images in memory. If, however, the sound or something similar to it has occurred in our past experience in combination with visual or other sensory complexes, the recurrence of the sound later on will call up the memory images that were part of the earlier sensory complex and give the meaning “traction engine.” The sound may call up the visual image of the traction engine as well or it may call up the verbal name and other associated components of the earlier experience.

The idea of the traction engine may also arouse a serial chain of other memory images, such as an accident witnessed in the past and that may lead to another image of a man encountered at that accident, and so on. This serial chaining is also called successive association as exemplified in the famous description by James Mill:

- ▶ I see a horse: that is a sensation. Immediately I think of his master: that is an idea. The idea of his master makes me think of his office; he is a minister of state: that is another idea. The idea of a minister of state makes me think of public affairs; and I am led into a train of political ideas . . . (Mill 1829, pp. 52–53)

This is the same process Titchener outlined as his “theory of learning,” $ab - bc$. The difference between Mill and Titchener’s association was that with Titchener it was made up of attributes of sensations or images that were bound together by association not fixed “things.”

The third form of association is a subform of simultaneous association, associative supplementing. Titchener wrote that

- ▶ “When once an idea has taken shape, whether it be the idea of locality or of rhythm, of form or of melody, it is henceforth at the disposal of consciousness as a whole, as a total process. There is no need of its conscious re-formation.” (Titchener 1896, p. 193)

Once a perception or idea is formed it is now part of our “mental furniture,” according to Titchener. When a complex of stimuli is presented to consciousness as a perception, some aspect of one or more of these existing ideas is called up which joins to the complex and supplements it. Titchener demonstrated the process as follows:

- ▶ Here we have a complex of sensations abc , some or all of which have been connected, in past experience, with other elementary processes, xyz . Hence, whenever ab or abc appears, xyz tends to appear with it.

The individual sensory attributes do not have meaning in themselves, but when combined together they acquire meaning by the context of the other attributes in the cluster. (Titchener 1896, p. 208)

An example of this kind of supplementing is found in our idea of the distance of an object from our body.

- ▶ This idea [of distance] was originally formed from sensation processes, whether sensations of strain from the muscles of the eyeball or retinal sensations, or both together. As bare sensations, these processes were meaningless; they acquired significance only when combined in the idea.

But when we are judging distance, in adult life, we are not concerned to notice the formative sensations of the original distance idea. An object is before us, and our perception of it is an object that is at once associatively supplemented by the idea of its distance. Thus . . . if the object is small, we regard it (other things being equal) as remote: the smaller a thing looks, the farther off must it be. The idea of size is here associatively supplemented by that of distance. (Titchener 1896, p.194)

Titchener treated the other associative processes in a similar fashion creating more and more complex perceptions and ideas.

In this case, the individual “units” were whole perceptions or ideas and not just attributes of sensations. So, to Titchener, complex processes can combine as units with other complex processes which can form even more complex units and processes. As these combinations become more complex, new meanings arise. This newness of meaning at each combination and at each stage is the process that sets Titchener’s associative process apart from mental compounding like that used by James Mill and the British associationists going back to John Locke. The meanings become something like the productive consciousness of John Stuart Mill’s “Mental Chemistry.”

Affective Components of Complex States. These perceptions and ideas also have affective components that accrue to them. The C major chord may evoke a pleasant feeling; a discord such as CDE may evoke an unpleasant feeling. In the same way, the memory of the sound of fingernails scratching a blackboard may call up an unpleasant feeling like that which accompanied it originally.

At the level of complexity that includes perceptions and ideas are complex affective states. While ideas can stand alone without affections, affections cannot stand alone without sensations or ideas. Titchener used the term “feeling” as the complex affective experience at the second level of complexity occupied by perception

and idea. “Feeling” was, to Titchener, “the mixture of perception and affection in which feeling preponderates.” Recall that he defined a “pleasant perception” as a perception in which affective qualities do *not* predominate. If the feeling does predominate, then it is called a “feeling of x” in which “x” is the name of the complex perception to which the feeling has accrued. There are only two kinds of feelings, pleasant and unpleasant, because they are related to the qualities of affection, pleasantness and unpleasantness (Titchener 1896, p. 214).

Emotion. Emotions are, in the affective track, at the third level of complexity, one step up in complexity from the “concrete” experiences of perception, idea, and feeling. An emotion, if “regarded as a single, total process has three attributes; quality (pleasantness and unpleasantness), intensity and duration.”

- ▶ On the side of sensation, consciousness advances beyond the stage of a patchwork of perceptions or ideas; the factors in different ideas run together and form larger wholes, each of which corresponds, not to an object or process, but to what we may call a *situation* or *incident* in the physical world. On the side of affection, consciousness advances beyond the simple feeling to the emotion. The organism does more than “feel cold” and “feel unwell”: it feels the pleasantness or unpleasantness of a certain total situation or predicament, of the whole complex of ideas which represents a certain concurrence of processes or collocation of objects in the outside world. (Titchener 1896, p. 219)

As an example Titchener goes back to his example of the rumbling sound that is associated with the heavy machine or wagon. This time, however, the rumbling noise is accompanied by a shrill scream. He wrote that

- ▶ these ideas are supplemented by the ideas of a child and a wagon; and the whole complex of ideas suggests at once that an accident happened. On the other, this accident is felt, in its totality; we have the emotion of pity or of fear. (Titchener 1896, p. 219)

Emotions have two classes, pleasurable and unpleasurable. This is the same arrangement as is found in the “feelings” and in the simple affections. Unlike the simplicity of simple affections, there are in

emotion a large number of “special feelings.” Emotions can be divided into “emotions of the present” and “emotions of the future.”

- ▶ Thus hope is an emotion of the future, which may become an emotion of the present in the form of satisfaction (hope fulfilled) or disappointment (hope unfulfilled) or despair (hope deferred) or relief (fear unfulfilled) or suspense (fear deferred). (Titchener 1896, p. 222)

The physiological responses that parallel an emotional response to a “situation” are more intense than to a simple feeling. They involve not only heartbeat and breathing changes but include the “voluntary muscles, secretory organs, and other involuntary muscles.”

- ▶ Thus in fear the skin is pale, the breathing shallow and hurried, the pulse weak and irregular, and the muscular strength diminished. At the same time, the salivary glands cease to act, so that the mouth and throat become dry; the body is bathed in a cold sweat; the bladder and intestine are affected (tendency to urination and diarrhoea): while there is a “sinking of the stomach” with consequent nausea, a tremor of the whole body (shivering and goose-flesh) and an erection of the hair due to the contraction of the unstriped muscles lying beneath the skin. (Titchener 1896, p. 255)

Titchener went on to describe the bodily attitudes taken in emotional states and facial expressions that accompany emotions and the role the sensations from those bodily attitudes take in the experience of the situation.

Mood, Passion, and Temperament. Just as with perception and ideas, feelings can combine into more and more complex states. Emotions can be described in terms of their intensity and duration as well as quality.

- ▶ It may be laid down, as a general rule, that the most intensive emotions have the shortest duration, and the weakest emotions the longest

The weaker emotive states, which persist for some time together, are termed *moods*; The stronger, which exhaust the organism in a comparatively short are called *passions*. Thus the mood of cheerfulness represents the emotion of joy. The mood of depression, that of sorrow. (Titchener 1896 p. 231)

Titchener listed Mood on the same level of mental development as is the “train of ideas,” the level of complex mental processes above that of the “concrete” perceptions, ideas, and feelings.

Mood is determined by affective constitution, or as it is more usually called, *temperament*. Titchener distinguished four temperaments, choleric, sanguine, phlegmatic, and melancholic:

- ▶ The man who thinks quickly and feels strongly is choleric; the man who thinks quickly and feels weakly, sanguine. The phlegmatic thinks slowly and feels weakly; the melancholic thinks slowly and feels deeply. (Titchener 1896, p.233)

Volition. Titchener studied the will in terms of actions. He differentiated between voluntary and involuntary actions. Involuntary actions are reflexive, mechanical movements of the bodily organs; they go on whether or not we are conscious. These are entirely physiological processes and so not a part of a study of consciousness. Voluntary movements are entirely different. They arise when there are two sets of ideas in consciousness, both strongly pleasant or strongly unpleasant. The conflict is not between two impulses. It is between on one hand an impulse to act, and on the other attention to a set of ideas which do not suggest action of any kind.

- ▶ Which complex gets the upper hand, whether action or no action results, depends upon the capacity of each to hold the attention. Thus I hear my alarm-clock and have the impulse to get out of bed. The impulse is opposed by an idea of another half-hour's sleep. If the impulse-ideas, the ideas of the time, of my day's work, etc., can hold the attention, I get up. (Titchener 1896, p. 256)

Automatic action stands to volitional action as passive attention stands to active attention.

- ▶ Just as active attention may become passive, when, e.g., we grow “absorbed” in the problem before us, so may a selective or volitional action pass into a reflex like form, which is termed *automatic* action. Some particular impulse may habitually gain the victory over its rival impulses, or over the ideas which compete with it for the attention. When this is the case, the idea of movement, contained in the impulse, and the organic

sensations aroused by actual movement, gradually cease to attract notice: the whole movement becomes indifferent, and is relegated to the lower nervous centres for guidance [A] practiced piano-player sits down to play a score at sight. He has the idea of the score, and some idea of the result of his playing (he knows that the composition is a March or a sonata); but the movements of hands and fingers are automatic. At a later stage the whole action becomes automatic (Titchener 1896, p. 256)

So, automatic actions of this kind are true reflexes. They have taken their form during the lifetime of the individual. “Most of the actions of our everyday life are of a mixed character, beginning as volitional or selective, but running their farther course as impulsive or automatic” (Titchener 1896, p. 257).

Higher Mental Processes. Finally, on the idea side of the idea/feeling divide, Titchener reached the higher mental processes such as memory and imagination and cognition and finally to self-consciousness and intellection, the formation of concepts and reasoning. These yet more complicated processes involve not only complex perceptions but also complex affective states such as feeling, emotion, and mood.

Recognition. Titchener described recognition as some complex perception such as “situation” or “incident” that calls up with it a “feeling of familiarity.” Titchener gave the example of a man entering a streetcar. He “runs his eyes” over the line of faces of the people in the car. The faces, one by one, are of strangers, “their faces arouse no interest, do not arrest your gaze.” At the end of the car, however, is a face you know, you recognize him. The mental processes involved in this recognition Titchener explained as follows:

- ▶ For one thing, our visual idea of your friend was *supplemented* by a number of other, centrally aroused ideas. As you looked down the line of strange faces, your present train of ideas was not interrupted: the visual ideas were indifferent to you. But as soon as you receive this visual idea, a host of other ideas, derived from your past intercourse, flock into consciousness The first characteristic of the recognitive consciousness, in this instance, is the supplementing of the given impression by a large number of ideas. Recognition has meant the formation of a highly complex simultaneous association. (Titchener 1896, p. 252)

At the same time that the association is being formed, your mood has changed. As you entered the car you were, we will suppose, thinking indifferently upon your immediate business. When you see your friend, the mood of indifference changes to a mood of pleasantness, which we cannot describe better, perhaps, than by the phrase “feeling at home.”

The mood contains, besides the pleasant affection, a complex of organic sensations, set up by an “easy” bodily attitude. The second characteristic of the recognitive consciousness, then, is a pleasurable mood.

Putting the various components together, we have (1) The presented idea; (2) its centrally aroused supplements; and (3) the mood of “feeling at home.” The union of these three factors gives us a “recognition.” (Titchener 1896, p. 263)

Self-consciousness. At the highest level on the sensory/perceptual side of the sensory/affective divide, Titchener finally arrived at self.

- ▶ My “self” is the sum total of conscious processes which run their course under the conditions laid down by my bodily tendencies. Selfhood, that is, is the special and peculiar way in which the process of an individual mind are arranged, in which they hold together or break part, follow or accompany one another. . . . My “self” then, is my mind conceived or as working in my way. (Titchener 1896, p. 288)

Intellection. Titchener held that speech and writing are the primary signs of intellection in human consciousness. The principal medium of intellection is verbal ideas. Conceptualization and reasoning are major categories of intellection as are discrimination and abstraction. Titchener described these processes in terms of complex combinations of associative processes and centrally aroused ideas.

Sentiments. At the highest level on the affective side, Titchener discussed the sentiments. He listed four sentiments, intellectual or logical (affective experiences which grow up round the judgments “this is true” and “this is false” as a matter of knowledge), ethical (affective experiences attached to “this is good or right” or “this is bad or wrong” pertaining to my actions or those of others), aesthetic (affective experiences concerning judgments of beauty, ugliness, the sublime, the comic, and the tragic), and religious (affective

experiences concerned with whether something is or is not sanctioned by Divine command or a Divine plan (Titchener 1896, p. 306).

Mind and Body. Titchener culminated this first draft of his structural system with a consideration of “The Ultimate Nature of Mind.” He posed three questions that arise from what introspection does not reveal: (1) There is no psychological evidence of a mind which lies behind mental processes. Mind is nothing more than the mental processes. (2) There is no psychological evidence of a mental “activity,” above or behind the stream of conscious processes. (3) There is “no psychological evidence of mental continuity and coherence which cannot be met by evidence of a contrary tenor.” While he used William James’ stream of thought metaphor, he held that his selfhood lapsed every night in sleep, that there are great gaps in mental experience (Titchener 1896, 341–342).

He admitted that these three questions could not be answered by introspection or psychology or by any of the known sciences, for that matter. The mind–body relationship Titchener adopted for his explanation between the mental and the physiological in his psychological system he presented simply as “a statement of fact, not an explanation of the relation of mind and body.” It merely says “Where there is a mental process, there is also a process in a living body.” For a causal relationship, one must turn to metaphysics (Titchener 1896, p. 342).

Polishing the First Draft

Titchener’s *An Outline of Psychology* went through three editions after its first printing in 1896. A second edition appeared the year later with some minor additions and revisions and a third, thoroughly revised edition in 1899. Interspersed among these editions of the Outline was a smaller, simpler textbook, *A Primer of Psychology* (Titchener 1898a; 1899a)

In the first edition of Titchener’s *Primer* (1898a), he made use of the term “apperception” although in only one limited sense. Titchener had replaced apperception with attention in the first two editions of his *Outline* (Titchener 1896; 1897). In the *Primer*, he used apperception for a situation with which attention and association could not deal, “mental constitution.” Titchener defined his use of apperception in this case as “a perception whose character is determined, wholly

or chiefly, by the peculiar tendencies of a nervous system, rather than by the nature of the thing perceived” (Titchener 1898a, p. 88). The example he gave of these tendencies is of someone scanning a newspaper and suddenly sees the word “grapnel” in the text and it “catches his eye.” The reader goes back to see if the word was really there. There are three possibilities: First, the word “grapnel” may, indeed, be there when we look back for it. It had just “stood out” from the rest of the text. Second, instead of “grapnel,” we may find the word “grape” or similar word instead and we have filled in the rest. Third, it may be the case that the word is not in the text we were reading at all, even though we believe we saw it there. In these cases, the reader may recall he had read an article the day before on anchors, something he found interesting. Fourth, there may be a situation where the reader may not have read about anchors recently at all but had had a lifelong interest in nautical matters. In the first case, the prior exposure to the word or the lifelong interest in the subject has “drawn” the eye to that particular word. It appeared to stand out even though it was no darker or lighter than the words around it. Titchener explained that in the second and third situation, the reading of the article on anchors had thrown open certain channels of tendency, the tendency that makes you interested in ships.

► . . . So you read what is before you not as it really is, but as you see it with your mind turned into these channels. . . . You were biased or prejudiced before you opened the paper. As for the last case, the ship-tendencies were so strong there that no opening of flood-gates was needed. Your mind is set so strongly in one direction that you are likely to see everything through shipping – spectacles. You do not realize that you are biased: it seems “natural” to you that ships should be interesting. But it is just because the love of ships is ingrained in your nervous system, rather than by the nature of the thing perceived. Sometimes . . . you can tell by introspection how the channels of tendency have been opened up (by the reading of the article on anchors); sometimes, however, the tendencies are so strong in themselves, and date so far back beyond the limits of your memory, that, while you see their effects . . . , you cannot tell what it is that takes your mind in their direction on any particular occasion. (Titchener 1898a, pp. 86–88)

These tendencies related by Titchener to “mental constitution” have similarities to Narziss Ach’s “determining tendencies,” that came out of the Würzburg school after the turn of the century.

Titchener’s *Primer* (1898b) also declared that the differences between the position of structural psychology and that of functional psychology were fundamental.

Titchener added a section on thought to the *Primer* that did not appear in any of the editions of the *Outline*. Thought, to Titchener, was “the verbal counterpart of active imagination. Active imagination is thinking in images, active imagination carried on in words.” To the question whether we can think without words, he answered that at one time active imagining and thought may have been the same thing but thought in modern human’s usage requires language. His position on the necessity of images in thought would bring Titchener up against the findings of Oswald Külpe’s Würzburg school of imageless thought after the turn of the century.

Self. In his discussion of the concept of self, Titchener listed several forms. First is the “primitive perceptual self,” which is described in terms of a

- ▶ ...mass of cutaneous and organic sensations, partly of visual sensations – the whole overlaid with an affection. Your “self,” the self that you perceive at this moment, is probably composed of pressures, temperatures, strains, breaths, etc.; That is a certain comfortableness or headachiness: together with the visual perception of hands and clothes. That is *you*, as you perceive yourself. (Titchener 1898a, p. 225)

The “idea of self” Titchener described as being principally of a visual picture of one’s body and its usual surroundings.

- ▶ You see yourself seated in your accustomed chair, clothed in your usual way, busied about your usual occupations. This self-figure is seen upon a dim and shifting background made up of memory-images of past experiences. (Titchener 1898a, p. 225)

Titchener admitted that this self rarely comes to mind so definitely as this description indicates. There is also the “logical self, the bare concept of the ‘I’ or the ‘ego.’” This is, “the philosopher’s special interpretation of selfhood, i.e., for a thought-object.”

None of this explication is presented in a research-oriented way.

The third edition of Titchener’s *Outline* (1899b), which appeared after Titchener’s declaration of his structural psychology in 1898, had further revisions. It is in this edition that Titchener used the terms “structural psychology” and “functional psychology,” making the same arguments he made in his articles in 1898 and 1899. Titchener went farther in the third edition of the *Outline*, saying that the psychology of function

- ▶ is constantly attended by an intellectual danger, hardly to be avoided even by the trained investigator. The danger is this. When we have found a function, we are tempted to translate the function off-hand into terms of structure. We are likely, unless we are extremely careful, to invent a structure to carry the function. (Titchener 1899b, p. 23)

Following his statement of the difference between structure and function, Titchener stated how the “new,” structural psychology he was presenting differed from philosophy and from the speculative psychology that had emerged from philosophy. His position was that experimental psychology must be separate from philosophy. He said of his structural psychology:

1. It has freed itself entirely from the influence of philosophy (epistemology and metaphysics), and it has done this most effectively by its insistence that mind is to be examined as a *structure*, and not merely as a group of functions.
2. It has introduced experiments into the study of mental processes. It insists that psychological method of introspection shall be employed under “experimental” conditions.
3. It seeks to bring mental process into close and accurate relation to the underlying bodily process (Titchener 1899b, p. 29).

The difference in Titchener’s estimation of philosophy and speculative psychology is shown by the fact that the statement made in the preface to the first, 1896, edition of the *Outline* that the “general standpoint of the book is that of the traditional English psychology” disappeared from the preface of the third edition of 1899. Titchener took his stance with psychology as a natural science as separate from philosophy.

Stage 2: The Final Form of Titchener's Elementistic Structural Psychology

Titchener's *Textbook of Psychology*, the half of which was published in 1909 and the entire volume published in 1910, his two books of lectures, *The Elementary Psychology of Feeling and Attention* (Titchener 1908) and his *Lectures on the Experimental Psychology of the Thought Processes* (1909), and his *A Beginner's Psychology* (1915), form the culmination of Titchener's psychology as an elementistic psychology. These books reflect the maturation in Titchener's thinking over that decade but also the controversies involving Titchener's structural psychology. One might also include here Titchener's four-volume *Experimental Psychology* (1901, 1905). While it was methodological and not systematic, it contained instructions on methodological procedures and training in introspection.

The *Textbook* was written as the revision and continuation of the *Outline*. It covered the same basic information as the *Outline*, but there were some important differences.

Analysis and the Stream of Thought. In the *Textbook*, Titchener defined mind and consciousness much as he did in the *Outline* and he continued to use William James's stream of thought metaphor and illustration. In the *Textbook*, Titchener countered William James's argument against all elementistic psychologies that define the "conscious moment" as a cross section of the stream of thought. James argued that such an analysis is necessarily an artifact, since the stream is ever moving and thus not repeatable. Titchener responded that:

- ▶ In strictness, we can never observe the same consciousness twice over; the stream of mind flows on, never to return. Practically, we can observe a particular consciousness as often as we wish, since mental processes group themselves in the same way, show the same pattern of arrangement, whenever the organism is placed under the same circumstances. (Titchener 1910, p. 19)

Those "same circumstances" were provided by the methodology of experimental control. Titchener's four-volume *Experimental Psychology* (1901, 1905) outlined and demonstrated a wide variety of experimental methods by which such control can be maintained. Titchener reiterated his position that the

method of science is observation and that the method of observation found in introspection is no different from that of the other sciences. The method of the physical and biological sciences may be called inspection and that of psychology introspection, but except for the objects of their study, they are fundamentally the same.

Elements and Attributes. Perhaps the most significant changes in the *Textbook* from the *Outline* and *Primer* come at the level of elements and attributes. For the first time, Titchener overtly used the elements and attributes of chemistry as his model for the elements and attributes of psychological analysis. He had previously held elements to be abstractions and not real existences and that the attributes were the real existences, the elements being merely categories, abstractions based on those attributes. In the *Textbook*, however, Titchener appeared to change his position and say that the elements of psychological analysis are no less real than the elements of chemistry (Titchener 1909, pp. 49–50).

- ▶ The psychologist arranges the mental elements precisely as the chemist classifies his elementary substances. The chemical elements are divided, for instance, into metals and non-metals. The metals have a high power of reflecting light; they are opaque; they are good conductors of heat and electricity; they have high specific gravities. So they are set off, as a group, from the non-metals. These latter, again, include both gaseous and solid elements. That is to say, the chemical elements possess certain properties or attributes, by means of which they may be distinguished and arranged.

It is just the same with the mental elements. These are simple, it is true, in the sense that they are mental experience reduced to its lowest terms; but they are still real processes, still actual items of mental experience. Hence, like the chemical elements, they show various aspects or attributes, present different sides, so to speak, each of which may be examined separately by the psychologist. It is by reference to these attributes that introspection is able to classify them under different headings. (Titchener 1910, p. 50)

Titchener also changed the awkward phrases "sensations of external origin" and "sensations of internal origin" to "sensations" for the former and "images" for the latter.

The attributes were treated differently as well. Titchener added the attribute of “clearness” to quality, intensity, duration, and extent, classifying it as a directly observed attribute of sensations and images (Titchener 1910, p. 54). Objects at the focus of attention are clearer, more vivid than those on the periphery. This change made Titchener’s attributes all structurally equivalent, all directly observable through introspection. With this change, Titchener’s psychology became more consistently structural.

Another change at the level of attributes was Titchener’s use of a multidimensional model to summarize the facts of experience concerning color and brightness sensations. In the *Textbook*, Titchener described his color pyramid as part of the discussion of visual qualities (Titchener 1910, p. 63). The use of models, particularly of color was not new, but Titchener’s model was particularly significant. It represented a multidimensional space in the form of two distorted pyramids, one inverted and the other upright, joined at their bases. In this model, Titchener summarized the facts of color mixture, saturation and desaturation, brightness, and other visual experiences. Later, in the 1920s, Titchener designed or modified models for touch, audition, and taste to attempt the same summarization in other senses. The color pyramid can be seen as Titchener’s first move toward a multidimensional approach in his systematic psychology of sensation (Evans 1972).

Affection. Wundt changed his theory of feelings (affections in Titchener’s parlance) in 1896, adding to the single continuum of pleasantness/unpleasantness, two others, translated as excitement/depression and tension/relaxation. This change led to a controversy in print between Titchener and Wundt. Titchener held to his criticisms of Wundt’s theory and retained the original single continuum of pleasantness/unpleasantness, its two attributes anchoring each end and with a neutral midpoint.

Meaning. Although it had been discussed in the *Outline* and the *Primer*, the topic of meaning took on new significance in the *Textbook* and in Titchener’s later thought.

In the *Textbook*, Titchener reiterated his position that sensations do not, in themselves, have meaning. Meaning is created by the context of the elementary

sensations and images that interact when a perception or idea is formed (Titchener 1910, pp. 367–371).

The two forms of context that are particularly important are kinesthesia and verbal image. Kinesthesia is the term Titchener appropriated for the organic sensations produced by bodily attitudes through receptors in muscles, joints, and ligaments, the same patterns of sensations that made up the “feelings of effort” in attention and apperception.

- ▶ We are locomotor organisms, and change of bodily attitude is of constant occurrence in our experience; so that typical kinaesthetic patterns become, so to say, ingrained in our consciousness. (Titchener 1910, p. 368)

Just as important are verbal images. Words themselves contain context.

Not all meanings are conscious meanings, however. For Titchener there was no unconscious, in the Freudian sense. If something was not conscious it was physiological (Evans 1975).

- ▶ [M]eaning may be carried in purely physiological terms. In rapid reading, the skimming of pages in quick succession; in the rendering of a musical composition, without hesitation or reflection, in a particular key; in shifting from one language to another as you turn to your right- or left-hand neighbour at a dinner – table: In these and similar cases meaning has, time and time again, no discoverable representation in consciousness. The course and connection of ideas may be determined beforehand and from without; a word, an expression of face, an inflection of the voice, a bodily attitude, presses the nervous button, and consciousness is switched, automatically into new channels. (Titchener 1910, p. 370)

This process comes about through habituation. Titchener held that

- ▶ ...all conscious formulations, as the life of the organism proceeds, show like phenomena of rise and fall, increase and decrease in complexity, expansion and reduction; so that, in the extreme case, what was originally a focal experience may presently lapse altogether. (Titchener 1910, p. 369)

What was once at the focus of attention has lapsed entirely and is carried by a kind of nervous set of the

nervous system. This mode of creating meanings is also the process by which sensations are combined to produce perceptions. This combination, according to Titchener, has four major parts:

- ▶ First, under the general laws of attention and the special laws of sensory connection, sensations are welded together, consolidated, incorporated into a group. Secondly, this group of sensations is supplemented by images. Thirdly, the supplemented group has a fringe, a background, a context; and this context is the psychological equivalent of its logical meaning. Fourthly, meaning may lapse from consciousness and conscious context may be replaced by a non-conscious nervous set. (Titchener 1910, p. 371)

Introspection and the Stimulus Error. Titchener's position that sensations are meaningless and gain meaning only when combined with other sensations and with images is the reason why he was adamant that, in analysis using introspection, one must separate out the meaning of a complex state from its contents and break down the contents into their simple meaningless constituents. The combining of sensory and imaginal attributes to form more complex mental states is an emergent process. The formation of meaning is how the new whole is different from the sum of its various components. To reduce the whole down into meaningful sensations or images is necessarily a false analysis.

In the *Textbook*, Titchener introduced Ernst Mach's concept of "point of view." This relativistic approach held that there was not one Truth, but many truths seen from different points of view. He differentiated the various sciences from their points of view. So, Physics describes the world in terms of its material elements. Physics explains what it observes in terms of mass, space, and time. Biology looks at the same world but describes it in terms of living systems, such as the reproductive system, respiratory system, central nervous system, digestive system, and the like. Biology explains in terms of the carbon, hydrogen, oxygen, and nitrogen elements of physics. Psychology describes in terms of sensations, perceptions, images, actions, emotions, and the like. Psychology explains in terms of the central nervous system of biology. This was Titchener's form of reductionism and the way he sought to escape the problem of infinite regression that plagues any reductionistic approach. This example demonstrates a single level of

reduction. A psychologist can explain only at the next simpler level, in this case, biology or more specifically physiology. If a psychologist sought to explain at a more molecular level, he would be functioning not as a psychologist but as a biologist. It is biology that explains at the physical, biochemical level, the level the carbon, oxygen, hydrogen, and nitrogen elements and the compounds they form. (Evans 1990)

This relativism is important in keeping disciplines consistent. Consider the old question, "If a tree falls in the forest and there is no one around to hear it, is there a sound?" Titchener would answer "it depends." What it depends on is the point of view taken. That point of view changes what "sound" means because it changes what is described. To the physicist sound is made of compression and rarefaction waves of air molecules. No organism needs to be around for that to occur when the tree falls and produces such waves. To the biologist, there is a sound only if there is an organism there with an auditory system that can be stimulated by the physical waves. The organism may be asleep or unconscious, but the physiological process of the hearing apparatus would still work. For psychology, there would have to be an experiencing individual. There is a sound only if it can be heard.

Titchener used point of view to distinguish different subject matters even within a science or discipline. One takes a certain point of view and sees the world in a given way. Changing the perspective causes one to see the same world in a different way. So, science views the world in one way, technology in another, and everyday common sense in yet another. When one shifts their point of view and mixes the different descriptive or explanatory categories, the result is "muddle."

Association. In the *Textbook*, Titchener was far less detailed in the use of association to describe the process by which simple processes combine to form more complex processes. He used the concept of associative supplementation as he did before but imbedded it within the process of attention. Titchener's definition of association was modified only slightly in the *Textbook* from his earlier books. Titchener defined the law of association as:

- ▶ Whenever a sensory or imaginal process occurs in consciousness, there are likely to appear with it (of course, in imaginal terms) all those sensory and imaginal

processes which occurred together with it in any earlier conscious present. (Titchener 1910, p. 378)

The difference from the earlier representations has to do with the increased importance of images and their use as supplementation as the process by which simple mental states combine to form more complex states. Titchener moved away from the complicated use of simultaneous and successive associations to emphasize supplementation by means of association by contiguity.

Titchener's general law of association and the hypothesized physiological processes that underlie it were treated as sufficient to explain the increasingly complex mental states. Titchener reiterated in this law, perhaps more clearly, his position that

- ▶ ...there are as many forms of association as there are forms of perception and idea; the pattern of the associative consciousnesses may be spatial, temporal, qualitative or mixed. The pure perception in itself an association of sensations, and the idea is an association of images. (Titchener 1910, p. 389)

Titchener held in the *Textbook* as he did in the *Outline* that there is no psychological difference between “perception and idea on the one side, and the association on the other.” The difference is, Titchener added, “in fact, rather a psychologist's than a psychological difference.” Titchener reiterated the position from the *Outline* that the primary difference between an association and a perception is that “the elements that make up the perception may never have been together before, while the elements of the association have manifold habits of connection already upon them” (Titchener 1910, p. 390).

Given this position, then, and his position that when complex states are formed from simpler states, they can be used in future combinations as a unit, Titchener was able to build more and more complicated mental states from the simpler states below them. Each combination of increasingly complex “blocks” produces new meanings in the increasingly higher-order process produced.

Thought. In his *Textbook*, Titchener emphasized the psychology of thought in more detail than in his previous works. The issue of the thought processes had dogged Titchener from the beginning of the century.

The most significant benefit from a positivistic introspective psychology is that it should be possible to delve, experimentally, into the higher mental processes, including thought, itself. Yet, until 1901, neither Külpe nor Titchener demonstrated a direct experimental assault on the matter.

At Oswald Külpe's Institute of Psychology at Würzburg, this kind of direct experimental assault began to appear in print in 1901. The first product of this research was a publication by August Mayer and Johannes Orth, two of Külpe's graduate students, on conscious processes involved in free association. The stimulus was a common word. After a ready signal was given the stimulus word was given and the subject responded with the first word that came into his consciousness. The reaction time was measured. Then the subjects were asked to describe all the experiences that went on in their consciousness between hearing the stimulus word and uttering the response word. Their descriptions came up, again and again, with an experience that was neither an image nor a volition. The result was the proposal of a third class of experience not previously encountered. Mayer and Orth named this new category of experiences *Bewusstseinslage*. Titchener translated the word as “conscious attitude,” although the Würzburgers intended a more neutral meaning such as “conscious state” (Humphreys 1953).

In studies coming out of Külpe's laboratory in Würzburg, Karl Marbe, Külpe's assistant, conducted a study on judgment, considered by logicians as a unit of thought. Marbe's findings, based on judgments of lifted weights, indicated that there were no discernable experiences involved in making a judgment. Orth published another study in 1903 supporting the existence of *Bewusstseinslagen*. There were other studies by Henry Watt in 1905 and August Messer in 1906, but perhaps the two most significant were those by Narziss Ach in 1905 and Karl Bühler in 1907, all supporting an experience separate from the orthodox categories of introspective psychology.

Ach found in an experiment on thought that if a certain task (*Aufgabe*) is suggested by the experimenter in instructions or if such a task is taken on independently by the person introspecting, the nature of the thought process will be different. The thought

process will be determined not only by past experiences and their associations related to the task but also by the influences of goals that come from those instructions or those set by the observer himself. These “determining tendencies” favor some associations and hinder others. The subject may be unaware of the influence of these determining tendencies. They may have no representation in consciousness at all.

In 1908, Külpe’s student, Karl Bühler, proposed an element of “thought” to add to the elements of sensations, images, and affections. Up to that point, except for some criticism of the methodology used by the Würzburg school, Titchener had remained relatively quiet about the “imageless thought” findings. Bühler’s suggestion for a fundamental change in the elementary level of elementistic psychology was apparently too much. Titchener devoted 45 pages in the *Textbook* to thought. This summarized the positions he had taken a year earlier with his *Lectures on the Elementary Psychology of the Thought Processes* (1909a). Titchener specifically rejected thought as an additional element. Titchener, like Wundt, argued against the *Aussage* method used as the experimental methodology by the “Würzburg school.” The *Aussage* method involved experimenters interrupting the observers in the process of their introspections, asking them questions about their experiences at that moment (Humphrey 1963).

Titchener criticized the Würzburger’s concept of *Bewusstseinslage* in thought experiments. Titchener argued that the vague impressions the Würzburgers were getting were meanings or, more accurately, the “carriers” of meaning, and not some new elementary experience. Meanings, according to Titchener, could be carried by physiological processes such as kinesthesia which are the sensory results of bodily attitudes, muscle strain, and similar processes. The images of these processes could be called up as well. Titchener explained that what Külpe’s students were getting when carrying out complex problems in judgment and reasoning were these vague images that accompanied the meanings involved in judgment and reason (Titchener 1909a).

Narziss Ach’s “determining tendency,” however, was another matter. Titchener’s description of “mental constitution” in the first edition of his *Outline* almost

a decade earlier demonstrated the existence of a “nervous or mental set” created by situations prior to the experimental observations. He wrote:

- ▶ ...there can be no doubt that, as the condition of mental “constitution,” bodily tendencies are of great importance for psychology. They mark out the paths, so to speak, which mental processes in general are to follow. No specific mental process is due to them, in the sense in which the specific sensation of red is due to a special excitation of retina and visual brain centre; but they cut the channels in which the stream of conscious processes flows, and consequently determine the direction which the stream is to take. (Titchener 1896, p. 112)

This mental set could guide mental processes and influence the results in much the same way as Ach’s determining tendencies. Titchener did not realize the importance of what he had found at the time did not follow it up. Titchener had explained that meanings could be carried by processes such as kinesthesia and that the meanings may have lapsed from consciousness altogether. Now, Titchener had to admit that thought may also be carried physiologically and thus not be available to consciousness for introspective analysis. He made the admission in his *Lectures on the Experimental Psychology of the Thought Processes* that these nonconscious processes “made it impossible for any future psychologist to write a psychology of thought in the language of content alone” (Titchener 1909, p. 163).

Still, in the *Textbook*, Titchener delved into questions of the higher mental processes such as memory, imagination, thought, language, abstract ideas, and judgment. When he reached the concept of self, for instance, Titchener differentiated between the popular notion of self and that shown in introspection:

- ▶ The word “self,” as a psychological rubric, means the particular combination of talent, temperament and character – of intellectual, emotive and active mental constitution – that makes up an individual mind. Self, as a conscious experience, is any complex of mental processes that means some temporary phase of this combination; and a self-consciousness is a consciousness in which the self, as a conscious experience is

focal. The self-experience may be as varied as are the objective relations which the organism sustains to its personal and impersonal environment. It has, however, certain fairly constant constituents: organic sensations, a visual perception or idea of the body, and the verbal ideas of "I" and "my." (Titchener 1910, p. 544)

Although introspection was invoked, the introspective details were scanty.

At the end of the *Textbook*, there was no mention of metaphysics as an arbiter of things yet unexplained by psychology as there had been in the first edition of the *Outline*. By 1910, Titchener apparently felt comfortable that such concepts were well out of psychology. He closed his *Textbook* with the following optimistic statement:

- ▶ The experimental method, having conquered the whole domain of nature and of life, is pressing forward to the highest reaches of mind, to thought itself. It needs no gift of prophecy to foretell that the first half of this century will mark an epoch in the history of scientific psychology. (Titchener 1910, p. 552)

As such, Titchener's *Textbook* represented the high water point of his version of analytical, introspective psychology, a psychology of elements and attributes leading to the highest mental processes.

After the publication of the *Textbook*, studies came out of the Cornell laboratory investigating the issues of the *Bewusstseinslagen*. Helen Clark's doctoral dissertation published in 1911 as "Conscious Attitudes," made use of introspective analyses and were able to demonstrate that "...conscious attitudes can be analyzed into sensations and images and feelings, or traced genetically to such analyzable complexes, and therefore do not warrant the proposal of an additional conscious element" (Clark 1911).

The issue of whether there were or were not images in the thought processes, however, was never settled and was one of the sources of stress in experimental psychology that led to the eventual desertion of psychologists from analytical introspective psychology. The controversy was one of John B. Watson's arguments for rejecting introspection as a psychological method and replacing it with behavioral measures.

Phase 3: From Elements to Dimensions, 1913–1927

This final stage of Titchener's structural psychology began in 1913 with a criticism of Titchener's psychology by Carl Rahn (1913), formerly a student of Oswald Külpe, who was then at the University of Chicago. Rahn attacked the logic behind the concepts of elements and attributes as Titchener had stated them in his *Textbook*. Titchener's somewhat unclear statement there about the reality of elements was one of the issues Carl Rahn leapt upon and used against Titchener. There were several telling attacks on Titchener's concept of elements and attributes. Perhaps the most serious was Rahn's argument that Titchener could not talk about the attributes of sensation as though they were the attributes of physical elements and still maintain that the attributes were processes. In short, he accused Titchener of the very thing he had taken pains avoid all along, that he was dealing with "things" rather than processes, the fundamental flaw of traditional associationism.

Rahn also argued that if an element is "not further analyzable by introspection," how does Titchener explain how he can say elements also present different aspects, the attributes, and says that these attributes can be separately attended to and discriminated. Rahn asked if this analysis to obtain attributes is any different from that used to obtain the elements themselves. In short, Rahn challenged Titchener on the existence of elements as real elementary processes as was stated in the *Textbook*.

Titchener mounted a response to Rahn, published in 1915, but one in which he seemed to pull back to his earlier position, saying "All observation of psychological objects of the first order is, I conceive, observation of attributes" (Titchener 1915b, p. 260). Although Titchener defended his newly clarified position against Rahn, the criticism may have led Titchener to question his conception of elements and attributes.

In 1915, Titchener published *A Beginner's Psychology* (Titchener 1915b) to replace the *Primer*. In the introduction, he announced that he had abandoned the use of the term "consciousness."

- ▶ Experimental psychology has made a serious effort to give it a scientific meaning; but the attempt has failed.

The term is too slippery, and so is better discarded. (Titchener 1915, p. x)

He added that the term “introspection” was also headed along the same road and that he could have avoided using it but felt the time was not yet ripe for that. He avoided the use of consciousness in *A Beginner’s Psychology*, replacing it, in the few places where he seemed to need it, with “experience.”

When he defended his position on elements and attributes, though not mentioning Rahn’s criticism, Titchener again used the analogy of chemical elements and their attributes to those of mental elements and attributes.

It is likely, however, that Rahn’s criticism led Titchener to admit that:

- ▶ ...a complete list of all the aspects or attributes of a sensation in all their possible aspects is the closest thing we can come to defining sensation. . . . But since that sort of statement is clumsy; since we cannot make it complete till we have observed the sensations under all their possible aspects; and since we know that mental processes are correlated with processes in the nervous system; we may adopt another plan, and *define sensation by reference to the special bodily organ with which it is connected*. Sensations are then elementary mental processes that come to us by way of skin, muscle, ear, and the rest of the sense-organs. (Titchener 1915b, p. 66)

This change left sensations as reality rather than as an abstraction but it also left only the attributes as the objects of introspective analysis.

By 1918, it must have been clear to Titchener that his boast of 1899 that if he were given his elements “. . .and let me bring them together under the psychophysical conditions of mentality at large, and I will guarantee to show you the adult mind, as a structure, with no omission and no superfluity” was no longer possible. That year Titchener had dropped reference to mental elements entirely from his course in systematic psychology at Cornell and started out from the “ultimate dimensions” of psychological subject-matter, his five attributes, now renamed as attributive dimensions of “. . .quality, intensity, protensity (time), extensity (space), and attentivity (clearness or vividness)” (Evans 1972).

By 1923, Titchener was able to announce that he was ready to entirely shelve the concept of elements “for something still more fluid and still more pregnant” – attributive dimensions. This took account of sensations and images, but what of affections? This question was resolved by the research of John Paul Nafe in Titchener’s laboratory. Nafe found that

- ▶ The affective qualities, pleasantness and unpleasantness turn out, under direct observation, to be modes of pressure: Pleasantness is a bright pressure and unpleasantness is a dull pressure. (Nafe 1924, p. 508)

With this finding that the affective attributes of pleasantness and unpleasantness were actually pressure sensations, Titchener’s psychology became a sensationism in which all three of the elementary processes of experience reduced down to one: sensation.

The method of introspection Titchener used also changed and became something closer to phenomenological description than analytical introspection. Still, Titchener’s method was set off from phenomenology. In Titchener’s method, there was the separation of the facts of experience from the meanings as before when dealing with the description of attributes.

It was phenomenology as method he was introducing to the Cornell laboratory – “meticulous, minute description, i.e., description in the most pregnant sense.” Titchener was still studying the “existential contents” of experience. In doing so, Titchener’s structural psychology became entirely descriptive and no longer explanatory. This meant that there was no longer a requirement to explain by reducing the psychological experiences into terms of physiology or explaining them at all, for that matter.

This new form of Titchener’s psychology was called “existential psychology” rather than structural psychology, even by Titchener (Boring 1938; Evans 1972). This psychology with its use of a specially constructed phenomenological method was still a work in progress when Titchener died suddenly in 1927 of a cerebral hemorrhage. Titchener’s posthumous *Systematic Psychology: Prolegomena*, (Titchener 1929) was put together from material, some already published, that had been written around 1917. The form Titchener’s systematic thinking was taking in the mid-1920s is shown best in the last doctoral theses Titchener

supervised, such as Elisabeth Moller's "The Glassy Sensation" (Moller 1925) and those he had in progress when he died (Evans 1972).

Structuralism After Titchener

By the time Titchener died in 1927, his graduate students were all working within the rubric of his new "existential" psychology. Some of these were completed under other staff members in the Department of Psychology until Madison Bentley took over the department and laboratory. The titles of the dissertations, such as F.L. Bixby's *A Phenomenological Study of Luster* (Bixby 1927) and George Kreezer's *Luminous Appearances* (Kreezer 1930), demonstrate the change in the direction of Titchener's psychology. Whether Titchener had given up on the attempt to explore the higher mental processes directly by the experimental method is a matter of conjecture. The fact is, however, that the topics during this last period were all at the perceptual level and did not involve higher mental processes.

Titchener's systematic psychology had survived into the 1920s largely through Titchener's personality and his ability to attract and maintain the loyalties of his students. Behaviorism, however, was quickly coming to dominate the field in psychology by the late 1920s and the use of introspection, of all sorts began to fade from the scene.

Experimental phenomenological methods became identified with Gestalt psychology and its proponents produced the bulk of perceptual studies through the period of the virtual hegemony of behaviorism in America that lasted until the rise of cognitive psychology in the mid-1960s. During the behaviorist period, sensation became part either of psychophysics or of physiological psychology.

Titchener's positivistic view of psychology did not disappear completely, however. Ironically, when John B. Watson formulated his behaviorism, he did to Titchener largely what Titchener had done to Wundt. He took Titchener's structural framework and replaced the mentalistic concepts with behavioral concepts. One can see in Watson's behaviorism the elements of simple muscles and glands functioning in more and more complex ways to produce more and more complex behaviors.

E.G. Boring, one of Titchener's former students, attempted, after Titchener's death, to salvage the

fundamentals of Titchener's psychology with his book, *The Physical Dimension of Consciousness* (Boring 1933). In that book, Boring made use of the same dimensions of consciousness Titchener had used in the 1920s but altered terms and some assumptions resulting in something superficially similar to the final form of Titchener's psychology but quite different in its fundamentals. By 1933, however, there was little left to salvage of Titchener's systematic psychology.

It is difficult to see anything of Titchener's structural psychology remaining in present-day psychology. One possibility would be the distinction among the physical, biological, and the psychological points of view seen in the distinction between color and hue and between frequency and pitch. This, however, is as much Mach as Titchener.

What survived was not the systematic theoretical aspects of Titchener's structural psychology. It was his emphasis on the laboratory as the center of the experimental psychological enterprise. Titchener warned his students of the ephemeral nature of theories and systems when he told them "Carry your theories lightly. You may wake up tomorrow and find them disproved."

See Also

- ▶ [Angell, James Rowland](#)
- ▶ [Behaviorism](#)
- ▶ [Mach, Ernst](#)
- ▶ [Wundt, Wilhelm](#)

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Sully, J.

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Basic Biographical Information

James Sully was born in Bridgewater, England, on March 3, 1842. He received from his parents a nonconformist religious upbringing, and for his undergraduate studies, he explored philosophy in line with his family's religious beliefs. In these studies, Sully received training, especially in philosophy of mind, where a vogue of the day was the “associationist” theory in the writings of John Stuart Mill, Alexander Bain, and Benjamin Davis. During Sully's M.A. studies, which were also in philosophy, he added greater attention to rigorous scientific research on the mind, and for part of his masters' work he studied in Germany, from January 1867 to March 1868 – under Hermann Lotze in Göttingen and Hermann von Helmholtz and Emil du Bois-Reymond in Berlin. Sully again visited the German labs during fall of 1871. By the 1870s, Sully had broad interests, including Darwinian theory and ideas of the “associationists.” He ultimately focused on childhood and developmental psychology. Sully published extensively from the 1870s to the 1890s (Gurjeva 2001).

Professionally, Sully eventually earned appointment to the Grote Professorship of Logic and Philosophy of Mind at University College, London, which he held from 1892 to 1903. In 1898, he was instrumental in setting up the first major psychological laboratory in Britain, at University College, London. In 1901, Sully was the one who, it is said, “called the meeting” at which the British Psychological Society was formed. Sully died in 1923 (Valentine 1999).

Major Accomplishments/ Contributions

During the early 1870s, based on some self-initiative as well as some encouragement from acquaintances, Sully began submitting articles to major British periodicals, including *Cornhill Magazine*, *Fortnightly Review*, *Saturday Review*, *Westminster Review*, *Contemporary Review*, *Academy*, and *Mind*. Sully also contributed to the French journal, *Revue Philosophique*. Topics of Sully's articles were as diverse as music, illusions, childhood, laughter, consumer psychology, German culture, and the relationship between psychology and art (Block 1982).

Among the earliest of Sully's more important papers was a July 1872 article on German psychophysics, published in the *Westminster Review*. Drawing upon his personal experience in the German laboratories, Sully introduced what he described as the already "famous" researches of Gustav Fechner and his followers. As Sully concisely put it, these Germans psychophysicists had studied human sensory input and response, and had discovered "that the greater the magnitude [of sensory input] the larger the minimum amount of noticeable difference" (Sully 1918).

The decades of the 1870s and 1880s were, in general, times of heightened emphasis on treating psychological issues in light of evolutionist analysis. Fairly common topics receiving such attention were animal intelligence, mental life of "primitive man," heredity of intelligence, genius, personality, dreams, illusions, nervous diseases, and "dual consciousness." Sully wrote on many of these topics, especially during his so-called "journalistic period." These writings by Sully display keen familiarity with such psychologically oriented science writers and defenders of evolutionism as George Henry Lewes and Grant Allen, and also the evolutionist-physiologists Henry Maudsley and Hughlings Jackson (Block 1982; Ryan 2009).

Next came Sully's "associationist period," during which he developed a deeper interest in what were called "the dualities" – these being the separation between normal and abnormal states of consciousness, and the split between "critical introspection" and "sympathetic introspection." These two dualities, potentially reconcilable with each other, come through in such works as Sully's *Sensation and Intuition* (1874) and his popular *Illusions* (1882), as well as in

his essays on "The Aesthetics of Human Character" (1871) and "Self-Esteem and Self-Estimation" (1876). The idea that there are fundamentally two kinds of introspection produced an inquiry as to whether dual mental perspectives inherited via the natural selection process might result in one strategy of introspection which requires that a human subject separate sufficiently "the judging part" from "the judged parts" of the mind; another strategy of introspection might result when a subject projects his or her own qualities and feelings upon others (Gurjeva 2001).

As Sully worked to reconcile associationist philosophy of mind with evolutionary ideas of Charles Darwin and Herbert Spencer, his project was not only to explain the dual modes of consciousness and the corresponding dual forms of introspection, but also to expand inquiries into primitive consciousness and the phenomena of dreaming. Sully's first essay of his first book (*Sensation and Intuition*) in fact defended "The Relation of the Evolutionist Hypothesis to Human Psychology." In the essay, Sully pointed to "that once universal tendency of the human mind" to project its feelings into or upon every object, animate or inanimate, which was a view in the tradition of the 1870s British anthropologist, E.B. Tylor (Sully 1918).

During the 1870s, Sully was selected to team with Thomas Henry Huxley to write tandem articles to be published together as one piece on "Evolution," for the 1879, ninth edition of the *Encyclopedia Britannica* – with Huxley initialing part one of the essay (subtitled "Evolution in Biology") and Sully initialing part two (subtitled "Evolution in Philosophy"). A close reading of Sully's contribution finds that Spencer is the theorist from whom Sully derived his most characteristic evolutionist principles of psychology. (Sully also received and accepted an invitation to compose two other articles for the encyclopedia, on "Aesthetics" and "Dreams.")

In 1876, in an influential essay on "The Laws of Dream Fancy," Sully contemplated that a confusion existing between perception and imagination in a dream state is essentially the same as certain confusions resulting from the intensity of "excited states of the imagination," including pathological conditions. Under such circumstances, Sully believed, "pure fancies of the mind, by acquiring a certain degree of vividness and persistence, become mistaken for real perception."

The comprehensive nature of Sully's efforts in the paper struck the attention of a commentator for the journal *Mind*, who identified Sully as endeavoring "to carry the physiological explanation of dream-phenomena as far as can be done in the present state of the science." A later figure of obvious importance, one Sigmund Freud, expressed much admiration for this 1871 essay, which (along with Sully's book *Illusions*, and his 1893 article on "The Dream as a Revelation") influenced his own thinking (Gurjeva 2001).

By the middle 1880s and then beyond, Sully's primary interest became childhood and developmental psychology – sometimes together called "genetic psychology." Sully was an especially strong promoter of the child study movement and was adept at playing the intermediary role between teachers, parents, and scientists. A period of about 2 decades, beginning in 1884, is thought of as Sully's "textbook period," during which he published five major textbooks: *Outlines of Psychology* (1884); *Teacher's Handbook* (1886); *The Human Mind* (1892); *Studies of Childhood* (1895); and, *An Essay on Laughter* (1902). These were textbooks for various audiences interested in psychology and its applications. In a number of cases these textbooks were the first published pieces to introduce new ideas and research in psychology to an English-language readership. In *Studies of Childhood*, in particular, Sully is recognized for including observations of his own son during the first 6 years of life, as well as for his original studies and analysis of children's drawings. Sully is also recognized for his early use of the questionnaire and for his training of mothers as scientific observers.

See Also

- ▶ [University College London, History of Psychology at](#)
- ▶ [von Helmholtz, Hermann](#)

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Sumner, Francis Cecil

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Basic Biographical Information

Sumner (1895–1954) was born in Pine Bluff, AK, USA. Educational facilities and opportunities were poor for blacks in the South, but Sumner received an acceptable elementary school education in Norfolk, VA, and Plainfield, NJ. However, the high schools were so inferior that Sumner did not attend. Nevertheless, with the assistance of his father, he learned enough to gain entry by examination to Lincoln University in 1911. In 1915, he was graduated with honors in English, Greek, Latin, modern foreign languages, and philosophy. With the encouragement of G. Stanley Hall, the eminent American psychologist and President of Clark College and University (Worcester, MA), Sumner earned a second bachelors degree at Clark in English (1916). Back to Lincoln and while teaching German and psychology, Sumner earned the M.A. degree (1917). Undecided whether to continue his doctoral studies in German or psychology, Sumner was offered full financial support by Hall, and Sumner returned to Clark University to study psychology.

A week after beginning his doctoral studies, Sumner passed the required examinations in German and French. By the end of the academic year, Sumner had completed a manuscript based on his study of the differences between Freud and Adler. Although not intended to be his dissertation, Sumner asked Hall to consider it for his dissertation. Before Hall could act, Sumner was drafted into the US Army for service in The Great War (World War I). Sumner quickly asked and received Hall's support for his admission to officer candidate school. However, it was too late, and Sumner was shipped to Europe as a Sergeant in the 808th

Pioneers. Pioneer infantry units, generally, were non-combat units, and Sumner's group was put to work building and repairing railroads. A great irony of American military racial segregation was that Sumner, who was fluent in the languages of the major combatants (English, German, and French), served on a railroad gang. Nevertheless, the 808th came under heavy artillery bombardment and was among the few non-combat units to be awarded combat decorations (Thomas 1999).

Sumner returned to Clark in the summer of 1919. His work on Freud and Adler was accepted as his dissertation and was published as *Psychoanalysis of Freud and Adler or Sex-determination and Character Formation* (Sumner 1922). Sumner was graduated on June 14, 1920, the first black to earn a Ph.D. in psychology. After moving about academically for a few years, Sumner joined the faculty at Howard University in 1928 where he remained until an untimely death by heart attack in 1954. He was buried with honors at the Arlington National Cemetery.

Major Accomplishments/Contributions

Sumner was identified as the “father of black American psychologists” by the eminent black historian of psychology, Robert Guthrie (2004). Guthrie used this appellation to acknowledge Sumner's being the first black Ph.D. in psychology and also for his significant role in the educations of early generations of black psychologists, although Howard University did not confer Ph.D. degrees in psychology during Sumner's lifetime. Arguably, Sumner's most important master degree student was Kenneth Clark. Clark earned his Ph.D. at Columbia University. Not only was Clark the only black President of the American Psychological Association to date, he and his wife Mamie, also a Howard student and later a Columbia Ph.D., conducted the famous doll studies which they had begun at Howard. The doll studies influenced the 1954 Supreme Court decision that outlawed racial

segregation in public schools and other public facilities as well as any private businesses that depended on interstate commerce.

Sumner's theoretical contributions include his dissertation (see above) that applied the theoretical tenets of psychoanalysis to explain fundamental differences between two of its major founders, Freud and Adler. Sumner also acquired an interest in the psychology of religion from his mentor, Hall, and he did extensive research on American and European religions. As described by Guthrie, Sumner produced a “massive manuscript” titled *The Structure of Religion: A History of European Psychology of Religion*. Should this manuscript ever be published, it might prove to be a major historical and theoretical contribution. Guthrie also reported that Sumner was the first to establish courses in the psychology of religion at black colleges and universities.

Finally, an important, indirect theoretical contribution by Sumner is that he was an official abstractor for *Psychological Bulletin* and for the *Journal of Social Psychology*. This was before authors were required to include abstracts with manuscript submissions. Guthrie reported that Sumner provided abstracts for more than 3,000 articles from German, French, and Spanish authors.

See Also

- ▶ [Clark, Kenneth B.](#)
- ▶ [Hall, G. Stanley](#)
- ▶ [Psychology and Religion](#)

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Teachers of Psychology in Secondary Schools

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Introduction

High school psychology teachers have more resources available today than ever before. High school psychology teachers can be members of several different professional organizations that offer resources such as lesson plans, activity ideas, newsletters, and professional development workshops. These opportunities are the direct result of tireless work of several advocates for high school psychology teachers over the years. The primary organization for high school psychology teachers that is endorsed and supported by the American Psychological Association (APA) is Teachers of Psychology in Secondary Schools (TOPSS).

Definition

TOPSS is an organization within the APA that supports high school teachers of psychology. The governing body of TOPSS is the Committee for Teachers of Psychology in Secondary Schools, which is a standing committee within the APA's Board of Educational Affairs (BEA) within APA's Education Directorate. The Committee is led by an elected group of high school teachers of psychology. The committee chair serves a 3-year term (1 year as Chair-Elect, 1 year as Chair, and 1 year as Past-Chair). All other officers serve 2-year terms. Two collegiate faculty who are APA members serve on the committee as well to provide guidance and advice on projects put forth by committee members.

History

The Founding of TOPSS

TOPSS was established in the early 1990s and provides teachers with teaching resources, instructional materials, professional development workshops, newsletters, and policy guidance for teaching the high school course (Ernst and Petrossian 1996). High school psychology teachers could join the APA as Teacher affiliates beginning in the 1970s, and a Committee on Psychology in Secondary Schools (CPSS) was established in the early 1980s to provide a formal place for high school teachers to belong within the APA. However, due to financial difficulties faced by APA during that decade, the committee was discontinued (Ernst and Petrossian 1996).

In 1992, Charles Spielberger, Ph.D., then president-elect of the APA, spoke to a conference of educators at St. Mary's College of Maryland. The conference was geared toward undergraduate education, but two high school psychology teachers were in attendance (Ernst and Petrossian 1996). Spielberger spent most of his talk focusing on the importance of teaching psychology in high schools, emphasizing the importance of fostering a pipeline for psychology beginning in high schools. Spielberger proposed to the APA that year to establish a new committee for high school psychology teachers, and he gathered together a group of high school teachers and interested collegiate faculty to discuss the focus and organization of such a committee. Members of that first group were high school teachers Bates Mandel, Karyn Hale, Randy Ernst, Charlie Blair-Broeker, Marissa Sarabando, and Laura Maitland. Collegiate faculty participating in these initial meetings were Ludy Benjamin, Ph.D., and Sam Cameron, Ph.D., both of whom had been principal investigators for National Science Foundation (NSF) grants that provided 4-week professional development workshops for high school psychology teachers in the early to mid

1990s. The Committee for Teachers of Psychology in Secondary Schools was established after a vote of approval by the APA's Board of Directors in early 1993.

The National Standards Process

Since its founding, TOPSS has provided instructional materials, professional development, and policy guidance for high school psychology teachers. In the mid-1990s, TOPSS committee members began a drive to create a set of national standards for the teaching of high school psychology. During the 1990s, a nationwide push began to establish national criteria for what content should be taught in the nation's public high schools. National professional organizations for high school teachers in many disciplines began to develop standards for teachers, school district personnel, colleges of education, and accreditation agencies to use to determine the quality of programs found in high schools. The TOPSS committee members established a task force to develop what became the National Standards for High School Psychology, which were approved as APA policy in 1999. Laura Maitland chaired the task force. Others serving with her were high school teachers Ruth Anderson, Charlie Blair-Broker, Carol Dean, Ed. D., Randy Ernst, and Bates Mandel. Collegiate faculty participating in the original task force were Jane Halonen, Ph.D., Wilbert McKeachie, Ph.D., and Marilyn Reedy. The original National Standards were comprised of five domains – Methods, Biological Bases of Behavior, Development, Cognitive, and Sociocultural – and these domains included content from typical units taught in high school psychology courses (Maitland et al. 2000).

After the National Standards were approved as policy, different groups within APA provided feedback for revising the document to reflect emerging changes in the field that ought to be reflected in the high school course. An APA working group was established and chaired by Laura Maitland to review the feedback and provide revisions. High school teachers Rob McEntarrfer and Kristin Whitlock served on the working group along with college professor Kenneth Weaver, Ph.D. This group worked until 2004 and did not produce a finished version of the revisions. Kristin Whitlock took over duties as chair of the working group, working with high school teachers Amy Fineburg and Marie Smith, Ed.D., and college professor James Freeman, Ph.D. This working group finalized

the revision comments and produced a new version of the National Standards for APA approval in 2005. The document was renamed the National Standards for High School Psychology Curricula. The 2005 version of the Standards also includes five domains – Methods, Biopsychology, Development, Cognitive, and Variations in Individual and Group Behavior. Some units were reorganized in order to align those units with their more primary domain of study. The Standards were also made available online and in print.

The National Standards were revised for the third time in 2011 to reflect further changes to the field. The working group consisted of high school teachers Amy Fineburg, Ph.D., chair, Hilary Rosenthal and Debby Park. Collegiate faculty participating were James Freeman, Ph.D., and David Myers, Ph.D. The working group utilized the advice and input from an Advisory Board consisting of two content experts from each of the five domains. Advisory Board members participating were Elizabeth Bjork, Ph.D, Joan C. Chrisler, PhD, James Kalat, Ph.D., Cheryl Luis, Ph.D, Morton McPhail, Ph.D, Jeffery Scott Mio, Ph.D, David B. Mitchell, Ph.D., Pat Puccio, Ed.D., Daniel Reisberg, Ph.D., and Susan Krauss Whitbourne, Ph.D. The 2011 version of the National Standards was expanded to seven domains – Scientific Inquiry, Biopsychology, Development and Learning, Sociocultural Context, Cognition, Individual Variations, and Applications of Psychological Science.

Unit Lesson Plans

TOPSS has been instrumental in providing quality instructional resources and professional development for high school psychology teachers. The main instructional resource developed by TOPSS is unit lesson plans. The unit lesson plans were originally authored by teachers attending NSF-sponsored institutes held during the early 1990s. These 4-week institutes were designed to promote the scientific teaching of psychology, and during that time few resources existed for high school psychology teachers. Groups of teachers at these institutes worked together to author unit lesson plans in such areas as research methods, biopsychology, statistics, cognition, and development. The institute directors then asked APA to publish and disseminate the plans to the TOPSS membership.

Since those institutes ended in 1999, the TOPSS committee took over the role of commissioning unit

plan development. As of 2011, TOPSS offers 19 unit plans highlighting each major unit plan found in a traditional high school course. The committee not only commissioned unit plan development for traditional units found in the high school course but also plans for units that might be considered ancillary to the traditional high school course. Units in positive psychology, cross cultural psychology, psychoanalysis and psychodynamic perspective, and the psychology of sexual orientation are also available for teachers. These unit plans are available online for members only. The plans include a content outline, procedural timeline, activity suggestions, and additional resource suggestions. In 2007, TOPSS tasked teachers participating in a week-long summer workshop to revise unit plans written in the 1990s. Units for motivation, emotion, development, introduction to psychology, and biopsychology were revised and are currently available online to members.

Professional Development

TOPSS has provided high quality professional development for high school psychology teachers for most of its history. In the 1990s, the main professional development opportunities for high school psychology teachers were the NSF-sponsored institutes, an institute hosted by Nebraska Wesleyan University, and workshops for Advanced Placement™ (AP) Psychology sponsored by the College Board. In the late 1990s, the institutes sponsored by NSF and Nebraska Wesleyan University were discontinued, so TOPSS stepped in to provide several types of professional development experiences for high school teachers.

In the late 1990s and early part of the 2000s, TOPSS sponsored 1-day workshops at various locations throughout the United States. Experienced high school teachers or college professors interested in translating introductory psychology pedagogy to high schools led these workshops. TOPSS also began offering workshops and sessions at APA's annual convention each year. The APA typically offers TOPSS up to 5 hrs of programming at the APA Convention each year. The Past-Chair of the TOPSS committee invites speakers from among both high school and collegiate instructors to speak to attendees. The speakers are typically invited around a theme relevant to teaching high school psychology. TOPSS has also worked with other teaching groups within APA, including Psychology Teachers at Community Colleges (PT@CC)

and the Society for the Teaching of Psychology (STP, APA Division 2) to sponsor lecturers at the APA Convention and other association meetings.

In 2004, the American Psychological Foundation (APF) received a donation from Lee Gurel, PhD, to establish professional development opportunities for high school psychology teachers in conjunction with Clark University, his alma mater and the birthplace of the APA. The donation led to the APA-TOPSS/Clark University workshop, an annual 3-day workshop that serves up to 25 high school teachers each summer. Faculty from Clark University present content-based sessions in their areas of expertise, and experienced high school teachers present activity and demonstration ideas. Participants also tour sites around campus that are of historical interest, including the statue of Sigmund Freud and the site of the founding of the APA.

In 2007, the APA and TOPSS sponsored a week-long summer institute designed to help teachers use the National Standards for High School Psychology Curricula in their classrooms. During this institute, teachers heard presentations from content experts in biopsychology and development and worked in small groups to revise unit lesson plans originally written in the 1990s. The workshop was held at the University of Wisconsin in Green Bay and directed by Regan Gurung, PhD, Wisconsin-Green Bay faculty member and TOPSS faculty advisor, and Amy Fineburg, high school teacher and TOPSS Past-Chair.

Key Issues

Psychology courses have traditionally been a part of the high school curriculum landscape since before psychology was founded as a scientific discipline in 1879. Throughout the years, however, high school psychology courses have typically focused more on personal development and growth rather than science (Engle 1974; Moore 1932; Liddy 1945, 1946). Early textbooks for high school psychology focused on the topics related to the behavioral and cognitive perspectives of the day including learning, forgetting, and emotions, but devoted space to practical problems like vocational choice and reading proficiency, reflecting a notion that high school students were less interested in the science of psychology than the practical application of psychology (Moore 1932; Woodworth and Sheehan 1951; Billig 1943). Many in

the field argued that teaching high school psychology should be designed to improve students' lives by helping them develop critical thinking skills, improve intellectual ability, and understand human nature (Abrams and Stanley 1967; Burgum 1940; Engle 1952; Berg and Brown 1942). Since the establishment of TOPSS and courses like AP Psychology and International Baccalaureate (IB) Psychology, the teaching of psychology has moved from a personal hygiene course to a more scientifically oriented course.

Certification of Teachers and National Standards

The issues that have dogged high school psychology have not changed much over the decades. Numerous articles dating back as far as 1932 cite problems with certification and standards faced by teachers of high school psychology (Moore 1932; Abrams and Stanley 1967; Engle 1952). Many early studies of the qualifications and resources available found that high school psychology teachers lacked proper training and pedagogical practices, did not teach practical psychology, and lacked a high school textbook in psychology (Abrams and Stanley 1967; Mikesell 1943). Content-wise, early high school psychology courses focused on personal development and growth rather than science, which is not surprising considering the lack of scientific training of high school psychology teachers. In the mid-twentieth century, researchers found that the average number of semester hours of psychological training was 18.49. By the 1970s, little had changed in the high school psychology landscape.

Even in the early 1990s when the APA was establishing the TOPSS committee, these same issues in teaching high school psychology existed. Content was typically determined by the individual teacher's personal preference rather than any standardized course of study. The typical high school psychology teacher was likely a man with twice as much experience teaching other subjects as psychology, with only roughly 12% teaching psychology exclusively and 63% teaching psychology less than half the day (Hakala 1999; Bristol and Ginis 2001). While only a small portion of teachers majored in psychology in college, the average number of semester hours in psychology remained consistent from the 1940s to the early 1990s.

All 50 states offer certification for psychology teachers in some way, indicating that schools with the means and desire can offer psychology, but whether they do or not is unknown. In most states, certification to teach psychology is packaged with certification to teach social studies, a discipline that includes history, government, and economics. Few states offer separate certification to teach psychology for precollege instructors. Researchers have found throughout history that teacher preparation programs significantly reduced the number of behavioral science credits one must earn to receive social studies certification in favor of increased preparation in history and geography (Evans et al. 1990). With the passing of the No Child Left Behind legislation in the early part of the 2000s, teachers of all subjects have to be declared "highly qualified" in order to continue teaching. Teachers had to have taken a certain number of courses during their college teaching preparation either in the specific discipline they taught or in a broadfield certification area. For teachers who did not have the requisite hours in college, teachers could participate in professional development or pass a national certification exam. Because of the placement of psychology in social studies, today's high school psychology teachers have little formal training in scientific psychology, have little time to devote to such preparation while teaching several different types of courses, and must rely on their own often minimal knowledge of psychology to determine what to teach.

The content and pedagogy of high school psychology has improved greatly since 1992. Both TOPSS and Advanced Placement Psychology were established in 1992 (Abrams and Stanley 1967). AP Psychology and IB Psychology courses, each with rigorous curricula, produce students with high levels of knowledge and ability in scientific psychology. Teachers of these courses must have significant professional development training in order to prepare their students to pass the difficult standardized tests required by these courses. The publication of the *National Standards for the Teaching of High School Psychology* addressed a long-held desire for consistency in high school psychology instruction. Several high quality textbooks are available for all levels of high school psychology. Today there is evidence that high school psychology is offered in all 50 states. Several TOPSS-sponsored surveys of high school psychology propose that almost one

million students take high school psychology each year, but the precise number is unknown (Ernst and Petrossian 1996). The growth in the AP Psychology program demonstrates the popularity of psychology as a course in high schools. In 1992, the first year the College Board offered an exam in AP Psychology, a little under 4,000 students sat for the exam. In 2010, over 180,000 students sat for the exam, making AP Psychology the sixth most popular test given that year.

The National Standards for High School Psychology Curricula are endorsed by the National Council for Social Studies (NCSS), the national professional organization for social studies educators. Many states use the APA's document as a framework for developing state and local standards for teaching high school psychology. The National Council for the Accreditation of Teacher Education (NCATE) uses the APA's document to evaluate the effectiveness of psychology teacher preparation programs. The APA has also made recommendations regarding the training of high school psychology teachers and promoted the alignment of psychology instruction from high school through the postgraduate degree.

International Perspectives

Teachers of high school psychology are found throughout the world. TOPSS has members from several countries, including Bolivia, Mexico, Thailand, Pakistan, Canada, and England. In the early part of the 2000s, TOPSS enlisted teachers to be Regional Coordinators to help promote professional development activities in each region of the USA. The TOPSS committee also felt it was important to enlist teachers outside the USA to be Regional Coordinators as well, tapping teachers in Canada and Latin and South America to coordinate activities and foster communication among international teachers of high school psychology.

The TOPSS committee has also been committed to promoting international perspectives in the teaching of high school psychology. The committee commissioned the development of a unit plan on cross cultural psychology and seeks to provide resources that emphasize a global perspective in teaching high school psychology content. Each unit plan under development undergoes diversity review by experts in the field to help make sure international and diverse perspectives are represented. TOPSS often features reports about international and global perspectives written by

various APA boards and committees on its website and in its newsletters so high school psychology teachers can keep up-to-date about current directions in the field.

Future Directions

The certification of psychology teachers and the dissemination of the National Standards are perhaps the most important issues facing high school psychology instruction today and for the future. How psychology teachers are prepared to teach the course should be of fundamental concern for organizations interested in promoting psychology instruction. The lack of separate guidelines for certification in psychology from state licensing boards and the subsuming of psychology into the social studies certification area leave psychology out of the current emphasis on science, technology, engineering, and math (STEM) disciplines. The APA's Science and Education Directorates have both endorsed including psychology as a STEM discipline, but the lack of recognition of psychology as a course within science departments makes those calls difficult to fulfill.

While adequately certifying psychology teachers would advance the cause of high school psychology instruction, promoting the adoption of standards for high school psychology will advance the cause of high school psychology in general. The adoption of standards by states and school districts would advance psychology on several levels. First, adoption of APA-endorsed standards would recognize psychology as a scientific discipline and represent the end of the perception of high school psychology as a self-help course. Second, adoption of standards would recognize psychology as a course taught in high schools. Because psychology is generally an elective course, it is not considered as crucial to the school program as a required course. Elective courses are taught only if there is enough demand or if someone is qualified to teach them or if funding is available to support the course. When funding gets cut, electives are usually the first to go. Third, when standards are adopted, teachers are accountable in some way (in the form of tests or submitted lesson plans) to follow the guidelines in their instruction. Accountability for what is taught will lead to emphasis on better training and preparation for high school psychology teachers to ensure they meet the standards. Last, standards adoption would

provide new teachers of psychology with a guide for what to teach in a psychology course. Without such guidelines, teachers are left to teach what they want to teach and not necessarily what should be taught.

Psychology in high schools has come a long way from its beginnings as a course in mental health and adjustment. Modern psychology is a vibrant discipline based in scientific inquiry. For many students, high school psychology is a first glimpse of what psychology is, making the certification, preparation, and guidance of teachers of psychology important. If students are going to receive an accurate picture of what psychology is, they will need teachers who are properly certified who have guidance about what to teach. Proper certification will ensure that teachers have taken more than one course in psychology before coming to teach the course to high school students. Adopting standards on the state and local levels will ensure that what is taught in the psychology classroom mirrors what is taught in college courses, preparing students better for the next level of instruction. A concerted effort by groups that promote psychology instruction to address these important issues will serve psychology as a whole for years to come.

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Terman, Lewis M.

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Terman's career spanned the development of academic psychology, beginning in the late nineteenth century and continuing under his leadership for many years. His leadership was crucial, though not without controversy, in the standardization of intelligence and achievement testing. Terman's longitudinal study of a cohort of individuals is well known for providing intimate understanding of the life course of the intellectually gifted.

Basic Biography

Lewis Terman was born the 12th of 14 children on January 15, 1877, in rural Johnson County, Indiana, to James and Martha Cutsinger Terman. His heritage was German, French, Scotch-Irish, and Welsh. There was no family history of college education and no one in previous generations had achieved prominence. Nonetheless, his family's farm was relatively prosperous. Though Lewis and his siblings engaged in physical labor, their home contained a large library. Terman was an avid reader from an early age.

Terman's family life included tragedy, not unrelated to a terror that hung over much of his life. Most of his father's siblings died from "consumption." Terman's father had tuberculosis and Terman's eldest sister died from the disease when Terman was 3. At age 22 Terman learned he too had tuberculosis and suffered several bouts of the disease, shaping his early research in school hygiene. His illness led him to locate to a more salubrious climate, and ultimately to a faculty position in education and psychology at Stanford University in 1910.

Beginning in 1892 Terman attended Central Normal College in Danville, Indiana, where he received a B.S. and B.Pd. in 1897, with country school teaching responsibilities in the middle years of his studies. From 1898 to 1901, he served as principal of a township high school. Terman borrowed money and earned two master's degrees from Indiana University in 1902 and 1903. Supported by additional family loans and a fellowship, he earned the Ph.D. at Clark University in Massachusetts in 1905. Seeking a healthier climate, he took a position as a high school principal in San Bernadino, California, for a year, and subsequently moved to a faculty position at Los Angeles State Normal School. In 1910, he was offered a position in Educational Psychology at Stanford University, where he remained for 46 years. Nearing the age of 80, on December 21, 1956, Lewis M. Terman passed away at his home on the Stanford University campus. Until shortly before his death, he was deeply engaged in the fifth volume of his longitudinal study of genius.

Major Contributions

Lewis Terman's contributions to his profession were legion. His academic contributions included the acclaimed revision of the Binet-Simon Scales, the Stanford-Binet (1916), and his concept of "IQ" became a household word. He later developed the Revised Stanford-Binet (1937) with Maud Merrill. With A.O. Otis, during his service as a Major in World War I he constructed the Army Alpha and the Army Beta. Terman developed the widely used Stanford Achievement Tests (1923) with T.L. Kelley and G.M. Rauch. Beginning in 1920, he commenced his study of gifted children (the "Termites"). With Catherine C. Miles he subsequently developed a masculinity/femininity and personality test, focusing his attention on the psychological factors in marital happiness (1936).

Terman was most devoted to his longitudinal study of "genius," a term he later changed to "gifted" (Terman 1925). The research was in part motivated by Terman's disagreement with prevailing negative stereotypes of highly intelligent children. He was particularly interested in the childhood experiences of these children and, beginning in 1920, he prepared for a longitudinal study of about 1500 children, drawn primarily from San Francisco, Berkeley, Oakland, and Los Angeles schools. It is a tribute to his dedication that 36 years after the study began, 98% of those of his "Termites" who were still living continued as active participants. Terman argued that both heredity and environment contributed to intellectual achievement, though he gave the nod to heredity. He argued that motivation made a significant contribution, a quality related to childhood environment, as much as to a yet unknown genetic contribution to personality (Terman and Oden 1947). Nonetheless, contemporary later critics noted that his study of the gifted included primarily children from White, educated and financially secure families and that there may have been biases in the teacher-based selection process. More male children were selected than female and the sample included few non-White children. Terman became so intimate with his subjects that he assumed a "fatherly" role and, at times intervened directly to assure that they were successful. He may have skewed his results, but he could not tolerate seeing potential wasted. His study included no control groups, not unusual for his era. It is impossible to know what effects the research itself, including being labeled as being a "genius" or "gifted" had on his findings. Terman sought to understand the childhood family and educational circumstances that enhanced the development of children with high genetically based potential for excellence.

Terman's honors included serving as President of the American Psychological Association (1923). He was a fellow of the American Academy of Arts and Sciences, and a member of the National Academy of Sciences. He served as Chair of the Stanford University Department of Psychology (1922–1942), during which time the Department grew to national prominence. He valued originality and astute critical thinking in his graduate students and colleagues. Between 1914 and 1937, he chaired 42 master's theses and 27 doctoral dissertations. He often collaborated with graduate students, launching their successful careers under his encouraging, demanding, and protective wings.

See Also

- ▶ Boring, E. G.
- ▶ Cattell, Raymond B.
- ▶ Cox, C. M.
- ▶ Cronbach, Lee J.
- ▶ Gesell, Arnold L.
- ▶ Hall, G. Stanley
- ▶ Harlow, Harry
- ▶ Hilgard, Ernest R.
- ▶ Miles, Walter R.
- ▶ Strong, E. K., Jr.
- ▶ Thorndike, Edward

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Terrorism and Politically Motivated Violence, Psychological Theories of

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Introduction

Politically motivated intimidation and violence against individuals or groups has been a prominent element in practically every account of human history. Conversely, attempts to understand the underlying motivations and causes for certain behaviors in general, and violent

acts in particular, are arguably equally prominent in the history of human intellectual interests. Therefore, tracing the developments in the psychological understanding of terrorism and political violence is, in effect, tracing the history of psychology itself vis-à-vis social dynamics and violence. This review attempts to survey the development in modern psychological understanding of the complex phenomena of terrorism and political violence – phenomena that are still far from consensual definitions, research methodologies, and integrative conceptualizations (e.g., Schmid and Jongman 1988; Schmid 1997). The survey follows closely the history of psychology rather than related disciplines, or some that were even considered identical in their subject matter to psychology – such as philosophy, sociology, and anthropology.

Classical and Modern Psychoanalytic Theories of Political Violence and Terrorism

The inception of modern psychology is customarily chronicled around the end of the nineteenth century, and is frequently identified with the emergence of the psychoanalytic school of thought, attributed to Sigmund Freud. Early psychoanalytic accounts of violence regarded it as a pan-human determinant in the psychological development of humans, and as inextricably associated with other determinants, such as biological development and sociability. Freud's early models of the psyche surmised a tripartite structure, whereby the sole energy source is that of the sexual drive (dubbed libido). This energy emanates from the most basic and primitive parts of the psyche and therefore cannot be dealt with directly, not even by the person itself. In order to temper this energy and harness it as a source of human motivation for acceptable actions, other parts of the psyche have to counter it and negotiate between its wild nature and the calls of society for rationality, self-control, and morality. Thus, according to early psychoanalytic models, violence and antisociality are innate characteristics of human nature, and are derived by the primary goal of the unconscious to seek maximal egotistic pleasure while being incapable of consideration of others. It is also inherent to human nature through the constant internal conflict between the pleasure-seeking part of the psyche (known as "Id"), which is also the container of

the libidinal energy, and other parts of the psyche that counter it with realistic estimation of what is possible (known as “ego”), or with what is acceptable and right (known as “super-ego” or “ego ideal”). Thus, a person may engage in aggression against others as an extension of the internal conflict he has to eliminate the part in him that may resemble (or is associated with) them. Psychoanalytic Theory predicts that in order for such symbolic cleansing to be “real,” some people would not be able to sooth themselves with fantasies of such cleansing, but will have to engage in actual violence against the symbolic “enemy.” In particularly disturbed personalities with compromised reality perception, even the enactment of the fantasy would not be enough to make such enactments “real,” and there needs to be an audience, whose distress may serve as a “consensual” affirmation to the reality of the cleansing act.

One of the earliest attempts to understand political violence through the lens of Psychoanalytic Theory is exemplified in Freud’s book “Civilization and its discontents,” published in 1930. In it, Freud generalizes the internal neurotic conflict between the individual drive for egotistic pleasure and the need to be realistic or moral to the constant tension between the wishes of the people and the law, order and morality required of them by the society they inhabit. Thus, society is structured in parallel to the individual’s psyche, and people’s wish for personal gains has to be tempered with society’s longer term and general goals and values – hence the constant internal conflict of interest within both individuals and societies alleviating this conflict may be achieved displacing the tension outward, as in the case of waging a war. A special case of this generalization is the parallels that Freud draws between family life and dynamics and that of societies. For example, Freud contended that one of the most formative stages in the child’s development takes place around the ages 3–4, when the child starts to realize that, contrary to his wishes, he is not alone with his mother in the world. The crisis that ensues is dubbed the “Oedipus complex,” after the Greek prince who ended up (inadvertently) killing his father and marrying his mother. While the infant is focusing all his gratification efforts toward the mother, and thus attaches (“cathects”) all his libido onto her, his realization that the father exists in the world as a contestant to his mother’s love and attention is too disturbing to

handle. As a result (1) The child is filled with unbearable sense of loss and threat and harbors fantasies of killing the father or having him disappear – the overwhelming emotions, stemmed by real or imaginary traumas are all generated in the “Id,” in its capacity as the gauge of pleasure. In “normal” people, they are never to reach consciousness or owned up to. (2) The child applies internal maneuvers that help him be less aware of the problem, like denial, suppression, and other defense mechanisms that make the father less threatening. Conversely, disavowal of these inappropriate urges can be done by projecting the hatred onto the father himself, thus turning it into anxiety, lest they are castrated (“castration anxiety”) or killed (“annihilation anxiety”) by the father. The projection can be also displaced to another man in order to protect the father – these complex mental operations are largely formed in the “ego” part of the psyche. While the motivation for their existence is hidden to the person, psychoanalytic theories contend that it still affects their manifest feelings and actions. (3) Finally, the child fends off and mitigates the inappropriate (unconscious) sentiments toward the father by inventing personal rituals like obsessive thoughts or compulsive behaviors (largely with the help of the “super-ego”) or identifying the father as a desired role model and in the name of that identification curbing the anxiety that the inappropriate thoughts toward him will be enacted (largely with the help of the “ego ideal” part of the psyche).

Generalizing this complex psychic structure to the psychodynamics of groups, Freud posited that our need to avoid the pain and frustration associated with this world has morphed into an all-encompassing (“oceanic”) wish for unity with God, as a parallel to the wish for enmeshment with the mother (a point he first elaborated 3 years earlier, with the publication of “The future of an illusion”). Upon realization that other people are claiming the attention and love of the same object of love we once thought was entirely our own, societies engage in real or imaginary efforts to eliminate the contenders, and to ascertain their primacy. Thus, Freud conceptualizes religious wars as the generalization of the sibling rivalry and their associated fratricide fantasies or the Oedipal rivalry with the father and its associated parricide fantasies. In contrast to classical psychoanalysis and its emphasis on mitigating and harnessing libidinal energy through

defenses, modern psychoanalysis largely considers the attachment style that ensues between the child and their caretaker as a crucial building block of human psychology. The pattern of emotional interdependence that the child experiences early in their life is postulated to become engrained in the person's unconscious and thus serve as a template to all future relationships, real or imaginary. This emphasis on this "Object Relations" framework started in Freud's last years in London, but has received increasing support by both clinical practitioners and researchers.

Current psychoanalytic accounts of terrorism and political violence have drawn attention to the similarity between the narrative of terrorist organizations and that of the post-traumatically violent patients (e.g., Akhtar 1999). In both scenarios, traumas of the past are overrepresented and rehearsed in the emotional repertoire of the victim, and the unyielding internal terror associated with it must be alleviated by either terrorizing or attempting to eliminate an "other," which is associated with the primal aggressor be it in reality or in fantasy. Psychoanalysis also predicts that anxiety and distress that cannot be tolerated consciously would result in unconscious fantasies to destroy or distort the hurtful reality in order to return to the "oceanic bliss" that was felt when the person was pure, and unite with the primordial source of being (Volkan 2001). In contemporary psychoanalytic thought, this might constitute the leading unconscious motivation of terrorist organizations that are galvanized around religious fundamentalist worldview (Volkan 2002), or those with strong fanaticism around ideas of imminent apocalypse (e.g., Lifton 1999). Among politically violent organizations that espouse religious fundamentalism or apocalyptic fanaticism, as in the guilt-ridden neurotic, the unconscious anticipation, fear but also the wish to be punished, expiated, or annihilated is being projected into the wish for the world itself to be destroyed, and to be the chosen moral agents to usher this destruction – functioning as society's "super-ego." Psychoanalytic Theory, which seems to have dropped in popularity among contemporary psychological science nowadays. Is nonetheless one of the very few models that offer an explanation to the symbolic nature of the retaliation encapsulated in the terrorism acts. The punitive and sanctimonious sense of morality found among leaders and ideologues

of ethnic- or anti-colonial terrorist groups resemble the narcissists and their arsenal of attempts to undo a humiliatingly traumatic event in their formative past.

Psychoanalytic Theory is also helpful in understanding our need to denounce (as victims) and disavow (as perpetrators) terrorism acts and split them from any experience we may have been through. This need for splitting dichotomously the good "we" from the bad "them" patently resists the realistic acknowledgment of both the humanity of the terrorist and the fact that when similar deeds were done on our behalf we may have called the perpetrator a hero and lauded those deeds as heroic and auspicious. For the pathologically narcissistic, this presents as the psychopathic inability to perceive the self as on a par with others. For nations with such psychic organization, this manifests itself as the expectation to be treated preferentially, based on the sanctity supposedly conferred to them by their traumatic past. This sanctity, in turn, is expected to protect them against, say, international criminal courts for crimes against humanity. Psychoanalytic Theory also draws parallel between the narcissistic all-consuming rage that follows challenges made to this superiority, and to their communal equivalent in the form of genocidal proclivities, the dehumanization of any opponents, and their unrealistic association with the erstwhile perpetrator of the original trauma. By attributing a fundamentally psychopathic mode of feeling and thinking at the basis of human beings, Psychoanalytic Theory may circumvent, at times, the dehumanization of the perpetrator. In this context, it is worthwhile to mention that group psychoanalysis is one of very few theories to contend that a group of "normal" (albeit neurotic) people can perpetrate atrocities by projecting their unconscious (and at times disavowed) wishes onto the group, and expecting the group to fulfill these wishes. This can be seen in terrorist groups that serve a large number of constituents, most of whom denounce acts of terrorism, while at the same time admitting to fantasized counter-terrorism measures that are not dissimilar to the terrorists' acts. Psychoanalytic formulations of political violence contend that people who commit terrorist acts, and especially their ideologues, may be convinced in such cases that they are acting on behalf of this large body of silent constituents, whether or not these constituents explicitly demand or condone such acts.

Post-Freudian Psychoanalytic Theories of Group Violence

This last example could harbor an even more nuanced explanatory power when we consider a recent development in Psychoanalytic Theory: the notion of the “group as a whole” (Bion 1961). According to this development, a whole group (in our example: silent constituents and violent terrorists who share a real or imagined society) may act as a human being whose motivation and wishes are split off his consciousness but who, nevertheless, commits nonnormative acts (in our example: violent and terror-inducing acts), while being motivated by unconscious aggressive drives. Under such circumstances, a whole society (just like any group in group therapy), may induce certain predisposed individuals to act out the anger of the group, while consciously disavowing the anger underlying their actions and justify them sanctimoniously. Conversely, grandiose wishes may be unconsciously communicated to a predisposed tyrant, and create a matrix of forces that will make him or her rise through the ranks and assume this grandiose position, while the constituents may, again, sanctimoniously disapprove of their leader, as far as their conscious emotion is concerned. The unconscious mechanism by which individuals (or a group-as-a-whole of individuals) induce their disavowed mental states or fantasies onto another person is dubbed “projective identification” by the “Object Relations” school of psychoanalysis. According to this theory, the unconscious is defending against socially undesirable fantasies that arise within it by splitting them off and projecting them on others, with whom an intense relationship is still maintained. This ensures that the group’s consciousness can be defended against owning up to those undesirable wishes, while unconsciously still getting satisfaction from them by virtue of an identification with the person to whom they were projected. The borderline personality organization, marked by its constant need for conflict as a way to maintain emotional integration, is the quintessential personality organization to (over)utilize this defense mechanism. Research on Borderline Personality Disorder – thought to be the manifest personality type that belies a Borderline Personality Organization – is consistent with this formulation. Thus, for example, the two personality disorders most correlated with Borderline Personality

Disorder symptoms are the Paranoid and the Dependent Personality Disorders (Kernberg 2003).

Modern Psychoanalysis and Attachment Theories of Sanctioned Violence and Terrorism

Of the theories that descended from modern psychoanalysis, the most widely accepted framework is that of the “Attachment Theory,” originally conceived by John Bowlby – a contemporary of Ana Freud and other classical psychoanalysts, but also an archenemy to psychoanalysis in their eyes. In its current formulation, though, Attachment Theory is widely considered the most integrative, most compatible with cognitive and evolutionary psychological approaches, and most empirically supported of all theories that may be considered as descending from modern psychoanalytic thought. According to this theory, the earliest emotional patterns of the newborn in relating to their caregivers serve as templates for their relationship with most other objects throughout their lives. Objects could be persons, but also abstract identification frames, such as one’s job or one’s country. Empirical research has established 3–4 such stable patterns. The most emotionally balanced of all patterns is the secured attachment, whereby the person is confident in their explorations – physically and mentally alike – and seek their “safe base” (whether a person or a location or an object) only at times of danger or after trauma. The most relevant to violence in general, political violence in particular, and *inter alia* bears relevance to terrorism is the insecure attachment, also dubbed “disorganized” or “ambivalent.”

Empirical Support for Modern Psychoanalytic Theories of Terrorism and Political Violence

Generally, empirical research is in support of a generalized pattern of violence or of susceptibility to violent sentiments. Overall, empirical research is also in support of the hypothesis that intractable violent conflict leads to a heightened susceptibility among a fraction of the survivors for engaging in organized violence against random (and potentially noncombatant) representatives of the enemy (e.g., Cohen 2011a). The enemy in that case can be the actual enemy (like old ex-Nazi officers), an imaginary enemy (like old

Germans who might be suspects for belonging to the Nazi party), or a generalized enemy by association (like any person of German ancestry). Of the body of evidence for this process, research on the transgenerational transmission of the World War II trauma and especially the genocide of Jews is the most substantial. According to this line of reasoning, a violent political conflict disrupts the ability of its victims to adequately mourn the loss of their honor and identity. This, in turn, is postulated to promote an unconscious urgency to bear children as a manifestation of their anger and rebellion, but renders them suboptimal in tolerating their children's distress. The child's distress is perceived as a trigger to resurgence of the repressed traumatic feelings of helplessness and the unbearable pain associated with identification with loved ones who are being killed or tortured, and the parents react with emotional constriction, dissociation, and neglect, while sometimes compensating (or overcompensating) for it by becoming physically over-doting, intrusive, and overbearing (e.g., Finkelkraut 1994, pp. 104–108). Having their distress disavowed and sensing its intolerability, the infants then eschew from recognizing their own pain and, by extension, their own individualized or differentiated set of emotions. Instead, they identify with the emotional states of the caregiver and develop an enmeshed emotional relationship characterized by obsessive anxiety lest they hurt their parents. This obsessive anxiety is then manifested as overly rigid and compulsively controlling personal characteristics, accompanied by a splitting defense mechanism by which the world is divided to polarized extremes (e.g., winners and losers, all-good or all-bad, etc.), and the destructive quality of the innermost self must be controlled perfectly lest it would kill anybody with whom the child wants to have a loving relationship – a common combination of personality characteristics often referred to in the literature as “second generation survivor syndrome” (Fonagy 2002). This approach may explain the burgeoning of terrorism cells in areas mired with intractable political conflicts and trauma, and why many terrorists are capable of deeply caring for each other and at the same time practice cruel, unyielding, and hateful acts against random representatives of the culture which, for them, represent the enemy. It also may explain the quasi-militarism,

perfectionism, and rituals that are common in most politically motivated violent groups, from guerillas to undergrounds to suicide terrorism cells.

Behaviorist Theories of Violence and Terrorism: Classical Conditioning and Frustration-Aggression Theories

Historically, at least in the USA, psychoanalysis has reached its peak influence both as a theoretical framework and as a practical template for psychotherapeutic interventions in the mid-1950s, and by the 1970s was rivaled by behaviorism and/or cognitive theories of the mind. This is not to say, though, that behaviorism is necessarily a younger field than psychoanalysis. By 1904, Ivan Pavlov, a Russian scientist, has formulated a theory of human personality and behavior based on conditioning and learning that was by then largely supported empirically. This theory suggested an essential role for conditioning and associative learning in governing behavior and personality characteristics. Freud's first structural model of the mind was published only a year later, as the seminal “Three Essays on the Theory of Sexuality.” Similarly, Behaviorist theories postulating behavioral conditioning as underpinning violence and/or social interactions (the two main components of political violence in the behaviorists' viewpoint) were already almost fully articulated in the early 1900. Ivan Pavlov is perhaps best known for demonstrating that copresentation of a naturally motivating stimulus together with a neutral stimulus will cause dogs to react with the natural response to the neutral stimulus. For example, salivation – which is a natural response to presentation of food to a dog – would occur in response to a bell ring if this novel stimulus would consistently be presented to the dog along with food. However, Pavlov also studied the conditions under which dogs would get aggressive during his experimental paradigm. This seemed to have occurred under two related conditions: in the first condition, dubbed “frustrative non-reward,” trained dogs were hungry and expected food, but no presentation of food followed the bell ring. In the second condition, two mutually exclusive responses were equally suboptimal (e.g., bell ring was equally associated with both avoiding an electrocuted plate and eating from it with no ability to distinguish whether the plate is safe or not). Pavlov viewed the aggression potential of the

dogs as a combination of their innate ability to control themselves that makes up their basic character (later called “temperament”), and the empirical level of frustration that was induced in them (e.g., the hungrier the dog the higher the frustration of not being able to assess the safety of the food plate).

Pavlov’s theory of dogs’ temperament and aggression has later resurfaced as one of the most influential psychological accounts of aggression, and political aggression inter alia, when introduced by John Dollard and Neil Miller (among other scholars, mainly from Yale University) in 1939 as the “Frustration-Aggression” Theory (Dollard et al. 1939). Applied to social and political entities, this theory predicts that, for example, if hard work is widely associated with success but talented and hard working individuals that belong to a prejudiced minority encounter a “glass ceiling” that is not acknowledged, their frustration may turn to violence against the hypocritical system (e.g., Staub 1996; Holdredge 2007). A more recent incarnation of this hypothesis can be found in “Relative Deprivation Theory” of Ted Gurr (1970), which came to the fore in the early 1970s and highlighted frustration that stems from individuals not being able to obtain what they have been conditioned to expect by social norms (as compared to others in their society) as a major form of frustration that usually galvanize people toward political violence, rebellion, and acts of terrorism inter alia (Gurr 1970). It should be noted, however, that research found more evidence for aggressive frustration following humiliation, distress, and hopelessness than perceived deprivation or poverty per se (e.g., Stern 2003; Sageman 2004; Bloom 2005; Atran 2006; Awan 2008). It should be noted in this context that poverty per se has mostly been shown to be unrelated to the motivation to commit acts of terrorism (e.g., Krueger and Maleckova 2003; Abadie 2005; Merari 2007).

Thus, by the late 1930s, Pavlov’s theory was split between US scholars, with the conditioning-based frustration endorsed as the main cause of political aggression among social psychologists (e.g., Dollard, Doob, Miller, etc.), while temperament and character as the main causes of political aggression were highlighted by post-Freudian psychoanalysts like Alfred Adler, Erich Fromm, and Karen Horney, among others. According to the latter group, generally speaking, the frustration one may feel toward the political system, including any

aggression they may exert against it, was a product of a particular type of neurotic overreaction.

Behaviorist Theories of Violence and Terrorism: Operant Conditioning and the Behavioral Analysis of Politically Violent Acts

Another major development in Behaviorist theories of aggression was introduced in the late 1930s, with B.F. Skinner demonstrating that not only natural responses could be associated with novel stimulus, but also any action (dubbed “operant”) that, on average, consistently improves the situation of an animal will be repeated. This principle, known as the “law of effect” was posited some 30 years prior to its empirical substantiation by Skinner (Thorndike 1911). The theory helped explain complex behaviors that could not be reduced to a chain of natural responses – and therefore could not be explained by Pavlovian “classical conditioning.” It was therefore named “operant conditioning” (Skinner 1938). Skinner himself was the first to apply his theory to social forms of violence and governance. According to Skinnerian principles, individuals engage in violence if this violence brings about either some gain (called “positive reinforcement”) or a relief from oppression (called “negative reinforcement”). Applied to terrorism research, behaviorists have linked the rapidly increasing use of suicide bombing in the Middle East to the astonishing effectiveness of the use of this technique by the Islamic Jihad (most likely the Hizbollah – e.g., Shay 2004) in bombarding the barracks of the USA and France on October 23, 1983 – in the deadliest single attack on Americans overseas since World War II (and on the French since the Algerian war). A few years after the bombing, and despite public announcements by the presidents of both the USA and France that explicitly denied any intent for doing so, both the USA and France have withdrawn their forces almost completely. However, Skinnerian behaviorism affords another complementary explanation. Skinner’s studies have also demonstrated that, although undesired behavior is not likely to recur if it is met by punishment, it is most effectively eradicated by reinforcing an alternative, desirable, behavior rather than punishing the undesired one. Punishment, claimed Skinner, is not effective in that it requires a constant vigilance of the authorities, and any lapse

in punishment or retaliation gradually brings about an attempt for recidivism of the undesired behavior (Skinner 1948, 1971). Accordingly, popular opinion in the USA has blamed the steep increase in suicide bombings in the Middle East (and the growing popularity of the global jihad movement, leading to the events of September 11, 2001) to the relative lack of retaliation operations by the USA for the concerted bombings of American targets during the brief period of 1983–1984 (McFarlane 2008).

Despite the wide popularity of behaviorism in the USA and, to a lesser but substantial degree, in large parts of the world, it failed to provide adequate account for several key human sentiments, most notably the apparent dependence of our actions on our conscious motivations and feelings (e.g., Ellis 1955; Beck et al. 1979), our ability to absorb and utilize grammatical structures (Chomsky 1959), and our ability to learn by other people's experience (e.g., Bandura et al. 1961). Skinner contended that thought processes, or cognitions, are only constructed after we perform the behavior we were conditioned to perform, and serve as an ad hoc rationalization, but not as an internal motivating force that drives us to action. In the height of the disenchantment with his theory for its counterintuitive determinism, the *Time Magazine* wrote on its cover: "B.F. Skinner says: We can't afford freedom" – referring to free will, which behaviorists regarded as unnecessary to explain behavior on empirical grounds (*Time Magazine*, September 20, 1971).

The Disillusionment with Radical Behaviorism and the Rise of Cognitive Psychological Theories of Political Violence: The Ideological Roots of Terrorism

Although harbingers of theories that regarded thoughts and cognitions as the root cause of behavior can be traced back to the late 1930s, in Dollard and Miller's "Frustration-Aggression" Theories mentioned above, it was not until after World War II that cognitive psychology has become a viable contender to the hegemony of Skinnerian behaviorism, at least in the USA (although recent scientometric studies cast doubt on this alleged hegemony, see Virués-Ortega 2006). Today, many historians of psychology view the belatedly acknowledged criticism of US behaviorist hegemony delivered by Sir

Frederic Bartlett (UK), Lev Vygotsky (USSR), and Jean Piaget (Switzerland) as heralding the "cognitive revolution" in the USA, which is most symbolically inaugurated by Noam Chomsky's critique of Skinner's book "Verbal Behavior," arguing that language is too complex and generative to be acquired using operant conditioning alone. The ability of children to construct novel sentences they have not heard before, relying solely on limited exposure or conditioned sense of grammatical correctness defies the principles of operant conditioning (Chomsky 1959). Similarly, Bartlett's claims that our expectations do not stem solely from direct experience but rather from our memory of our past experience – a memory that is prone to inaccuracies because it is reconstructed anew whenever we call upon that memory – also contradicted Skinnerian tenets that personal experience is the only route to conditioning, rather than the memory of what this experience was. Bartlett's work postulated that our memories are constructed from familiar "building blocks" (called "schemas"), representing a distillation of the commonalities within our experience. For example, the sum total of our experience with dogs throughout our life is encapsulated in our "dog schema" (Bartlett 1932). Thus, theoretically at least, if one reads enough stories of dogs being unexpectedly violent and has little personal exposure to actual dogs to counter that impression, they may be inclined to shoot any dog on sight solely due to their expectations of being harmed by it. Contrary to the radical behaviorist formulations of aggression, the fear-based behavioral response in this case did not emerge from any previous experience of preventing personal harm by shooting any approaching dog.

Radical behaviorism is particularly problematic to the study of terrorism and political violence, since its strict emphasis on behavior and disregard for cognition obviate ideology and propaganda as root causes for terrorism acts. The extent to which ideology, communal victimization, and blame-attribution trigger and facilitate politically motivated violence is still a matter of debate. However, extant terrorism research literature rarely does away entirely with the idea that ideology has a facilitating effect on the galvanization and radicalization process leading to political violence or terrorism. Acts of terrorism are usually supported by systems of thought where good and evil are absolute, where

a group deems itself to be squarely on the side of justice, truth, and morality, while the opposing group is debased, dehumanized, and full of evil. Understanding the persuasive appeal and mobilization potential of this set of cognitions seems crucial to understanding terrorist ideology and effectively countering it (Baumeister 1997; Laqueur 1998; Kernberg 2003; McCormick 2003).

Early Cognitive Psychological Theories of Social Violence: Cognitive Dissonance Theories of Terrorism and Political Violence

Interest in the formation and modification of cognitive constructs has burgeoned in the late 1950s and the 1960s. For the study of violence, and in particular political violence, the most important of that era's cognitive studies seem to include Leon Festinger's "cognitive dissonance" and Jones and Harris' (1967) "Fundamental Attribution Error" studies. Although for the study of politics and violence both constructs are used mostly in social circumstances, they are inherently intrapersonal rather than interpersonal, and therefore could be viewed as part of the quest for understanding individual cognitions. Leon Festinger's initial observations concerned the paradoxical tendency of cult members to increase their efforts to recruit new members and proselytize their creed after prophecies made by their leaders have patently failed (Festinger and Riecken 1956). Later studies have shown that when external circumstances are discrepant with the internal evaluation of these circumstances, individuals would change their internal evaluation to fit external reality. Similarly, when circumstances bring individuals to behave in a manner that is at odds with their internal attitude, they will likely change their attitude to fit their overt behavior. The fact that the process may (and often does) take place outside the person's awareness makes this phenomenon indissoluble as mere rationalization, which was until the 1950s the main explanation for the phenomenon, following Anna Freud (1937). The explanation given by Festinger was that any discrepancy between external reality and the cognitive representation thereof creates a "dissonance" (hence the name "cognitive dissonance"), which induces discomfort in the person's mind and behooves it to change in a manner that will optimally reduce it. Since

changing external reality is not possible, the simplest way would be to change the internal cognitions while keeping this change process outside one's awareness (Festinger 1957; Festinger and Carlsmith 1959). While the phenomenon of cognitive dissonance has been thoroughly replicated, Festinger's explanation was challenged numerous times, and the mechanism underlying the phenomenon is still a matter of debate (e.g., Bem 1967; Harmon-Jones et al. 2011).

Despite being an inherently intrapsychic cognitive bias, cognitive dissonance has proven quite useful to the study of organized violence, mainly because of the strong effect of consensual and sanctioned systems in reducing the dissonance between perceived reality and individual attitudes and self-perceptions. According to this view, most ideological justifications for violence aim at reducing the dissonance between the violence sanctioned by the group and the largely nonviolent nature of the new recruits, in the name of their perceived common aim (Crenshaw 1986; Juergensmeyer 2000). For example, several contemporary theories of the processes underlying the growing ideological radicalization and aggression of recruits in violent organizations use the "foot in door" explanation of cognitive dissonance, whereby leading individuals to commit increasingly violent acts – albeit sporadically (e.g., in the spur of the moment, as part of a larger group, following a seditious speech by a charismatic leader, etc.) – compels their internal ideological leanings to radicalize along with their actions (McAdam 1986; McCauley and Segal 1989; Moghaddam 2007). The various rhetorical excuses and practices that invariably lead to "moral disengagement" (Bandura 1999) can also be seen as devices to reduce the dissonance between the internal attitude toward violence and the sanctioned tactical aims of the terrorist group – be it on national or subnational level (Maikovich 2005).

Early Cognitive Psychological Theories of Social Violence: Fundamental Attribution Error and Other Cognitive Biases Underlying Terrorism and Political Violence

Discovered in the late 1960s, the Fundamental Attribution Error (Jones and Harris 1967) is another cognitive distortion whereby one's thoughts are at odds with consensual reality in a predictable manner.

The tendency of individuals to view their failures as circumstantial while attributing other people's failures to basic flaws in their disposition was instrumental in reconciling both the importance and fallibility of human cognitions. Terrorist propaganda usually frames the violent actions and intents of its group members as a natural reaction to aggression, as fighting a "war of no alternative" (e.g., Morris 1999; Hotta 2007), and as resulting in atrocities only inadvertently (e.g., "collateral damage"), whereas the opponent group is made of inherently evil, vindictive soreheads (Juergensmeyer 2000; Bush 2001).

Contemporary views of human cognition have largely been consolidated by the late 1960s as an integration of the three main conclusions of the "cognitive revolution," namely: (1) cognitions are crucial to our mental life, and largely control our attitudes, emotions, and goal-directed behavior; (2) cognitions may or may not be conscious and volitional, and our ability to introspect and control them is limited and difficult; and (3) cognitions are prone to systematic errors and biases in the service of self-preservation.

By the early 1970s, the list of cognitive biases and errors has become rather extensive, and more attention was paid to the role of the error-prone cognition in emotions (including hate, anger, and fear) and emotional acts (including violence and terrorism). In tandem, cognitive therapies were then construed under the premise that changing faulty cognitions and attributions would lead to a more adaptive behavior and emotionality (e.g., Ellis 1955; Beck et al. 1979). The success of these forms of therapy added to the credibility of the growing cognitive psychology sub-discipline. One of the most cited cognitive biases among theories of psychopathology, psychotherapy, and terrorism is "negativity bias," whereby negative events are given disproportional cognitive resources compared to positive or neutral ones. This cognitive bias was observed in the attention, interpretation memory and expectation with which individuals process both autobiographical or reported events (Cohen 2011b). The bias is stronger when the person or the group is depressed or stressed – which may explain the allure of hate messages among disillusioned or disenfranchised groups or nations, and their higher likelihood to exercise prejudice-based judgment and be galvanized to act violently on these sentiments (Weary and Edwards 1994; Beck 2002;

McCauley and Bock 2004; Breckenridge and Zimbardo 2007; Kim 2010).

Contemporary Cognitive Bias Theories of Political Decision Making and Political Violence; Prospect (or Polyheuristic) Theory

A recent addition to the body of knowledge regarding cognitive distortions, biases, and errors is "Prospect Theory," developed by Daniel Kahneman and Amos Tversky in the late 1970s (Kahneman and Tversky 1979). The theory provides a unified framework for understanding the mental shortcuts that people may be unwittingly utilizing in making decisions under uncertainty conditions, and its well-rounded usefulness has won Daniel Kahneman the Nobel Prize in economics in 2002. Two of the most important concepts that Prospect Theories contributed to the psychology of political decision making are the principle of loss aversion and the elucidation of framing effects on evaluations and attitudes. These concepts have been used in the study of propaganda and radicalization. Loss Aversion is the preference to avoid losses over acquiring gains. To paraphrase tennis star Jimmy Connors – people hate to lose more than they like to win (quoted in Levy 1996, p. 181). Because this preference may underlie the tendency to overestimate projected regret after loss than joy after gain (e.g., Kermer et al. 2006), it is particularly salient when the individual or the community is depressed or under stress. A particular case of "loss aversion" is the endowment effect, whereby people value what they have (or, conversely, have hard time letting go of something they have) more than what they do not have. Colloquially, this sentiment is sometimes known as the "Garage-Sale Dilemma." Uses of the loss aversion phenomenon are widespread in persuasion studies, from marketing to propaganda. Thus, the mobilization potential of campaigns that promise a gain of \$5 is, on average, inferior to those which mobilize the individual to act toward not losing \$5. Combining elements from both negativity bias and cognitive dissonance, many public messages nowadays use the loss aversion phenomenon by capitalizing on the persuasive appeal of anxiety: from political fear tactics to epidemiological hygiene campaigns to marketing of hand sanitizers and deodorants (i.e., capitalizing on avoiding body odor vs. smelling

good). Seditious calls for violence have similarly emphasized loss aversion: calls for fights in the name of protecting “freedom,” justifying sending more people to losing battles so the blood of the fallen has not been spilled in vain (e.g., Elster 1993, p. 10; Bauer and Rotte 1997), and exaggerating the consequences of a defeat are all age-old tactics that help persuade people to commit indiscriminant violent acts against noncombatants (Levy 1996; Breckenridge and Zimbardo 2007; Arceneaux 2009; Hollander 2010).

As a comprehensive theory of the irrationality of decision making, Prospect Theory predicts some of the dependencies between attitudes or decisions and the order or the context in which the data leading to those attitudes or decisions are presented. This dependency is dubbed “framing effect.” In an increasingly democratizing world, where political decisions are based on a majority opinion, framing of the problem at hand may make all the difference (e.g., Turner 2007). Prospect Theory predicts that, for example, tax deductions for families with children would be preferable by the public to tax increase for the childless – although the economic implications are identical (Schelling 1984, p. 19). Similarly, framing the same 1% GDP growth in the USA as the lowest in US history (Bill Clinton) or as better than the world average (George Bush) could spell major differences in voters’ decisions. In terrorism research, it has been noted that framing the drop of two atomic bombs on Japan by the USA is considered terrorism by most definitions of the concept – except in the USA itself, where it is framed as the only way at the time to stop the war and avoid a much higher number of casualties. Similarly, framing terrorism as a crime implies that counterterrorism efforts are efforts toward a restorative justice, whereas waging “a war on terror” encourages a mindset of “à la guerre comme à la guerre” (all is fair in war), and has been postulated to relax decision makers’ morality stopgates to allow unbridled measures (e.g., torture, unprovoked invasions of sovereign countries, among other terrorism means of warfare), since the “justice” frame was effectively neutralized (Lakoff 2004; Kruglanski et al. 2007; Zhang 2007). Less research on framing effects exists vis-à-vis subnational terrorism groups, perhaps because their reliance on democratic majority decision making is rarer, and the decision-making process itself is less transparent, only its aftermath (but see Juergensmeyer 2000).

Framing and Loss Aversion represent two mental shortcuts (known as ‘heuristics’) that may mostly be effective but overreliance of them can lead to deeply irrational conclusions and decisions. Several viable heuristics for the situation at hand may at times contradict each other (e.g., placing a bet based on the probability of winning or the amount of the payoff). Recognizing that multiple heuristics may be at work simultaneously at any given decision, psychological studies sometimes utilize ‘Prospect Theory’ under the name ‘Polyheuristic Theory.’

Sacred Values Research and Contemporary Cognitive Theories of Irrational Decision-Making Mechanisms of Communal Violence and Its Ideology

Among the more recent popular frameworks for the systematization of the various cognitive biases, and especially those concerning religious fundamentalism, fanaticism, and faith-based terrorism, one may find along with Prospect (or Polyheuristic) Theory the “sacred values” set of studies. This body of studies seems to have been “imported” to psychology from behavioral economics research concerning “taboo” exceptions to the general economic rule where which trade-offs are the essence of personal and societal growth. Economists in the 1980s were perplexed by the possibility of a constitutive incommensurability of two values, or the individual or communal belief (see Durkheim 1925/1973) that bringing a certain value to the negotiation table undermines, obviates, or even mocks that value (e.g., Raz 1986; Kahneman 2003; Tetlock 2003). Thus, expecting the person or the community to negotiate this value (or the practices that symbolizes it, as is the case in key religious rituals) induces moral outrage, rather than being viewed as an auspicious readiness for a rational negotiative dialog in the service of the greater good. This frame of reference helped to put into perspective the “irrationality,” “fanaticism,” and “madness” associated with terrorism (Atran 2007; Atran and Axelrod 2008; Alderdice 2009; Ginges et al. 2007; Ginges and Atran 2009). For example, following the Jewish revolt against the Roman emperor Hadrian whose reign was exceptionally peaceful and tolerant otherwise, Jews largely preferred to defy the emperor’s prohibition on the circumcision of

newborns, on pains of death – much to the astonishment of the Romans, who considered it an hubric act of suicidal madness (Josephus, chap. 3, p. 115; Pucci Ben Zeev 2005; Baskin and Seeskin 2010). Similarly, both Rabbinical and Roman sources (against many modern scholars) attribute the very inception of the revolt to the absolute refusal of the Jews to allow a statue of the emperor in Jerusalem, as was the custom in all other notable cities throughout the Roman empire (Pucci Ben-Zeev 2005, p. 267).

In contemporary psychological studies, both Rational Choice Theories and theories that posit an inherently biased and irrational cognition in moral or ideological decision making are both being used successfully in terrorism research. Several contemporary lines of research aim at “mapping” the bounds of rational thinking and understand the conditions in which humans may think and make decisions deemed irrational. Current research also seeks interventions that may aid cognitions become minimally biased. Such interventions are purported to serve as useful tools for counter-propaganda, counter-terrorism, and using justice as the solution for terrorism (Atran et al. 2007; Alderdice 2009; Tenbrunsel et al. 2009).

Rational Choice Theories of Terrorism and Socially-Sanctioned Violence

As history of psychological ideas would frequently have it, along with the increasing realization of the irrationality of decision making and the fallibility of human cognition, another line of research has developed, which in contrast highlighted the rationality of the decision-making process. This group of theories is known collectively as “Rational Choice Theory,” and claims that people are mostly rational beings that always consider the “expected utility” of their actions and attempt to prefer decisions that maximize their gain and/or minimize their efforts (von Neumann and Morgenstern 1947). Soon after elucidating the development of the cognitive capacities that comprise rational evaluations of the environment (e.g., Piaget and Inhelder 1951), the cognitive capacities underlying rationalized moral attitude have become an intense area of research in cognitive psychology – arguably second only to intelligence testing (e.g., Kohlberg 1969; for a current account of this line of research see Turiel 1983).

In the psychological conceptualization of terrorism and political violence, Rational Choice theories have proven useful (e.g., Caplan 2006). This holds true even in cases where the actors are not rational in the consensual (western) sense, such as in the case of suicide terrorism. For example, rational choice theorists, using both real-life data and simulations taken from Game Theory, drew the world’s attention to the superior cost-effectiveness of suicide terrorism (e.g., Sprinzak 2000; Hoffman 2003; Pape 2005; Morgenstern and Frank 2009, p. 14). Several leaders of terror organizations have explicitly endorsed this line of reasoning. Specifically, leaders of terrorist organization reason that the cost-effectiveness of suicide terrorism is superior, considering the greater good. According to these accounts, one suicide bomber is the most sophisticated bomb imaginable, with much higher casualties than other “blind” explosives. Additionally, the resources involved in acquiring the explosives and for training are minimal, and there is no need for planning a retreat plan and risk additional fighters (e.g., Dr. Ramadan Shallah, quoted in Sprinzak 2000; Hassan 2001; Rantisi 2002; Mahmud Al-Zahar, quoted in Pape 2003). Jihadi Terrorism researchers (especially in the US) also add to these consideration the rewards promised to martyrs in Islam and the remuneration, social support, and honor that is usually bestowed of martyr’s family as additional factors that add to the perceived rationality of their decision to become suicide bombers.

Early Integrative Social-Cognitive Psychological Studies of the Factors Underlying Social Violence

As is often the case with the psychological research of individual differences, the interest in the cognitive basis of emotions and actions turned quickly into the study of the cognitive basis of social relations. Several formative studies have documented how our cognitions (and the actions they bring about) are shaped by social motivation. One of the earliest harbingers of this realization was Solomon Asch and his studies in tacit social pressure, back in the 1950s. A Gestalt psychologist, Asch showed that individuals would change their judgment concerning the length of a line to conform to the majority opinion, even if this opinion was egregiously discrepant from reality and was manufactured by planting “subjects” who were confederates of the

experimenter (Asch 1956). One of Asch's students, Stanley Milgram, further expanded the view that our actions and cognitions are socially motivated, although they do not always cohere and we may not always be able to reflect consciously how our cognitions follow our action and vice versa.

In a series of experiments conducted at Yale University in the early 1960s, Milgram has demonstrated that individuals from all walks of life who were led to believe that they partake in a scientific experiment of learning, delivered dangerous levels of electric shocks in response to wrong answers given by the designated "trainee." This "trainee" who received the shocks was a confederate actor who reacted with loud cries that were proportional to the level of shock they allegedly received. Despite knowledge of the harmful and potentially fatal nature of their actions, about 65% of the subjects delivered near-fatal or fatal levels of shock when ordered to do so by the experimenter (Milgram 1974).

The almost counterintuitive tendency of individuals to commit violent acts when their leader or their reference group (e.g., friends, peers, tribe members, etc.) commands it was most jarringly demonstrated by the (in)famous "Stanford prison experiment," conducted by Philip Zimbardo in the summer of 1971. A group of 24 students out of a total of 75 participants was randomly selected to assume the role of "prisoners" in a makeshift prison built for that purpose. The group of "wardens" have rapidly developed an increasingly cohesive practice of torturing the "prisoners" above and beyond the limits delineated in the protocol. After mere 24 hours some of the prisoners rioted. The riot could not be effectively contained and in the following days several "prisoners" became quasi-psychotic and screamed uncontrollably, while others have shown other signs of severe distress. Among the "wardens," post facto analysis determined that about a third exhibited signs of genuine sadism. The experiment, which was planned to last for 14 days, had to be terminated after about a week, with Zimbardo himself, in his capacity of "prison superintendent," internalizing his role to the point where he became complicit with the violence and developed authoritarian personality traits such as grandiose callousness and sanctimonious hostility toward his "prisoners."

Apart from corroborating Milgram's findings regarding the blind obedience and diminished capacities

for self-observation, self-control, and empathy in individuals while performing a "sanctioned" task, the prison experiment also shed light on some of the parameters that facilitate institutional violence. Firstly, the shabby clothes of the "prisoners" helped in their dehumanization and maltreatment. Secondly, the uniformity in the "wardens'" appearance has both contributed to their sense of group cohesion and solidarity against the "prisoners" and the diffusion of personal responsibility and accountability, which relieved them from individual scruples. Thirdly (and relatedly), the level of "wardens'" anonymity (e.g., by wearing mirror glasses, by having numbered tags instead of name tags, etc.) was correlated with their level of sadistic aggression.

Taken together, Asch, Milgram, and Zimbardo's experiments have demonstrated that cognitions and actions are heavily influenced by social or peer pressure – be this pressure implicit or explicit. Concomitantly, individuals under strong enough social or peer pressure may become uncharacteristically complicitous, unreflective, and irrational. Terrorism research has used these insights to explain phenomena like brainwashing in cult-like terrorism cells, state-sponsored terrorism, recruitment for terrorism, and torture-bound grievance (e.g., Atran 2003; Dawson 2009; Kruglanski and Fishman 2009). For example, remarkable similarity exists in the practice of recruitment, indoctrination, and the framing of violence against noncombatant civilians among several contemporary terrorism cells. These include Al-Qaeda, Aum Shinrikyo, Branch Davidians, Bhagwan Shree Rajneesh group, Jewish Defense League, and Christian Identity Movement, among others. Roy Baumeister, one of the strongest voices in contemporary social psychology, in a review of the root causes of social violence written before the tragic events of September 11, 2001, found that all groups that have committed terrorism (whether state-sponsored or sub-national) have exhibited all four of these components: ideological dichotomy between good and evil, revenge for perceived injustice, aspiration to break through enemy-imposed barriers to success, and sadism (Baumeister 1997). Documentation of the Jewish revolt against the Romans, culminating in the Massada massacre of 73 AD (Josephus 75 AD/1981) largely confirms that the routes to social radicalization and political violence have arguably not changed significantly in the last few millennia.

Social Learning Theory, Violence, and Moral Disengagement in Theories of State-Sponsored and Grassroots Terrorism

The 1960s have witnessed another decisive demonstration that “pure” cognitions, devoid of actual behavior, may still constitute a valid cause for aggressive and violent acts. Albert Bandura’s studies, that later gave rise to the influential “Social Learning Theory,” have shown that when children watch a person who seems to be enjoying themselves and not chided or punished while being aggressive toward a “BoBo Doll,” they expect similar unbridled fun from enacting the violence they have been exposed to (Bandura et al. 1961). In contemporary conceptualizations of terrorism, Social Learning theory plays a significant role. For example, the theory presents several advantages in explicating the reciprocal relationships often found between state-sponsored terrorism and “grassroots” terrorism, as well as the relationship between child abuse or trauma and terrorism in general and martyrdom terrorism in particular (Hudson 1999; DeMause 2002; Janowitz 2006). Child abuse and trauma related to political violence and terrorism are mostly inflicted by the state, with children representing a collateral damage in what is habitually justified as retaliatory or preemptive violence against a civilian population that presents a high risk for terrorism activity and support. However, conscription of children as soldiers, which is a popular practice in guerrilla warfare and terrorism (and particularly so in anticolonial terrorism) also results in exposure of children to violence and the concomitant activation of modeling behavior, which has been documented to result in similar mirroring of the violence, whereby the affected children engage in both homicidal and suicidal terrorism acts (De Silva et al. 2001; Blattman and Annan 2007). Social Learning theory also helps to explain the role of socially sanctioned propaganda in the willingness of group members to engage in political violence. Thus, public praise and worship of perpetrators of politically motivated violence and terrorists as heroes is considered a strong draw for community members to emulate them and join the armed combat in the hope of basking in similar glory – even if posthumously (Post et al. 2003; Post 2005; Abufarha 2009). Albert Bandura, in a balanced review written before the social-psychological

emphasis on Jihadi Terrorism spurred by the tragic events of September 11, 2001, identified four “techniques of moral disengagement” practiced by terrorist organizations. These include: (1) believing themselves to be righteous saviors who are morally justified to use all means to fight “evil”; (2) personal responsibility is either diffused by anonymity and indistinguishability of the individual or displaced to the leader or even to the enemy; (3) minimal exposure to the aftermath of the attack – either by suicide or by using timed explosives, poisoning water upstream, or other measures; and (4) dehumanization and prejudice against the opponent group (Bandura 1999). A recent review based on content-analysis of a large sample of statements made by terrorism groups has expanded this list fourfold, with many of the themes representing variants of the social-psychological processes delineated by both early social psychologists and Social Learning theories combined (Saucier et al. 2009). The overall pattern of social-psychological explanations to politically motivated violence, therefore, puts a large emphasis of the conscious and unconscious advantages of the transmission of ideology as an “action-oriented system of beliefs capable of explaining the world and of justifying decisions, of limiting and identifying alternatives and of creating the most all-embracing and intensive social solidarity possible” – to borrow a now-classic definition from Karl Dietrich Bracher (1984). The mechanisms underlying state-sponsored terrorism (sometime mistaken for “counter-terrorism” by the state) and non-state-terrorism (perpetrated by sub-national violent groups) are therefore postulated to be identical in the eyes of most social psychologists today.

Interestingly, the “moral disengagement” set of theories that originated from Social Learning theory has merged, in contemporary psychopathology, with the literature regarding splitting and dissociative processes. Modern psychopathology has documented how individuals may behave according to different moral codes in different situations while perceiving themselves to be morally consistent. Theories of psychopathology have tied this dissociative phenomenon directly to moral disengagement among individuals who committed acts of terrorism (e.g., Ben-Shahar 2009; Schwab 2010). Since dissociation is tightly related to trauma and psychological distress, it has been hypothesized to constitute the main device through

which leaders of terrorist organizations on both national and sub-national level act as “everyday psychopaths” and facilitate states of dissociation and their concomitant acts of atrocities among their armed forces (Rieber 1997; Hollander 2010). The idea that overt aggression is mediated by the unbridling of internalized morality that occurs under dissociative states was originally introduced to modern psychology by Classical Psychoanalytic theory (see review in Stein 2001).

The Second Wave of the “Cognitive Revolution” and “Social Cognition” Theories of Political Violence and Terrorism

The growing realization among psychologists vis-à-vis the discrepancy between the unconscious and conscious motivation for social behavior facilitated the integration of the 1960s “cognitive revolution” with the rapidly developing field of neuroscience, giving rise to an integrative school of thought, known largely as “social cognition.” Social cognition is arguably the most popular psychological framework in contemporary psychological studies in general and those pertaining to political psychology in particular. With the growing understanding of the manner in which the brain’s decision-making computation is carried out, cognitive scientists have begun to systematically contrast neurological activity with introspective reports from subjects explicating the reasoning behind their decision. This body of knowledge has led to the “Dual-Processing” or “Dual-Attitude” theories of cognition. According to this theory, information is processed on two mostly unrelated levels: the conscious, logical level that requires effortful deliberation and an automatic, fast, and largely unconscious level. Both information-processing routes are working in tandem, with differential and nonlinear impact on the final decision or judgment (e.g., Chaiken and Trope 1999; Wilson et al. 2000).

In political psychology, Social Cognition offered an empirically testable framework for understanding unconscious phenomena that heretofore could only be inferred from studies involving free associations and discrepancies between overt behavior and covert motivation, among other elaborate research designs. For example, the study of prejudice – a major

component in the process of terrorism-borne radicalization – could traditionally only be observed indirectly, rather than using direct questioning, considering the potentially overwhelming motivation of the individual to (consciously or unconsciously) manage their impression and represent themselves in the best possible light. However, experimental paradigms such as the Implicit Association Test (IAT; Greenwald et al. 1998), make the detection of prejudice more straightforward and less inferential. In the race IAT, which taps prejudice against, for example, African-Americans, the participant is shown a series of pictures and words that appear consecutively on the screen. The participant is then instructed to press the same key whether a picture of an African-American person appears or a negative word appears. Similarly, if a picture of a Caucasian person appears, they are to press the same key as whenever a positive word appears. In another, interleaved, block of the same experiment, the keys for an African-American’s picture and positive words are now the same, while the response to a Caucasian’s picture is the same as for a negative word that appears on the screen. The participants are instructed to work as fast as they can, while the pictures or words are flashed for a brief period of time. The difference between the average reaction time for each of the two blocks is a measure of how fast the brain associates an African-American face with good things compared to a Caucasian face.

IAT research has substantiated previous social-psychological studies, and has revealed considerable discrepancies between individuals’ responses to direct and indirect questioning paradigms. In the race IAT example above, participants’ behavior was reliably associated with their level of prejudice against African-Americans and their cognitive bias against African-Americans as assessed based on their performance on the IAT (see recent review in Payne and Cameron 2010). Although IAT studies in active terrorism cells has not been reported so far, implicit prejudice measurement proved invaluable to detecting popular prejudicial sentiments that may translate to public opinion in support of both state-sponsored and sub-national terrorism. For example, news about terrorism has been shown to increase the anti-Arab and anti-Muslim prejudice (as measured by the IAT) among Dutch or Swedish participants (Das 2009

quoted in Dora 2009; Agerström and Dan-Olof 2008. see also Correll et al. 2010). This finding is in line with a survey conducted shortly after the tragic events of September 11, 2001, by the Roper Center for Public Opinion Research, which showed that over 30% of Americans favored the incarceration of any Arab until their potential links to terrorist organizations are fully investigated (Verhovek 2003). The social undesirability of divulging anti-outgroup attitudes is in line with the finding that, on average, the more implicit the measure is, the higher the level of prejudice it detects. Thus, IAT suggests the most pervasive prejudice, while anonymous surveys, subtle prejudice measures, and blatant prejudice measures show decreasing levels of prejudice for approximately the same sample of respondents (e.g., McConnell and Leibold 2001; Bayoumi 2008; Echebarria-Echabe and Francisco 2008).

Drawing from both cognitive and social-psychological knowledge, and buttressed by technological advances in the neurosciences, Social Cognitive theories are currently among the strongest and most promising paradigm for studying terrorism. In addition to cognitive and neuroscientific developments in “classical” social psychology, two integrative theories have recently achieved a particularly promising level of explanatory power and hypothetico-deductive lucidity. These include Terror Management Theory and Self-categorization Theory – the latter still somewhat indistinguishable empirically from Social Identity Theory.

Social Identity, Self-categorization, and Terror Management Theories as Contemporary Paradigms to Study Terrorism and Political Violence

Social Identity and Self-categorization Theories posit a tension between coexisting personal and social identities. Reducing this potential tension or dissonance is presumed to be a major motivational force behind both personal and individual actions, cognitions, and emotions (e.g., McKimmie et al. 2003; Mackie et al. 2004; Hogg et al. 2008, 2010). To this aim, individuals often align their personal identity, values, and actions to that of their group of reference. Recent findings, however, suggest that the level of “belonging” (i.e., perceived similarity) to a group and the level of “identifying” with that group (i.e., the sense of esteem toward the group) may represent two separate processes. Although

these findings make a distinction between actual and aspired belonging to a group, both processes are nevertheless recognized as powerful motivations (e.g., Mayhew et al. 2010). Throughout the process of social identification, individuals construct idealized prototypes of their group members and act according to these perceived group “norms.” Concomitantly, individuals construct inferior prototypes of their outgroups (i.e., those groups that are not comprised of individuals of the categories that the ingroup member does not share or does not hold in high esteem) and tend to view these outgroups as more homogenous and indistinct. These complementary processes presumably serve to both motivate the ingroup members and enhance their self-representation and self-esteem (Turner et al. 1987, 2006; Hogg et al. 2008).

Several studies that sprung out of these theories helped to illuminate the radicalization process leading to indiscriminate aggression in the name of identification with the ingroup – arguably an essential component of political violence. Firstly, the two theories have helped shed new light on the “classical” theories of social psychology concerning communal violence. For example, revisiting the “Stanford Prison Experiment” (albeit with tighter external control and constant clinical supervision), Stephen Reicher and colleagues showed that the resilience of both “prisoners” and “wardens” was associated with their perceived level of belonging to their respective groups. Presumably, the more identity-relevant categories each person shared with the prototypical group member, the more they felt like they help the collective cause, the more they felt responsible and empathic toward group members, and, reciprocally, felt implicitly supported by the group. The cumulative effect of this set of social evaluations may have, along with other factors, contributed to the higher resilience to distress among individuals who saw themselves as exemplars of their group of reference. It should be noted in this context that the idea that resilience to distress or trauma is crucially dependent on the sense of social belonging or the perceived strength of the social “norm” within the ingroup is hardly a novel idea, and it was popularized almost in tandem with the rise of modern urbanism (e.g., Durkheim 1897).

Based on these and similar findings, Reicher’s group proposed a five-step model, anchored in Social

Identity Theory, to explain collective hate. According to this model, collective hate becomes consolidated (and therefore likely to be acted upon) when individuals first demarcate the identity of their group of reference and decide on the identity categories that are crucial for group membership. This is followed by portraying the outgroup as comprised of individuals that do not possess their identity-defining categories. Next, they perceive the members of the outgroup as posing a threat to their ingroup, which in turn aids their view of themselves and their identity categories as uniquely virtuous. The process culminates with the idealization of the sentiment that the members of the outgroup should be eliminated – an auspicious goal that should be celebrated once achieved (see review in Reicher et al. 2008). In this context, it is worth noting the emerging consensus regarding the process by which outrage, aggression, and violence are socially constructed. This consensus seems to transpire between the Social Cognitive theories, the Social Psychological theories (e.g., Baumeister 1997; Breckenridge and Zimbardo 2007), the Social Learning theories (e.g., Bandura 1999; Moghaddam 2007), and the Psychoanalytic theories (e.g., Stein 2002; Volkan 2002; Kernberg 2003). Despite differences in the putative motivation underlying terrorists' radicalization, these theories all seem to indicate a similar development of political violence that follows a logical sequence of escalation (see review at Hogg et al. 2008).

Another classical paradigm that Social Identity and Self-categorization theories have been able to replicate and explicate is the social learning of violence demonstrated by Bandura and his colleagues (Bandura et al. 1961). For example, Naoki Kugihara showed that a sense of threat augments the extent to which people would mimic aggressive behavior exhibited by a colleague (Kugihara 2001). Together with other studies, Kogihara's findings may help explain the "deindividuation" state of mind that is often observed in situations of unscrupulous conformity and violence. Both empirically and conceptually, this concept may explain the potential terrorist-like dangerousness of individuals' over-identification with their reference ingroup, and how this process leads to depersonalization and disinhibition that can (at least theoretically) lead to radicalization and perpetration of terrorizing atrocities. For example, while negative personal

feedback increases the sense of personal identity – and hence theoretically should decrease social identification – individuals who perceive their personal identity as greatly overlapping with their social group identity (a condition called "fused identity") perceive negative criticism as a blow to their ingroup as a whole and are willing to die and to kill in response. Studies of "fused identity" also suggest that in a state of outrage following personal criticism (interpreted by them as prejudice against their social group as a whole), individuals with "fused identity" experience a sense of depersonalization, whereby they view themselves as generic agents of their ingroup. Thus, identity fusion facilitates a depersonalized state under stress and is probably one of the key elements in the extent of violence that is often perpetrated by terrorists in a position of anonymous power, who believe they act selflessly (Swann et al. 2009).

In essence, the explanation provided by Social Identity theory for this "deindividuation" state is similar to that of classical Social Learning theory, only emphasizing the individual sense of invincibility, presumably mediated by the sense of "being one with the group and having the whole group behind you" (Ammerman 2003; Reicher et al. 2008). So far, this set of theories has identified the following social identity processes as relevant to communal aggression: (1) perceiving the ingroup as more homogenous than it is; (2) regarding the categories that define the ingroup membership as both more important and more positive than those of any other outgroup; and (3) ignoring discrepancies between personal identity (and their concomitant individual differences – most notably agendas, goals, and limitations) with the "prototypical" social identity of the ingroup. According to the tenets of Social Identity theory, these discrepancies are easier to ignore when the physical appearance of the ingroup is designed to mitigate individual differences to confer a sense of ideological similarity between the individual and the group. This was found in both the Stanford and the BBC Prison experiments and may explain why, throughout history, groups that were designed for collective action (e.g., soldiers, nurses, priests, etc.) have always stressed the homogenization of appearance – using uniforms, standard accessories and ranks or ID numbers in lieu of names, along with standardized jargon and meticulously prescribed rituals of initiation

and readiness. The fusion of individual and social identities and the facilitating role of homogeneity and anonymity in successfully mobilizing it seems to be a pan-human vulnerability, exploited throughout history by any violent group, whether national-militaristic, subnational paramilitaristic (terrorist), or even groups that prepared for a religiously apocalyptic war (e.g., the Jewish Essenes of the first century AD, section of the Muslim Global Salafist Jihad, or the Christian ‘Branch Davidians’ among many other apocalyptic terrorist groups).

Explaining deindividuation by charting the interplay between personal and social identities is a promising step toward an empirically validated psychological understanding of the conditions leading up to the ever-surprising capability of normal, caring people to commit atrocities. Social Identity and Self Categorization theories suggest that deindividuation, along with other individual states of consciousness associated with communal violence (e.g., depersonalization, mindless conformity, indiscriminant vengeance, sanctimonious rage, etc.), seems to be motivated by an unconscious fear of loss of the individual or the group identity (see also Terror Management theory, discussed in what follows). Generalizing the findings of this line of research may not only help explain perpetration of unfathomably inhumane acts, such as terrorism, genocide, and war crimes, but also may explain the *mélange* of conviction and mindlessness among action group members, often observed both in laboratory studies and testimonials of historical violence. The (re)introduction of distress and fear to the social-cognitive understanding of the communal motivation to harbor murderous sentiments may also open new venues for countering the root causes of political violence on its various levels.

Contemporary identity-based theories of social cognition, like Social Identity, Self-categorization, and Optimal Distinctiveness Theory (Hornsey and Imani 2004; Hornsey and Jetten 2004), among others, have so far replicated previous studies, expanded the explanatory and predictive power of extant experimental paradigms, and even helped find hitherto unnoticed patterns in existing data. Therefore, from a historical perspective, this line of inquiry represents a promising example of a mature psychological thought, moving farther from political a-scientific judgment and prejudice into scientific characterization of a pan-human

process (e.g., Cohen 2011a). As such, this pan-human process can be both kindled in the lab and observed in a more extreme form (e.g., terrorism) under more extreme circumstances (e.g., McFarland 2010).

Terror Management Theory, like identity-focused Social Cognition Theories, posits an unconscious process of anxiety reduction through heightened group affiliation (Hogg et al. 2008). The theory, in its most politically relevant formulation, claims that exposure to threatening information kindles an existential fear of death that drives humans to seek and follow larger, more enduring, and meaning-generating social constructs, such as conservative values, sentiments, and pursuits (Pyszczynski et al. 1997; Rutjens and Loseman 2010). The last decade has witnessed an impressive array of empirical evidence for the theory, especially in mimicking terrorism-relevant aggressive sentiments under controllable laboratory settings. Several carefully controlled studies have shown that, in general, individuals assume a more collaborative stance toward each other, while groups are more competitive and aggressive toward each other. This phenomenon is known as the interindividual-intergroup discontinuity effect, and is exemplified by the maxim “none of us is as cruel as all of us.” According to Terror Management theory, this effect is putatively mediated by fear of death. That is, when death is mentioned either directly or indirectly associated with the self or the members of the ingroup communally (a condition called “mortality salience” in the theory’s terminology), they would perceive any outgroup as more hostile and competitive (see review in McPherson and Joireman 2010). Similarly, in circumstances of heightened “mortal salience,” as in times of real or perceived war, people would generally prefer a charismatic leader whose message is simplistic, confident, stereotypical, and exclusive rather than a leader whose message is of promoting dialog, seeking understanding and collaboration with other groups or nations (for a recent review see Gordijn and Stapel 2008). The mitigation of this latent anxiety is usually achieved by resorting more vehemently to conservative and clear-cut ideology (e.g., Niemiec et al. 2010; Pyszczynski et al. 1999).

Terror Management Theory proved particularly useful to understanding religious fundamentalism – a condition that at times is associated with popular support for religion-based terrorism, and may

motivate certain individuals to actually commit terrorism acts. According to this theory, religion is a social construct that uniquely combines some of the most effective means to assuage existential fear of death. Many religions include the notion of an afterlife, thus explicitly ensuring immortality. Further, this immortality is especially bestowed on those who defended their religion – effectively disinhibiting the paralysis associated with mortal fear. The power of religion to impose moral rules makes it suitable as a candidate for a belief system that transcends personal interests, and the fact that most established religions are old additionally makes them suitable as promoting an ideal that transcends local and temporary agendas and is therefore considered enduring and general. Since faith, by most definitions, cannot be challenged or refuted using tools that otherwise may debunk other social constructs (such as social or scientific rules), its truth value is perceived to be the highest of all other social constructs. Taken together, these attributes make religion an attractive social construct to endorse in order to fend off the fear of death (both in general, but particularly so in times of heightened mortality salience), and may underly both theoretical support and actual motivation to perpetrate acts of martyrdom terrorism (Pyszczynski et al. 2003; Norenzayan and Hansen 2006; Pyszczynski et al. 2006).

Terror Management theory is both compatible and complementary to Social Identity and Self-categorization theories, in that society in general, and sanctioned social constructs in particular may have a superior capability to confer a sense of meaning and security in time of distress and threat (Greenberg et al. 1990; for a recent review see Castano and Dechesne 2005).

Historical Evaluation of Contemporary Integrative “Social Cognition” Theories of Political Violence and Terrorism

Broadly speaking, the social-cognitive paradigm, as exemplified in Social Identity, Terror Management, and similar theories, also exhibits one of the most humanistic approaches to terrorism research, since the same putative processes underlying terrorism can be kindled and measured under the controlled environment of the psychological laboratory, using community members as participants. This set of paradigms

thus transcends politically motivated value judgment, and obviates the known hurdle of defining an act as terrorism or “fighting for freedom” in a consistent manner, amenable to rigorous scientific examination (see Cohen 2011a for broader discussion). Historically, this humanist approach proved the most generative in philosophical, historical, and scientific thought. Philosophically, western thinkers in the renaissance and the enlightenment period, as Arab thinkers of the medieval ages who called for the separation of scientific inquiries from faith-based (not necessarily religious) prejudice, have inspired the most accelerated social and technological progress in their respective communities (e.g., Radest 1990; Lamost 1993; Rashed and Morelon 1996; Said 2003). Similarly, empirical science has made significant progress in relieving the world of fatal diseases whenever the designation of agents that might carry these diseases ceased to be based on prejudice and utilized hypothetico-deductive cognitive strategies. For example, the belief that the black plague, which erupted in its most vicious form in fourteenth century Europe, was brought about by Jews, lepers, foreigners, or cats proved counterproductive to eradicating this catastrophic disease. The futility of this belief ranged from the merely cruel – as in the case of blood libels against Jews and foreigners – to downright iatrogenic – as in the case of killing cats for their presumed ties to the devil – thus eliminating their contribution in eliminating the rats that harbored the bacteria-ridden fleas – the main vehicle for spreading the disease. Similarly, political decisions that were not based on the humanist assumption of basic equivalence among people and the rigor of research that this assumption commands, but instead were motivated by prejudiced and unchecked “gut” sentiments, have been proven misleading and counterproductive by historical scientific analysis. To take a recent example, most data-driven political analysts contend that the invasion of Iraq and the use of indiscriminant Islamophobic and Arabophobic practices of detention, humiliation, torture, and other breaches of human rights in the wake of the tragic events of September 11, 2001, were prejudicially misleading and counterproductive. Among several notorious examples of the counterproductivity of prejudice-based torture as a means of obtaining intelligence is the case of Ibn Shaykh al-Libi, whose false confession under torture has led the CIA to determine

that an invasion of Iraq is justified as part of an effort to neutralize Al-Qaeda from launching terrorist attacks that may potentially involve weapons of mass destruction. By the time the confession was refuted, the war against Iraq was already in a point of no return (for more examples see Harbury 2005; Yoo 2006).

In contrast, the study of political radicalization using pan-human hypotheses that can be tested in the laboratory promises not only an augmented ecological validity, but also the potential for early intervention and awareness in communities where unacknowledged grievances may radicalize the population to harbor terrorism-producing sentiments.

In addition to adhering to a set of historically fruitful humanist assumptions by pursuing laboratory paradigms to study “enemy” psychological dynamics, contemporary social cognition-based models of political violence also represent an integrative culmination of several once-discrepant theories. In doing so, they represent a promising step in advancing psychological science, in line with Kuhn’s (1962) observations concerning the pattern of scientific progress throughout history. In combining their experimental paradigms with implicit measures and brain signal analysis, social cognitive theories are directly testing (and at times substantiating) Psychoanalytic and Psychodynamic theories that were too elusive for hypothetico-deductive examination (but see a somewhat different opinion in Hassin et al. 2005). Similarly, in contrasting overt social behavior with conscious reasoning, attributions, and other cognitions, the paradigms of social cognition research integrate both behaviorist and cognitive approaches to social behavior in general and political violence in particular.

The history of the psychological theories regarding terrorism and political violence is inextricable from the history of psychology as a distinct field of scientific inquiry, from theories concerning the origin of violence and evil in the world, and from the history of terrorism warfare, dating back to the earliest records of human history. Having such a multitude of sources, sentiments, and agendas, and armed with techniques that are often inferior to the complexity of ideas they purport to study, makes for a fitful and nonlinear historical course of this line of inquiry. Historical lessons from other scientific fields, however, point to the promising

progress that contemporary psychological paradigms may present in understanding political violence as a complex pan-human psychological phenomenon.

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Theories of Dissociation

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Definition of the Concept

The standard dictionary defines dissociation as “the splitting off of certain mental processes from the main body of consciousness, with varying degrees of autonomy resulting.” The word probably owes its origin to the nineteenth-century physician Benjamin Rush, who presented lectures on cases typified by

difficulties in speech and rapidity of body movements (Carlson et al. 1981). He later incorporated these lectures (with some changes) on “physiological psychology” into his classical textbook, *Medical Inquiries upon the Diseases of the Mind* (Rush 1812). He devoted a chapter to what he called “dissociation,” which may be the earliest medical use of the term. Rush applied the term to people who were mentally deranged and who had “an association of unrelated perceptions or ideas, or the inability of the mind to perform the operations of judgment and reason.” In other words, Rush was using the term only to refer to pathological behavior whereas, as I shall show, dissociation can be a routine, everyday experience as well.

But of the various phenomena of dissociation large and small, normal and abnormal, the most spectacular examples are those associated with dissociative identity disorder (DID), formerly known as multiple personality disorder (MPD). My goal in writing this book is to trace the history of the theory of dissociation and related processes from the seventeenth century to the present. I will primarily use a case history methodology to illustrate the relationship between theory and practice from one decade to the next. I will proceed to do this in such a way as to illuminate the basic theoretical and epistemological issues that are necessary to understand the processes of dissociation – both normal and abnormal aspects – as well as the role of hypnosis and its relationship to organic and hysterical epilepsy. My discussion will draw freely on the theories of Pierre Janet, Morton Price, William James, Boris Sydis, Ernest Hilgard, Herbert Spiegel, and other influential thinkers in the field. Throughout the book, I will attempt to illuminate the various ironies and paradoxes which emerge from the story of the history of dissociation and its disorders. This issue is not new by any means. In fact, it has been with us at least since Aristotle. It comes down to the question of how to show the connections or integrative functions of different levels of knowing and existence without throwing the baby out with the bathwater. We will consider the biophysiological level, the self-forming experiential level, and the socially constructed level of life experience separately and in terms of their relationship to one another. Even to ask certain types of questions will require a reliance on data and explanations that give greater weight to one level or another.

On the one hand, our exploration will be scientific in nature – what is known, what is unproven, what is speculative, and what is sheer nonsense. On the other hand, we will try to understand the social construction of what I call the Myth of DID (formerly MPD). I wish to make clear that I am not asserting that MPD/DID itself is a myth; rather I will try to demonstrate that a mythology has developed about this relatively rare disorder and, further, that this mythology has been propagated by several therapists as well as people in the business of fabrication for entertainment purposes for agendas of their own. The myth is perhaps best exemplified by the case history of Sybil, which has made its appearance in various incarnations as book, as film, and as a popular cult (Rieber 2006).

I will elaborate upon how *Sybil* the book and *Sybil* the film can be understood as symptoms of social distress and the “psychopathy” of everyday life. (This thesis is discussed in greater detail in my books *Manufacturing Social Distress* and *Psychopaths in Everyday Life: Social Distress in the Age of Misinformation*). One of the major arguments will be that *Sybil* is best understood as a “social dream.” Our objective here will be to analyze and understand the messages society obtains from these social dreams. Taking my point of departure from the book and film versions of *Sybil* as well as other related social events, I shall explore the extent to which our contemporary social dreamers unwittingly reflect the underlying problems of our society. The next step, of course, is to understand them.

The phenomenon of normalized psychopathy and social distress tends to feed on itself, driving out the “good.” When bad moral currency is in circulation, it brings out the dark side of human nature. In other words, an individual’s crisis becomes a reflection of a larger identity crisis within our culture. When one breaks the connection of learning that takes place between the biological, psychological, and social levels of existence, one interferes with the healthy, creative aspects of human conduct and experience. Too many mirrors are dangerous because they reflectively distort and multiply the self. Therefore, one should hold the mirror up to nature in order to reflect upon the natural images of life rather than falling prey to the ostentatious self-righteousness of multiple selves. The book will conclude with a discussion and argument of the dangers inherent in fostering this kind of

ostentatious, deterministic, and/or reductionist theory of consciousness.

In introducing the concept of dissociation, I believe that it is essential to point out several important factors that will help us understand the nature of the concept. The most important aspect of this concept is that dissociation is a specific mental capacity or ability which *all* human beings utilize during the course of their life. The second important fact is that dissociation is a mental process and can be not only observed, but even to some extent measured, somewhat like a spectrum, with various quantities and qualities. Finally, we need to keep in mind that dissociation is a mental activity, which can be utilized by the individual for both creative as well as destructive purposes.

One may describe dissociation metaphorically by saying that it is a kind of shifting of mental gears which results in a high degree of concentration so that a kind of separation or shift occurs in consciousness between the “internal senses” and the “external senses” – between one’s imagination and reality.

All of us experience this kind of shift routinely as we descend into a deep sleep and awaken from it; there is an intermediate or transitory state in which we are neither fully unconscious nor fully conscious. While “waking logic and feeling of certainty” are not “altogether extinguished,” Froeschels writes in his essay, “A Peculiar Intermediary State Between Waking and Sleeping,” it is “interfered with by processes which went on in different spheres of the personality, namely, the sphere of ‘a peculiar pseudo-logic, and the sphere of another feeling of certainty . . . which is localized within the domain of transition.” That is to say, that “two levels of the personality are in conflict with one another. . . . The logic and the joined feeling of certainty, as perceived in the state of being awake, rejected as wrong the corresponding processes that were going on in the state of transition” (Froeschels 1949). Although Froeschels is referring here to a perfectly normal process of dissociation, he is also describing the type of process, which if the “interference” intensifies and becomes more frequent, can turn pathological.

Types of Dissociation

Different types of dissociative activity can be observed which stem from different motivational factors in the life history of the person. Since dissociation is not an

abnormal behavior but can be found in any kind of individual, both normal and abnormal, it might be of some value to simply mention the form of dissociation that is commonly found in normal people. It is called automatic writing. This is the execution of movement of the hand without the intervention of the will. The hand seems to act of its own accord, what appears on the page as much of a surprise to the consciousness of the writer as it would be to an outside observer. Analogously, some individuals can speak apparently without being aware of the source of their words, almost as if they were simply taking dictation. The great French psychologist, Alfred Binet, came to the conclusion that there may exist in the same person at the same time, not only two independent streams of activity, but also two independent centers of consciousness, which was commonly referred to as double consciousness. In the automatic writing condition, Binet would whisper instructions to his subject which were to be followed by an oral response. Thus, the writing and the oral response would go on independently, neither process consciously related to the other.

Morton Prince and others conducted experiments that demonstrated similar processes. For example, the hand that might be writing automatically could occupy itself with answers to mathematical problems, while the mouth and vocal cords would be occupied with reading aloud. Neither activity interfered with the other. If we grant that dissociation actually occurs, not only in the activity of the person, but also in his consciousness, we need to demonstrate evidence as to whether we are all able to dissociate in this sense. Then, we will need a means of finding out if individual differences in dissociation differ in quality and quantity. Over the years, psychologists and researchers have tried to test this hypothesis by assessing levels of hypnotizability. According to Dr. Herbert Spiegel, a pioneer in the field, hypnotizability is defined as the interaction of the individual’s dissociative capacity and his suggestibility capacity. I will discuss this issue at greater length elsewhere in the text especially since the condition of hypnosis, be it self-hypnosis or hypnosis induced by another party, is essential to uncover the dynamics of the dissociative process.

Divided Conscience

The concept of dissociation is closely related to the concept of consciousness, particularly divided consciousness or double consciousness, as some German scholars

prefer. The voluntary control of conscious activity of the human organism becomes a central issue in dealing with this subject. To the extent that direct control of human activity is split off from consciousness or is unconscious, as it were, we can say that the dissociative process is at work. The French term “desagregation” was used synonymously with dissociation in English and became popular through the works of William James, Morton Prince, and Pierre Janet in both the United States and France. The central question at hand, when dealing with dissociative processes, is directly related to self-integration and self-autonomy. Put in slightly different terms, one may pose the question of whether an individual can have more than one autonomous self, and if this is indeed possible, then is it possible for this self-process to be both conscious and unconscious?

Most of the controversy related to the theory of the process of dissociation relates to this issue. If one can bifurcate or dissociate oneself, how does this process take place? A number of issues must be dealt with before we can answer this question. First, what systems or patterns of behavior are more or less coherent in this process? Is there a degree of structure that facilitates the integration and/or the disintegration of the skills, memories, perceptions, etc., that are involved in this process? Second, we need to ask to what extent do amnesic barriers (or, in Freudian terms, unconscious and repression processes) prevent the integration and interaction of these systems? In other words, how do we explain the ego-alien “state of mind”? Since the middle of the nineteenth century, psychologists have theorized that in some individuals, consciousness may become split into two or more parts. The split-off or dissociated portion may be a fragment of the whole self or it may be so complex and extensive as to be capable of fulfilling all of the functions of an individual’s consciousness.

Ideas, feelings, and actions, which are associated in life experience, tend to become linked together into various processes in such a way that stimulation of one element of a particular process excites the activity of all the rest. This process is often referred to as a complex process. A complex formed in relation to some event that is accompanied by a great deal of affectivity may become dissociated from one’s personal consciousness so that recollections of the event, as well as feelings and actions connected with it, become inaccessible. Such a complex process of dissociation does not completely

disappear. In other words, it is still possible for the process to function in some manner. Various reports of normal and abnormal individuals have been described in the literature to illustrate this point. Thomas Mayo, for example, gives one of the earliest lucid recognitions of this process of the human mind in 1838 while describing what he called the moral cases of insanity. According to Mayo, there is a morbid state of the human mind in which the individual lives in alternate stages of two different beings. One is easily recognized as the person’s normal state of mind. It exhibits the ordinary aspects of his or her character or behavior. In the second state, the person appeared to have undergone a remarkable change. He or she has forgotten things or else saw them in a different light. He or she may lapse into one or another of these states without any clear recognition of the subjects and objects experienced in the other state. For example, Mayo says, “This morbid state, to which the name double consciousness is usually given, has a considerable affinity to the intermittent form of madness – so much so that it seems not unreasonable to suspect that their laws of causation may have some common points.” Mayo goes on to refer to the practice of mesmerism, which had only recently been brought to the attention of the British public, and concludes that “We have here also a form of double consciousness, which those who have seen the experiment (using mesmerism) made during the Spring of 1838, at a London hospital, will admit to have exhibited this affinity in a high degree.” Mayo contends that this form of double consciousness can be voluntarily brought about by an external agency. Mayo is referring to what we would now consider to be the process of hypnosis. The close relationship between the process of dissociation and the process of being hypnotized, putting the individual in a state of divided or double consciousness, thus becomes a crucial aspect of the story of how the theory of dissociation emerged and how it attempted to explain the normal and abnormal aspects of the normal mind.

Prying Open the Lid – The Origins of Hypnosis

Animal Magnetism Hypnosis and Its Links to MPD

During the nineteenth century, the problem of multiple personality was for the most part compatible with and

influenced by a more romantic view of human nature than its eighteenth-century predecessor.

The popular literature of the period flooded the minds of the public with fascinating macabre psychological novels that dealt with various aspects of mind brain stories about human beings' moral problems, including sanity and identity. The most popular of these novels, such as Mary Shelly's *Frankenstein*, Robert L. Stevens' *Dr. Jekyll and Mr. Hyde*, and many short tales by Edgar Alan Poe, had a formidable impact on the reading public. Something was clearly in the air that would manifest itself straight through from the scientific literature to pop culture and back again.

What became known as multiple personality disorder emerged at about the same time as what was known as "animal magnetism," later dubbed hypnosis.

Basic knowledge and practice of hypnosis may be traced back to the ancient Greeks and Romans, who used hypnosis for religious as well as therapeutic practices. Hippocrates, one of the founders of Greek medicine, recognized the importance of the role played by suggestion in the healing process; he would try to convince patients that they would soon become well. Not only this, but Hippocrates felt that a touch of his hand upon the subject would relieve pain, and that he could make an individual fall asleep by simply commanding him to do so.

In medieval times, hypnosis was used by wizards and sorcerers. The common people viewed hypnosis as being evil and dangerous. Those who practiced it were looked upon as agents of the devil who were anxious to place innocent people under their spell.

A more scientific approach to hypnosis and its use began in the sixteenth century with a man who called himself Paracelsus. Although he had many old-fashioned ideas and was greatly interested in alchemy and sorcery, Paracelsus is an important figure in the history of medicine, and, in particular, of hypnosis. He believed that the attitude that the patient had toward his own illness could have a powerful influence upon the course of a disease:

- ▶ It is not the curse or the blessing that works, but the idea. The imagination produces the effect. (Buranelli 1975)

Paracelsus also made use of magnets to concentrate in his patients what he believed to be a cosmic fluid that

possessed healing properties. Later on, James Maxwell would elaborate upon Paracelsus' theory of a healing cosmic fluid.

Years later, the first great faith healer Valentine Greatraks appeared. Greatraks eventually became famous as the Stroking Doctor for his success in healing by touch. He is reported to have cured, by the laying on of hands, fever, palsy, hysteria, and convulsions. Greatraks' powers were explained by the passing of invisible entities from his own body to that of the patient.

Yet while hypnosis may be traced back many centuries, it is popularly thought of as originating with an eighteenth-century Austrian physician, Anton Mesmer – indeed, an earlier term for hypnosis is still occasionally used today is that of "mesmerism." Mesmer felt that medicine could be turned into an exact science by extending cosmological laws to the physiology of the human body, and in this sense, his views were strangely foreshadowed by Valentine Greatraks. In particular, Mesmer hypothesized the existence of a universal fluid within the individual that, together with the indirect influence of the stars and planets, would act to make the person healthy or ill.

Mesmer was intrigued by the many psychosomatic illnesses of his time, seeing how often conventional medicine failed to cure the likes of paralysis, chronic nightmares, panic, depression, hysteria, and convulsions. In the cases of these maladies, Mesmer felt that classical medical diagnoses were inadequate. He believed that many of his patients suffering from hysteria were being bothered by the effects of a universal fluid, or animal gravitation, ebbing and flowing through their bodies. Mesmer felt that it was his job to find an agent that could be used to control this ebb and flow motion.

Mesmer found this agent in magnets. In their polar attraction and repulsion, magnets set up an ebb and flow that could be comprehended as one version of the general tidal effect, of which the gravitation of the heavenly bodies was another version. One of the first patients successfully treated with magnets was a woman who had been suffering from recurring hysteria, with convulsions, vomiting, depression, hallucinations, fits of blindness, and paralysis. The startling results of her treatment may be seen in the following statement written by Mesmer himself:

- It was on July 28, 1774, that my patient having suffered another of her attacks, I placed three magnets on her, one on the stomach and one on each leg. Almost immediately she began to show severe symptoms. She felt painful volatile currents moving within her body. After a confused effort to find a direction, they flowed downward to her extremities. Alleviation followed and lasted for six hours. A repetition of the attack on the following day caused me to repeat the experiment, with the same success. (Buranelli 1975)

Mesmer now felt that he had learned how to channel the universal fluid into his patients, and what he had earlier referred to as animal gravitation he now called animal magnetism. According to Mesmer, the proper balance of animal magnetism in the body of the individual makes the difference between health and illness. Vast psychological and many physical disorders were due, then, to the abnormal distribution of these fluids within the body, and cures could be brought about by having the ill person become “harmonized” with his fluids. This was achieved through the use of magnets and by bodily stroking or passes over the afflicted area. It was later found that many things other than magnets could be used to conduct the universal fluid. These included objects such as paper or wood, which, although not magnetic in the sense of mineral magnetism, are strongly magnetic in the sense of animal magnetism. Such objects became “magnetized” upon being touched by Mesmer.

Over the years, Mesmer’s theory of animal magnetism was almost constantly being refined and modified. The female hysteric mentioned above was likely Mesmer’s first classic “mesmerized” patient, although Mesmer himself was not aware of it. When he first began her treatment, Mesmer mainly relied on magnets to direct the flow of animal magnetism. Soon afterward, though, Mesmer saw that he only had to touch the patient in order for her to receive beneficial effects. Magnets, or magnetized objects, were not at all necessary (Buranelli 1975).

Mesmer further experimented with different techniques and found that he did not even have to touch the patient in order for effects to be seen. He dramatically demonstrated this phenomenon to the respected Dutch physician, Jan Ingenhousz, hoping to convince him of the reality of animal magnetism. Although

Ingenhousz admitted that he was impressed by the demonstration, he remained skeptical, an example of the poor responses that Mesmer typically received from the scientific world.

Nevertheless, today it is clear to us that Mesmer had, in fact, discovered how to put a patient into a hypnotic trance. While he still believed that the patient’s behavior was due to the effects of animal magnetism, Mesmer did recognize the important role played by suggestion. He made sure that he instilled the proper attitude in the patient, and usually told the patient ahead of time how he would behave during treatment. Today, it is widely agreed that subjects have a strong tendency to behave under hypnosis as they expect a hypnotized person acts, or as they are told they will behave when hypnotized.

As Dr. Herbert Spiegel noted, as a precursor of modern hypnosis, Mesmerism was dismissed for many of the same reasons that hypnosis is dismissed today. “(I)t is as if many clinicians and behavioral scientists not only reject Mesmer’s ‘fluid’ concept, he writes in his paper ‘Hypnosis: Myth and Reality’ in *Psychiatric Annals*, but also reject the observable data as well” (Spiegel 1981). By simply substituting the concept “imagination” for “fluid,” the observed behavior of Mesmerism becomes understandable in modern behavioral terms. In fact, the French Royal Commission studied Mesmerism then intensively dismissed it with the astute critique that it was nothing but “overheated imagination.” He also notes that Mesmer’s theory of fluid, which was based on a hypothesis about an invisible world, was conceived at a time when Newton was deriving his theory of gravity, Lavoisier was coming up with his theory of calories, Franklin was discovering the marvels of electricity, and Priestley and others were experimenting with heated gases, all in their way explorations of invisible worlds (Spiegel 1981).

In spite of the skepticism he generated among scientists, Mesmer became quite popular with the general public as a healer. Not having the time to treat all of his patients privately, he arrived at a method of “group therapy” that he called the baquet. This was a circular tub filled with magnetized fillings, and equipped with projecting iron rods that patients could touch while sitting around it. By holding hands around the baquet, the patients would set up a “current,” and by holding on to the baquet’s rods, the patients would receive

a magnetic flow directed to the pain areas. Eventually, Mesmer would abandon the use of magnets altogether, because he felt that their use was damaging to his hopes of scientific acceptance; having a reputation as a “magnetizer” was little better than being labeled a charlatan.

Mesmer unexpectedly found that he was able to throw his subjects into a state between sleep and wakefulness. In such a state, they would obey commands “even though their faculties had stopped functioning in the normal manner” (Buranelli 1975). The state that Mesmer had discovered was the hypnotic state. Realizing the importance of this form of trance, Mesmer made increasing use of it, until it became the essential component of his method of treatment.

Mesmer began to use the hypnotic trance to bring on what he called “the *crisis*.” The crisis had been a critical feature of a patient’s therapy since early in his career when Mesmer still relied almost totally on magnets. Unfortunately, however, many people were more afraid of the Mesmerian crisis than they were of their illness, and so avoided Mesmer entirely. Members of a French royal commission, investigating a follower of Mesmer by the name of Deslon, declared that they were “astonished and appalled by the sight of patients going suddenly into agonizing contortions” (Buranelli 1975). They described these convulsions as being:

- ▶ Marked by violent, involuntarily movements of the limbs and the whole body, by constriction of the throat, by throbbing in the chest and nausea in the stomach, by rapid blinking and crossed eyes, by piercing cries, tears, hiccups and uncontrollable laughter. These are preceded or followed by a state of languor and daydreams, a type of abatement or even slumber. The slightest sound causes a startled shuddering; and it has been observed that a change of tone or beat in music played on the piano influences the ill, so that a rapid composition agitates them and throws them back into convulsions. (Buranelli 1975)

Although the commission could not deny the occurrence of cures, the members felt that the crisis could hardly be considered a desirable element in the treatment process. Once again, Mesmer was denied scientific acceptance.

Government investigations, while noting Mesmer’s success in the treatment of his patients, refused to accept his explanations of just how his cures were brought about. They carefully studied Mesmer’s techniques, including his magnets, the baquet, the crisis, and the trance, and concluded that all cures were simply due to the individual’s imagination, and not to any actions of Mesmer. Mesmer was officially declared a charlatan; his reputation was hopelessly destroyed, and he eventually was forced to give up his practice.

Fortunately, however, Mesmer’s work was not forgotten. Several men carried on his research, and through it became quite well-known. The Marquis de Puysegur, although an amateur, was a dedicated follower of Anton Mesmer, and, as Mesmer himself had done, relied heavily on the presence of the trance in his practice. While unable to account for it, Puysegur noted the phenomenon of posthypnotic amnesia. Mistakenly, he referred to the trance state as “somnambulism,” which really means “sleepwalking,” but his most important accomplishment was being able to achieve, in his patients, a form of the Mesmerian trance that did not involve the crisis.

When in the trance, subjects would answer questions and offer suggestions, always coherently and intelligibly. Upon awakening from the trance, the subject would only remember what he had been told to remember. Puysegur also became familiar with the phenomenon of regression. His patients would recall and relive childhood events that had previously seemed forever forgotten. The Marquis also clearly showed that the methods and apparatus that Mesmer had relied upon, such as the séance, baquet, and eerie music, were not necessary, for the same results could be obtained without them. Puysegur had, in fact, achieved a true hypnotic state in his subjects, although scientists remained unconvinced.

In 1819, a Portuguese priest by the name of Abbe Faria published a work entitled *On the Cause of Lucid Sleep*. In it, he replaced the phrase “animal magnetism” with the word “concentration.” As Puysegur had done, Faria recognized that the séance and baquet were unnecessary; He called the trances he induced in his patients “lucid sleep.” To induce this sleep, Faria would have his subject sit in a comfortable position,

and instruct him to relax, lean back, close his eyes, and concentrate on sleep. This approach, Faria felt, required some confidence on the part of the subject. Then, he would issue the final command of “sleep,” and the subject would fall off into a lucid sleep, or, as it would be called today, a hypnotic trance. Faria also experimented with posthypnotic suggestion.

We owe the word “hypnotism” to James Braid, another important psychologist of the mid-nineteenth century. Braid decided that hypnotism, a word coined from the Greek word for sleep, should replace “mesmerism.” He also established that the true basis of hypnotism is psychological rather than physical, and that the power of the trance lay in suggestion. Stressing the role of concentration, Braid said that the patient must clear his mind of everything else, focusing only upon the concept of sleep.

As Braid’s views diffused across Europe, the nature of hypnosis was further defined in France by Ambroise Auguste Liebault (1823–1903), who wrote that:

- ▶ The characteristics of active somnambulism are what the hypnotist makes them by mobilizing the nervous energy accumulated as a usable power in the mind through suggested ideas. (Buranelli 1975)

Liebault emphasized his belief that suggestion plays the major role in any effective therapy. Together with his student Hippolyte Bernheim, Liebault led the Nancy school of hypnosis. The rival Salpêtrière school, led by Charcot, considered hypnosis to be a neurosis, a form of abnormal behavior. Charcot referred to the hypnotic state as an artificially caused “morbid condition,” and discussed what he felt were strong similarities between hypnosis and hysteria (Buranelli 1975). In fact, Charcot said, only those people displaying hysterical symptoms could be hypnotized.

The Nancy school, on the other hand, maintained that hypnosis belonged to normal psychology, believing that:

- ▶ hypnotic sleep is not a pathological sleep. The hypnotic condition is not a neurosis, analogous to hysteria. No doubt, manifestations of hysteria may be created in hypnotized subjects; a real hypnotic neurosis may be developed. . . But these manifestations are not due to the hypnosis – they are due to the operator’s

suggestion, or sometimes to the autosuggestion of a particularly impressible subject. . . Catalepsy, transfer, contracture, etc., are the effects of suggestion. To prove that the very great majority of subjects are susceptible to suggestion is to eliminate the idea of a neurosis. (Buranelli 1975)

The controversy between the Nancy and Paris (Salpêtrière) schools continued, but the superiority of the Nancy school emerged more and more clearly, as tests in hospitals and in consulting rooms were seen to support Bernheim’s claims that there was nothing at all abnormal in hypnosis.

In Germany, too, hypnosis began to make inroads in academia. In a series of articles published in *The Nation*, an important American periodical, Stanley Hall set down his observations about such German phenomena as the cult of war and its idolization of Kaiser Wilhelm as well as trends in German science, psychology, spiritualism, and recent studies in hypnosis based on his experiences in Berlin and Leipzig between 1878 and 1880. These reports were subsequently collected in his book *Aspects of German Culture*.

Hall was a great believer in Germany, convinced that it was in the forefront of a new science that would prevent a relapse of the world into barbarism of the Dark Ages. He opposed the admission of students into universities who were not prepared to accept this new scientific method and raised a vigorous protest against the threat of “Americanisms,” a term he uses to apply to ultra-materialistic tendencies – for example, making money as the all-consuming goal of life and the corruption that greed can lead to – that he associated with the United States. His objective was to promote a humanistic scientific culture for its own sake, putting aside all considerations of profit or personal advantage. It was an ideal that he found best exemplified in Germany.

In his reports, Hall noted the differences between Germany, on the one hand, and the United States and the UK, on the other in terms of what was then called mental philosophy (an early nineteenth century term for psychology) that concerned the essence, constitution, seat, origin, and future state of the mind – that is, metaphysical questions that psychology is based upon. Unlike sciences such as physics and chemistry, which

used the old deductive method, various forms of mental activities, or mental powers or faculties loosely connected with the ideas of Fichte, Schelling, and Hegel, were not quantifiable since these were phenomena that were thought impossible to be observed or controlled.

However, Hall noted, the new German research on psycho/physic methods did not feel obliged to honor the limitations established by their American and British counterparts by experimentally studying sensations and relating them to neurophysiological processes. Hall discusses some of the results of time reaction studies, especially the work of Wundt.

Hall also cites a very popular book by Rudolph Heidenhain, professor of physiology and director of the Physiological Institute at Breslau. Heidenhain and his colleagues, Hall wrote, were able to hypnotize one half of their subjects' brain and body. When the right side is hypnotized, they found, it produces aphasia, but not when the left side is affected. This is, of course, in agreement with pathological observations that locate the speech center in, or near, the left cerebral hemisphere. Hall goes on to explain how hallucinations can be induced, as well as other interesting phenomena.

Although Sigmund Freud practiced in neighboring Austria his views about hypnosis were shaped more by the Frenchman Charcot as well as through his associations with Liebault and Bernheim. As we have seen, Charcot had a great interest in the study and treatment of hysteria which he believed was caused by the congenital degeneration of the brain. To counter charges that hysterics were simply malingerers, Charcot would hold public demonstrations in which he employed hypnosis on young women who had been victims of rape and other forms of violence (Dillain 1925). Sometime around 1885, Freud attended one of these demonstrations and was sufficiently impressed to consider the idea of using hypnosis on his own patients. But it was from his colleague Joseph Breuer that he learned how to use of hypnosis as a means of uncovering memories of traumatic events that were inaccessible in the normal waking state.

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Theories of Emotion, History of

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Introduction

We are all experts on emotion – we were influenced by them before we could talk, we have been thinking about what they are and what they mean ever since we could reason, and we have all at one time or another wished fervently that we could better understand and manage them. In this chapter our primary focus is on formal Western scientific theories in psychology that aim to explain emotion's function, operation, and effects on behavior. Historical and current study of emotion is rich with theory. In psychology it is easy to count over 20 theories of emotion put forward since the 1960s (Strongman 2003). The scientific study of emotion from its earliest days has been an interdisciplinary enterprise; however, the scope of this chapter does not include theories grounded in philosophy, social history, sociology, or anthropology.

Some features of emotion make its study both fascinating and complex. These features include:

1. Emotion has multiple facets. Emotion can be described in terms of its physiological signs and symptoms (e.g., tears; churning stomach), expressive (e.g., eye gaze; configuration of the facial muscles of expression), experiential, and action-oriented or motivational qualities.
2. Emotion can have different meanings. What is encompassed by “emotion” differs across historical periods and across cultures. While post-industrial cultures today share many assumptions about what

emotion is and how it operates, there are still noticeable differences in beliefs about who should experience and show some specific emotions, and under what circumstances those emotions are socially appropriate.

3. Emotion has both “built-in” (hard-wired) and a “built” (socialized; learned) constituents. The *built-in* constituents of emotion encompass both functional (what does emotion do?) and structural (through which modalities can emotion be experienced and expressed?) aspects of emotion. The *built* constituents reflect how emotion is conceptualized, represented, and institutionalized within a culture. These built constituents include how emotion is described and labeled in language. Culture-wide beliefs about emotion are another example. Among the beliefs about emotion widely shared in modern Western societies are beliefs that emotion is different from ordinary rational thought, that emotion is something that “happens to us,” and that emotion is difficult or impossible to control.
4. How we know emotion in the self differs from how we can know emotion in others. The cues to emotion that we use introspectively are not the same as those we use for making inferences about others’ emotional state. We cannot access all of the information that we would like to use in knowing another person’s emotion. Some of the measures that we can use, such as heart rate, are not specific to emotion. And some indicators can “lie” – for example, a person can to some degree “act out” an emotion other than the one he or she is actually experiencing.

Definition

The modern Western definition of emotion has existed only since the early nineteenth century. Typically, researchers differentiate *emotion* from *mood* and from *affect*. Mood is regarded as a type of general emotional background that is objectless, that is, not specifically about an identifiable situation or person. Whereas emotions are generally about something, moods are not. *Affect* is a general positive or negative hedonic state with reference to self. Affect is often unconscious, representing automatic evaluations of the world as positive or negative. The term *feelings* is typically used by emotion researchers simply to refer to bodily perceptions and sensations.

Variety in Definition of Emotion

Oatley and Jenkins (1996) propose a three part definition of emotion closest to an all-inclusive definition that would be accepted by most contemporary emotion researchers. First, they propose that an emotion is usually caused by a person consciously or unconsciously evaluating an event as relevant to a concern or a goal that is important. The emotion is felt as positive when a concern is advanced and negative when a concern is impeded. Second, they propose that the core of an emotion is a readiness to act causing the prompting of plans. An emotion gives priority for one or a few kinds of actions to which it gives a sense of urgency – so it can interrupt, or compete with alternative mental processes or actions. Different types of readiness create different outline relationships with others. Third, they propose that an emotion is usually experienced as a distinctive type of mental state, sometimes accompanied or followed by bodily changes, expressions, actions.

Other more concise definitions of emotions focus on the components of emotion. Functional definitions of emotion are also common (Keltner and Gross 1999). For example, most recent models emphasize emotion’s function as relational, as the person’s attempt or readiness to establish, maintain, or change the relation between the person and her or his changing circumstances, on matters of significance to that person (Campos et al. 2004).

The complexity of these definitions of human emotion can be further distilled to “Emotion is *taking it personally*” (Shields 2002). That is, at its core, emotion concerns an event, situation, or object that is perceived as potentially having significance for one’s own well-being. Whether the emotion is love for one’s newborn baby, irritation at oneself for procrastinating, fear for a friend who has breast cancer, or pride in one’s country, each situation entails perception of someone or something as having urgent significance for my own well-being, interests, or goals. This definition emphasizes that something about the *self* is at stake in emotion and acknowledges that self can be narrowly defined in terms of personal identity or broadly in terms of social group membership.

Two Major Families of Emotion Theory in Psychology

The most influential contemporary scientific theories of emotion in psychology fall into one of two broad

categories: fundamental emotions theories and appraisal theories. Other types of divisions could be made (e.g., theories that stress evolutionary factors, behavioral manifestations, emotion as a feature of social relationships); however, the broadest classification distinguishes between those theories that explain emotion as a finite set of innate emotions and those that explain emotion in terms of the information-processing capacities that generate or constitute emotion.

Fundamental emotions theories assert the existence of a set of innate basic emotions which may interact with cognition and temperament, but which comprise a separate biologically based system. This theoretical approach has tended to focus on identification of culturally universal expressive features of emotion, using those features as the means to investigate emotion processes. Theorists taking this position often argue the modularity of emotion, that is, that structures and processes of emotion can be distinguished from those that subserve other behavioral and information-processing functions. While some of these theories focus on human emotion, others aim to construct a theory that is applicable across species.

Appraisal theories explain emotion in terms of its evaluative character and so emphasize the role of information processing in the generation or structure of emotion. These theories do not make a sharp distinction between emotion and cognition, but think of the relation as a kind of continuum that ranges between processing that is fairly automatic and executed without reflective self-awareness, and processing which constitutes or generates an emotional state. Information-processing models (e.g., Oatley and Johnson-Laird 1987) are an offshoot of appraisal theories that borrow from the concepts and approaches of computational modeling to map out the dimensions or steps in processing that lead to one emotion state or another.

Social constructionist models are related to appraisal theory and share with that perspective a focus on the meanings assigned to situations. Social constructionism, however, views emotions, emotional experience, and emotional display as cultural artifacts which emerge out of social discourse. The notion of wholly-formed innately programmed “basic” emotions is rejected. The constructionist (also referred to as *constructivist*) point

of view has played a significant role in the anthropology and sociology of emotion. American academic psychology, with some important exceptions, until recently was less welcoming to this approach. In fact, psychologists’ early critiques of constructionism erroneously tended to interpret constructionism’s emphasis on meaning-making as rejection of any built-in component of emotion.

In this field dominated by theory, there are, of course, other less widely held perspectives. One, distantly related to appraisal theories, derives from the philosophical standpoint of phenomenology. *Phenomenological* theories stress the embeddedness of the emotion in the relationship between the individual experiencer and the context in which emotion occurs. This approach has begun to have wider influence through the work of philosophers and European social psychologists. *Psychoanalytic* theory and therapeutically based psychologies have so far had more limited impact on current trends.

Neuroscience research, meanwhile, is on the verge of transforming many long-held assumptions about the dichotomy between emotion’s built-in and built features. Work with other animals has shown how biological features ranging from neural structures to hormonal state mutually affect and are affected by emotion-linked learning and experience. Research on humans, benefiting from technological advances in brain imaging and the burgeoning field of cognitive neuroscience, has revealed much about the interactive relation among brain structures and processes involved in emotion and emotion-linked social processes.

Historical Background

Prescientific Theory

Emotion has been a central theme of writers and philosophers since the earliest written texts, though the construct bears little resemblance to that of modern Western cultures. Emotions are discussed differently in those texts, typically focusing on emotions in a limited way mostly as base instincts or forces in one’s body. Nevertheless, this facet of life was a critical component of being human. For example, the *Epic of Gilgamesh* centers on Gilgamesh’s emotions of desire, anger, and fear, and his need to balance these emotions to act with virtue and heroism. In the creation story of the Hebrew

bible, Adam and Eve's exercise of free will results in their experience of shame of their naked bodies. The *Iliad* begins with Homer's invocation of the muse to speak of Achilles' rage, a rage which permeates and drives the epic. Sanskrit writings contained in the *Mahabharata* culminate in a complex discussion of mixed emotions where there is joyous celebration of the heroes triumph over evil, but remorse over realizing the evil the heroes committed to triumph.

Ancient philosophies also dealt extensively with emotion. Much of the discussion was concerned with understanding the role of emotion in relation to thought, and how to exercise control of emotional experience. For example, the Epicureans and Stoics viewed emotions as a threat to living completely rational lives. Plato, in the *Phaedrus*, valued emotions more than his predecessors, yet still believed that emotions interrupted rational thought. He viewed emotions as having a driving force (what modern emotion theorists would call an action tendency) that needed to be directed and controlled by reason. Aristotle describes bodily motions, thoughts and beliefs, and physiological changes as all essential parts of emotions (similar to a modern-day view of emotions). In the *Nicomachean Ethics* he argues that virtue lies in feeling correctly for a situation, for example, showing the appropriate amount of fear. These thoughts were echoed in Eastern traditions, for example, as Confucius discussed needing to feel an appropriate and matching emotion when performing ritual for that ritual to be deemed legitimate.

Though Aristotle tried to place strong value on emotions place in thought and action, this view was not widely held. A general distrust of emotion's capacity to overwhelm the individual permeates writing from early modern times to the present. This can be seen in the beginnings of modern Western science and the rationalist movement. Baruch Spinoza writing in the seventeenth century believed that we had to accept that emotions existed in the world, and thus by no longer having to fight them we can move beyond them. Note this stance does not try to appreciate or value emotions but rather to mitigate the effects of emotions on logic and reason. John Locke, writing in the same time, believed that emotion ultimately led to mistakes, and advocated reason as the path to truth. Other empiricists, such as David Hume, downplayed

the role of emotion by rating it as secondary to the knowledge we acquire through our senses and thought. The rationalist movement purported that the only reliable knowledge we can glean from existence is through thought and reason; emotions merely serve to disrupt that process and lead to errors.

The Nineteenth Century as Turning Point: William James and Emotion Consciousness

The Western scientific study of emotion has been a magnet for theory. Since the latter part of the nineteenth century a number of theories have been put forward with the goal of defining the essential constituents of emotion, emotion's function, how emotion is elicited in ordinary situations, and what differentiates one type of emotion from another. Early in the nineteenth century, the concept of "emotions" in psychology was developed in opposition to, and ultimately replaced, prevailing religious constructs of emotion as passions and affections of the soul. The study of emotion in psychology initially concerned the nature of consciousness, bodily experience, and brain function. Many who were involved in the disciplinary formation of scientific psychology in the USA, Britain, and Germany were concerned with emotion. Charles Darwin, William James, and Wilhelm Wundt are among those identified with the theories of emotion that of the last quarter of the century (Gardiner et al. 1937).

In the 1880s philosopher-psychologist William James' work represents a turning point in the study of emotion (<http://plato.stanford.edu/entries/james/>). While the theory itself has notable limitations, James' effort was fundamental in spurring interest in developing testable theories of emotion. James was extremely critical of what was being written about emotion because these accounts of emotion tended to be solely descriptive. His main complaint was that each emotion was looked at as an individual thing and that there was no attempt at systematic explanation of emotion phenomena. James (1884) proposed that theories aimed at explaining and predicting emotion were needed if understanding of emotion was to progress.

Through his theory, James aimed to explain felt emotion (emotion consciousness) as it occurs in strong emotion. James says that emotion is not an interpretation of bodily responses, but rather the awareness of

bodily reactions as they occur. Physiology is where we should go to look for an explanation of emotion. His theory can be described by a sequence of events. First, there is the perception of “an exciting object,” exciting, not as thrilling, but in the sense of sense of instigating the process. Second, the object is perceived by the brain. Third, perception of the exciting object reflexively elicits a reaction in skeletal muscles and gut (e.g., hair stands on end, fists are clenched, nausea). Finally, perception of the bodily change as it occurs *is* emotion. At about the same time, Danish physiologist Carl Lange (1885) proposed a similar theory emphasizing the primacy of bodily reactions in emotions. And so the theory is often referred to as the James-Lange theory.

James sets out three propositions as the foundation of his theory. The first is that bodily responses are reflexive (i.e., unlearned) and of unlimited variety in the way they may combine. These variations give us our incredibly varied emotional life; there can be as many emotions as there are patterns that people can perceive. The second proposition is that bodily responses are perceived as they occur. Emotion consciousness is therefore not a reflective interpretation of bodily response, but an awareness of them, and arguably, epiphenomenal. The final proposition is that emotion is not learned. Response to any “exciting object” is, at its core, a reflexive response to the situation. For example, nervousness at being in front of an audience, James noted, could be traced to primitive humans’ innate uncertainty as to whether strangers intended harm.

James’ views on emotion are important for us today in three ways. First, James broke away from the majority of workers in the study of emotion at that time, attempting to devise a broad theory which would explain emotion consciousness, rather than simply describe the attributes of specific emotional states. Second, he viewed emotion consciousness in terms of its biological basis, a trend in science largely influenced by Darwin’s then-new theory of evolution. Third, his ideas generated controversy which stimulated further discussion and research on emotion.

Responses to James’ theory were strong, legitimate, and generally negative. One of the most effective rebuttals was Walter Cannon’s in 1927. Cannon’s critique like many others, however, disputed the theory’s relevance to emotional behavior (not emotion

Theories of Emotion, History of. Table 1 Cannon’s critique of the James-Lange theory

1. Separation of the viscera from the CNS does not alter emotional behavior
2. The same visceral changes occur in different emotions and in nonemotional states
3. The viscera are relatively insensitive
4. Visceral changes are too slow to be the source of emotional feeling
5. Artificial induction of visceral changes typical of strong emotions does not produce emotion

consciousness, which James set out to explain). Cannon’s response also misunderstood James-Lange a theory of visceral feedback rather than bodily responses more broadly (e.g., skeletal muscles; facial expression) (Cannon 1927) (Table 1).

Not only was Cannon’s criticism taken as defeat for James’ theory, but its timing coincided with the beginning of what might be called the “Dark Ages” in the study of emotion in Western science. It is important to note that James understood his theory as a work in progress. In fact, he offered the theory as a much-needed first step in moving the study of emotion from a descriptive enterprise to a scientific enterprise.

Emotion in the Era of Behaviorism

As behaviorism grew in influence as the paradigmatic theory of psychology, the study of emotion became more narrowly defined. From the 1930s to the early 1960s, behaviorism was the dominant paradigm in experimental psychology in the USA. Devastating to emotions position, behaviorism advocated being able to measure and quantify a stimulus and its effects. Because felt emotion could not be directly observed or measured, many believed that it should not even be looked at. As Elizabeth Duffy (1941, p. 283) is famously quoted, the prevailing view at the time was that “‘emotion,’ as a scientific concept is worse than useless.” By this, Duffy meant that there was no place in a science of behavior for constructs that refer to psychological phenomena that are defined largely by their experiential properties. As experiences, Duffy argued, emotions were not subject to reliable measurement in overt behavior. She (and other psychologists) was not

denying the reality of emotional experience, but asserting that experience could not be objectively measured and therefore was beyond the purview of a scientific psychology.

Even aspects of emotion that could be directly observed, namely facial expressions, were discounted. With few exceptions, most notably Magda Arnold and Robert Leeper, each of whom developed a significant theory of emotion, emotion theory in the USA was dominated by an approach that reduced emotions to arousal states (e.g., Duffy 1941) and regarded emotions as essentially disorganizing or disruptive processes. Arnold (1970) described these Dark Ages of emotion research in the following way:

- ▶ A wall of silence began to close off emotion from the general theoretical and experimental endeavor of psychologists, particularly in this country [the U.S.]. Behavior theory, as it now began to be called, had finally succeed in banishing all thought of what might be going on in the 'black box' by convincing psychologists that any concern with 'mentalistic' events was thoroughly unscientific (p. viii).

While emotion was put on the periphery on psychological theory and research, it was not abandoned. The status of emotion research and theory at this point is best illustrated by an international conference on emotion held in 1948 (Reymert 1950), called the Mooseheart Symposium (so called because it was held at on the grounds of the fraternal organization of Moose which was called "Mooseheart"). The conference drew participants from a broad range of disciplines and the shadow of behaviorism was probably smaller at this conference than it would have been at other conferences in psychology (largely because the organizer worked in child development, a specialization that had not yet been completely been taken over by behaviorist models).

After Mooseheart, emotion research continued its decline, as scientific psychology came to be thoroughly dominated by a behaviorist version of learning theory that defined thought, mind, and experience as unobservable and therefore outside the boundaries of what good science could profitably study. Still, emotion research in the USA that was not entirely driven by behaviorism could be found. Facial expressions of emotion received attention, both in terms of the

range and dimensionality of expression and in terms of factors influencing accuracy in judgment of expression. By the time of psychology's "Cognitive Revolution" in the 1960s, significant articles and books on emotion (e.g., Candland 1962; Plutchik 1962; Tomkins 1962) and an international symposium organized by Arnold in 1968 set the stage for revitalization of emotions research which has grown consistently and considerably since then.

Felt Emotion Generated by Bodily Response

Arguably the most influential alternative to behavioristic explanations of emotion came about as a result of observations made regarding artificial stimulation of bodily responses typically associated with emotional states. Gregorio Marañón, a Spanish physician, published an article in 1924 which reported the effects of inducing changes in somatic states through injections of epinephrine (called adrenaline in British English) which stimulates the sympathetic nervous system (SNS). Marañón was generally interested in learning about emotional reactions to injections of adrenaline. He found that the large majority of his research subjects were aware of the SNS responses that the injection evoked and the bodily reactions consistent with SNS activation. Furthermore, his subjects on discussing their bodily reactions reported that it was "as if" they were actually experiencing the emotion, though the emotion itself was not present (e.g., "I feel as if I were afraid"; "as if I were awaiting a great happiness"). Less frequently, the bodily response was followed by a full blown emotional state, typically anxiousness. This complete emotional state often manifested "a psychological motif" that justified the feelings. Marañón's work is noteworthy for suggesting that it is the connection between bodily response and psychological account that combines to create an emotional state.

Some years later this idea was taken up more explicitly by Stanley Schachter and Jerome Singer (1962). They proposed that two factors were necessary for emotional experience: presence of bodily arousal and the availability of an explanation of that arousal as due to emotion. They reasoned that, given a physiological state of arousal for which an individual has no immediate explanation, the individual will label the state in

terms of the available context. Thus, they concluded, “precisely the same state of physiological arousal could be labeled ‘joy’ or ‘fury’ or ‘jealousy’ or any of a great diversity of emotional labels depending on the cognitive aspects of the situation” (pp. 381–382). Of course, if other, nonemotional explanations are more salient, emotion will not be labeled. And if no physiological arousal is present, emotion will not be labeled.

The initial paper presenting their theory (Schachter and Singer 1962) reported an experiment with serious flaws, including the omission of critical comparative conditions in the experiment. Nor did they obtain results that supported a strong interpretation of their two-factor theory. The publication is nevertheless noteworthy for challenging then-prevailing views of emotion that disregarded the meaning-making impulses of humans.

Schachter and Singer’s two-factor theory, despite its explanatory inadequacy, has been extraordinarily influential in psychological research on human emotion. The most useful application of Schachter and Singer’s two-factor theory has been in the area of “excitation transfer” – misattribution of arousal to a different source than actually caused the bodily response. If, for example, you just worked out (thus increasing activity in your SNS) and then started a conversation with a new friend, you might be likely to view that person as more exciting and interesting because you would attribute your SNS arousal to the conversation. If however, you attributed your arousal to the workout, your perception of your new friends would be unaffected.

Appraisal Theories of Emotion

Behaviorism’s prevailing view of emotion was challenged by the development of theories which relied on explaining emotion in terms of ordinary perceptual and cognitive processes. One of the earliest and most influential was Magda B. Arnold’s (1903–2002) comprehensive theory of emotion which was an ambitious fusion of research in cognition, motivation, neuroscience, and personality (Shields and Kappas 2006).

Arnold proposed that emotions are generated when an object or situation is perceived and appraised by the individual as good or bad for him or her at that moment. She proposed that this process is direct, immediate, and intuitive process which does not

initially require that we recognize the object, whether the “object” is the self, another individual, or something else in the external or internal environment. This direct process of perception is based on phylogenetically ancient subcortical brain structures. The immediate appraisals elicit action tendencies to move toward or away – or more accurately, “want” or “diswant” the object. Emotion is the felt tendency to want or diswant the object with respect to *oneself*. Reflective appraisals immediately follow and can modify, intensify, attenuate, or even change the initial unreflective appraisal. “Mixed” emotion reflects our capacity for sense judgments (the intuitive appraisals) to be about more than one aspect of a thing or person. The roots of Arnold’s theory can be traced to phenomenological psychology of the previous century in viewing emotions as having objects, that is, as being *about* something and, thus, intentional at some level.

Arnold’s theory includes constructs that characterize contemporary appraisal theories, most notably the distinction between an initial, automatic, nondeliberative appraisal and subsequent appraisals that may be conscious or have some overt intention associated with them. The direct and immediate evaluative process that occurs, Arnold (1960) would say, is automatic:

- ▶ The appraisal that arouses an emotion is not abstract; it is not the result of reflection. It is immediate and indeliberate. If we see somebody stab at our eye with his finger, we avoid the threat instantly, even though we may know that he does not intend to hurt, or even to touch us. Before we can make such an instant response, we must have estimated somehow that the stabbing finger could hurt. Since the movement is immediate, unwitting, or even contrary to our better knowledge, this appraisal of possible harm must be similarly immediate. (Arnold 1960, Volume 1, p. 172)

Arnold viewed motivation as the link between the wanting/diswanting-evoked action tendency (that is, emotion) and actual action. For Arnold, emotions are important in personality integration in that emotional responses are guided by one’s higher ideals. Deliberative appraisals help us harness and understand emotion and use it constructively as a motivating force in personality. Thus, emotion is firmly based in our evolutionary history and shares fundamental characteristics

of emotions in other animals. At the same time, however, human emotion is unique because of human capacity to think, and plan, and have a sense of enduring and central values.

Important appraisal theories have been put forward by Richard Lazarus (1994), George Mandler (1984), Nico Frijda (1986) and others. Appraisal theorists who followed Arnold share some common assumptions with her and with each other. Most importantly, they differentiate between primary (initial) and secondary (subsequent) appraisals and view appraisals as defining the emotional state's experiential quality and action tendencies. This view is succinctly summarized by Richard Lazarus, whose theory focuses on the relational nature of the person and emotion-evoking object or situation: "Each kind of emotion comprises a distinctive cognitive, motor, and physiological response configuration that is defined by the common adaptational (psychological and physiological) requirement of the person-environment relationship, as these are appraised" (Lazarus 1991, p. 202). The distinction between primary and secondary appraisals is important, but sometimes overlooked in critiques. In one well-known exchange, Lazarus and Robert Zajonc debated whether appraisals are "cognitive" in the sense of requiring inferential information processing a question which actually is a nonissue given the emphasis that appraisal theories place on automatic evaluation processes.

Two representative current theories are described here.

Phoebe Ellsworth and Craig Smith (1988) are concerned with the particular types of appraisals that distinguish one emotion from another. They propose that at least six kinds of judgments that together define a given emotional state. These dimensions of appraisal are: attention, pleasantness, certainty, anticipated effort, agency (i.e., who caused the situation), and perceived situational control. The configuration of appraisals determines which emotion is experienced and the configuration can change rapidly as new information becomes available or attention is redirected. Ellsworth (1991) stresses the heuristic value of examining appraisal dimensions.

Klaus Scherer (1987) and Scherer et al. (2001) views the generation of emotion as a process generated by a sequential information processing. He proposes that

anytime that an individual is faced with a new stimulus, she or he rapidly and automatically go through a series of Stimulus Evaluation Checks (SECs). The result of evaluation at each one of these check points further defines the specific emotional state. Thus, the appraisals that generate an emotion occur sequentially, from the first category of evaluation of novelty through the last and most cognitively sophisticated assessment of one's ability to cope with the stimulus. Each of the major categories of SEC has subjudgments that also are made. Thus, for example, the first SEC is whether the stimulus is it novel and it has subordinate judgments attached to it: Was its onset sudden? Is it familiar? Was onset predictable?

Scherer and his collaborators have studied the components of emotion extensively. They have, for example, compared various national groups' descriptions of the bodily symptoms of specific group. Scherer has also examined the vocal "signatures" of emotions.

These and other appraisal theories help us understand individual and cultural differences, for example, how different emotions can be evoked by what an outside observer would judge to be the same situation. These theories also help us understand how different emotions may be related to one another. They also give us ideas about intervention points in attempting to control or change emotion.

Social Constructionist Perspectives

As noted above, social constructionist perspectives in psychology have much in common with appraisal theories. James Averill (1983, 1991), for example, defines emotion as a deeply acted transitory social role which includes the individual's appraisal of the situation and which is interpreted as passion, rather than action. It is important to understand that "deeply acted" does *not* mean deliberate, disingenuous, or in any way superficial. Indeed, an important quality needed for emotion to "work," according the social constructionist perspective, is that we believe emotion happens *to* us, outside of our direct control. Thus, emotion offers a justification for expressing oneself in ways that may not be acceptable if one were believed to be in a completely rational state. The enactment of the role is not strictly scripted, though the conditions for genuine emotion do conform to certain rules regarding what the emotion can be about, who is appropriate to

experience and express it, what the time course is for the emotion, and so on.

Averill observes that any emotion can be described on any one of several levels of analysis. Anger, for example, can be described in terms of its experiential properties, its possible evolutionary history, or its codification in various social institutions and structures. The picture of an emotion differs depending on the level of analysis, and each level of analysis focuses on different facets of the origins, functions, and consequences of the emotion in question. No individual perspective is the single “correct” one because each is a level of analysis, not a stand-alone explanation. Thus, the capacity for anger, Averill argues, has a biological basis in humans’ innate capacity for reflective self-consciousness, motivation to cooperate, and capacity for aggression. At the psychological level, anger can be described as aiming to correct a perceived wrong, while from the perspective of interpersonal relations anger can be described as aiming to facilitate social order. According to Averill, anger, as a deeply acted social role, allows the individual to respond strongly to a violation of rights or social norms with the intent of bringing the individual(s) violating those norms back to social conformity.

The Nineteenth Century as Turning Point: Charles Darwin and Emotionally Expressive Behavior

Charles Darwin (1809–1882) was already famous for his publications on evolutionary theory when he published *The Expression of the Emotions in Man and Animals* (1872), the year after *The Descent of Man* (1871) (<http://darwin-online.org.uk/>). In *The Expression of the Emotions* Darwin outlined a view that emotional expressions are evolved, originating directly from adaptive behavior or through association with adaptive behavior. Darwin considered expressions as both an external manifestation of internal state and as having an important communicative function. He concluded that there are universal body postures that depict basic, primary emotions. For example, squinty eyes with tears are interpreted as sorrowful. For evidence Darwin relied largely on his own observations as well as anecdotes and observations of human and animal behavior that had been sent to him by naturalists from around the world. Consistent with

his evolutionary views, Darwin considered animal emotions to illustrate evolutionary antecedents of human expression and drew parallels between animal and human expression across emotional states. For example, he famously considered weeping in elephants. The only emotional expression he identified as uniquely human was blushing.

Darwin identified three principles to explain the innate of expression of emotion. The first is the *principle of serviceable associated habits*. These “habits” once had adaptive value, but may no longer serve that function in humans. One example is showing teeth to scare off predators, although today this is no longer useful, it still occurs when strong anger is evoked. The second is the *principle of antithesis*. This principle states that opposite frames of mind will have opposite expressive patterns. For example, defiance is expressed through expansive gestures and forward attitude, whereas submission is expressed with a concave body and bowed head. The third principle is *direct action of the nervous system*. This principle states that evoking situations “automatically” elicit the particular expressions for the feeling evoked in that situation.

In the 1960s Darwin’s approach to the study of facial expression was revived in the context of the search for universal, fundamental emotions. Carroll Izard and Paul Ekman are the leading theorists associated with the study of facial expression of emotion. Each was strongly influenced by Silvan Tomkins (Table 2).

Silvan Tomkins’ (1962) two-volume *Affect, Imagery, and Consciousness* presents a complex and

Theories of Emotion, History of. Table 2 Factors that influence accuracy in judging facial expression of emotion

<ul style="list-style-type: none"> • Number of photos to be judged, clarity of expression, and the context represented in those photos
<ul style="list-style-type: none"> • Task of the judge: free labeling yields less accuracy than choosing a label from a small set of distinctively different emotions
<ul style="list-style-type: none"> • Amount and type of training that judge receives
<ul style="list-style-type: none"> • Accuracy can be increased by prior exposure to the target to be judged and range of expression typical for the target
<ul style="list-style-type: none"> • Accuracy can be increased by use of film/video stimuli rather than still photos

comprehensive theory of what he preferred to call “affect,” especially as it relates to motivation. Tomkins viewed emotions as central to normal life, not a disruptive influence as was then the prevailing view. He derived his ideas from control theory’s conceptualization of feedback. Emotion is an innate system which amplifies the motivational impulse of basic and learned drives. So motivation for Tomkins was comprised of the basic drive (hunger, thirst, sex) that was amplified through its associated emotion. Emotion gives one drive priority over another and adds urgency – which is experienced as emotion – to the satisfaction of that drive. He argued that the face and its expressions, and the skin itself, are the primary amplifiers of emotions in humans, with physiological and muscular changes directing the individual’s focus on the goal state of the associated drive.

Izard and Ekman each built on the idea of the importance of innate, subcortically generated facial expressions to develop their own theory of emotion. Their ideas are described in some detail, not only because of their influence on contemporary research, but because they took quite different approaches to studying the question of the universality of emotional expression.

Carroll Izard (1977) began his career as a clinical psychologist and through his work began to think that all human problems had their basis in emotions. But there was surprisingly little research on this topic. His Differential Emotions Theory proposes that there is a set of ten basic emotions (fear, anger, surprise, joy, disgust, contempt, shame, sadness, interest, and guilt) which together comprise a distinctive subsystem of personality. These basic emotions are innate, emerge over the course of the first two years of life, and are uniquely defined by their expressions. Over the course of development individual emotions combine with one another and/or other personality subsystems (drive, perceptual, motor, cognitive) to form the complex emotional repertoire of adults. For example, romantic love is viewed as a combination of elements of the emotion subsystem (primarily joy and interest) with the drive subsystem (primarily sex).

Izard developed an objectively scorable coding system, the Maximally Discriminative Affect Coding System (MAX), for the study of facial expression. It is based on dividing the face into three regions and

coding expressions of each in terms of distinct facial muscle groups. For example, a face with brows obliquely raised, a slight squint, and the corners of the mouth turned down, indicates sadness. A face in which the eyes are squinted and staring, the mouth square, and the brow arched, indicates anger.

Paul Ekman (1982) proposed that there is a small set of fundamental, innate emotions that are characterized by unique corresponding expressions: happiness, fearfulness, surprise, anger, disgust, contempt, and sadness. These emotions are universally recognized, a finding Ekman established through research in a number of literate and preliterate cultures. Ekman also proposes that discrete emotions have identifiable physiological signature responses and cognitive qualities. Thus, basic emotions evident in three differentiated, yet interrelated systems: cognitive, physiological, and expressive. Ekman’s is a functionalist theory in that he stresses that emotion has evolved as a means to manage the fundamental tasks of life through self-regulation and interpersonal communication. Ekman’s theory has evolved considerably since its earliest formulations, with more recent statements emphasizing the interplay of innate and learned/cultural features.

Ekman and his collaborators have developed a widely used system of coding facial expressions of emotion in a moment-to-moment framework. The Facial Affect Coding System (FACS) involves identifying the specific facial muscles that are contracted and the intensity with which they are contracted. Among other uses, FACS is used to distinguish between authentic expressions and those that are inauthentic.

Ekman and his colleagues have extensively studied what they term *display rules*, the often tacit social rules directing when, how much, and which emotions should be expressed to others. In an early study, they showed one of two films (one neutral and one distressing) to American and Japanese university students (all men). In some cases, the students were alone as they watched the films, in others, an experimenter sat in the room with them. American students expressed disgust at the sinus surgery film whether they saw the film alone or with company. The Japanese students, however, expressed disgust at the surgery film when they were alone, but were more likely than American students to mask their disgust with smiles when

accompanied by an experimenter. Ekman and colleagues use results such as these to posit that cultures differ in social norms for expressing specific emotions. Ekman is also widely known for his work on the detection of deception.

Issues in the Study of Facial Expression of Emotion

Because facial expression of emotion has played such a significant role in modern theories of human emotion, some of the issues that arise in research employing expressive stimuli should be noted. It does not take much detail in facial expression to express an emotion. Small changes result in big differences in the emotions conveyed. Expressive muscles of the face are controlled by two separate neural pathways. One pathway reflects volitional muscle movement, while the other appears to be connected with involuntary muscle movement. Thus, a genuine “felt” smile has somewhat different characteristics than one that is deliberately posed. No one area of the face is more able to show emotions than others, but one area may be particularly good about revealing particular emotions. For example, in the USA, the eyes seem especially relevant to conveying sadness.

The majority of research on emotional expression is concerned with facial expression. There are difficulties, however, in interpreting facial expression as a direct indicator of emotion. Most important, sustained “pure” expressions of specific emotions are rare in everyday social interaction. The more familiar the face is, the easier it is to interpret facial expressions. In other words, in pictures showing the same face in a happy, sad, angry, or surprised expression, those expressions are easier to identify than if different faces are shown for each emotion.

The Nineteenth Century as Turning Point: The Brain and Nervous System

On September 13, 1848, Phineas Gage, a foreman for a railroad construction gang, accidentally ignited some gunpowder while preparing a blasting hole and shot a tamping rod through his left cheek and out his skull. Miraculously Gage survived the accident; however, he was not the same. Where prior to the accident he was described as quite amiable, he was now impatient and easily angered. Post-mortem analyses revealed that

Gage suffered damage to his frontal lobes (an area of the brain proposed to be involved in emotional and practical decision-making). In other words, Gage provided early evidence that damage to the brain altered personality and emotional functioning.

Following news of Gage, much of the research in the nineteenth century and early twentieth century examined the effect that strokes had on personality. Again links were found that when areas of the brain were damaged by strokes, a corresponding change in functioning ensued. For example, following strokes many patients experience blunted affect (feeling little or no emotion) or emotional lability (switching quickly between emotional extremes), all of which are consequences of damage to emotion centers in the brain. Using this research and his own patient studies, Korbinian Brodmann divided the brain up into 52 distinct areas (a classification system still in use today) which laid a scientific basis for understanding how damage to brain areas results in changes to emotional functioning.

Starting in the early twentieth century, more sophisticated measures were developed that could measure healthy, adult brains (rather than relying on post-mortem analyses). One of the first major advancements was electroencephalography (EEG), which is a technique that measures the electrical activity of the brain. Functional magnetic resonance imaging (fMRI) a technique only developed in the late twentieth century also provides an estimate of brain activity but measures blood flow instead of electrical activity. When the brain is actively using a specific region, that area of the brain requires more oxygen. By measuring blood flow patterns, it can be estimated what parts of the brain are being activated. Unlike EEG, fMRI allows for an image of blood flow to actual parts of the brain rather than just a surface estimate, however fMRI takes much longer. These techniques have helped to advance our understanding of emotional processes and are discussed further below.

The Nineteenth Century as Turning Point: Emotion and Psychopathology

No treatment of emotion theory would be complete without discussion of Sigmund Freud’s theory of neuroticism. Ironically, even though emotion plays a central role in Freud’s theories of personality and

psychopathology, he did not offer a theory of emotion to account for the processes of emotion more generally.

Freud referred to emotion in two distinct ways. Sometimes Freud treated emotion as *a* form or *the* form of psychic energy (libido). At other times he implied that emotion is a product of other psychodynamic processes, for example, viewing emotion as the discharge of instinctive energies or as the manifestation of instinctual conflict. The preoccupation of other emotion theorists of his time – what is emotion and what is the sequence of events that produces emotion – did not concern him. His treatment of emotion suggests that he views the unconscious as the substrate of consciously experienced emotion for personality functioning.

Freud's account of emotion is most fully worked out in his description of the acquisition of pathologies of anxiety. Anxiety, according to Freud, plays an important role in personality development and in the dynamics of personality functioning. Anxiety differs from other painful states by some specific quality of consciousness which is determined by distinctive features of visceral responses. Anxiety is a danger signal to the ego which can then take measures to deal with the anger. If one cannot deal with or avert the anxiety, the anxiety builds and eventually breaks down the ego's ability to maintain itself. We "deal with" anxiety either by getting away from it or in some other way nullifying it, by anticipating when it might happen and doing something about it in advance, or by employing ego defense mechanisms.

Freud distinguishes three types of normal anxiety. All "feel" the same to the individual, but they differ in the source of the anxiety. Anxiety can be a blend of the three (Table 3).

1. Reality anxiety has its source in the external world, although sources can be innate or learned. This state could also be labeled "fear."
2. Neurotic anxiety, unlike reality anxiety, has an intrapsychic source. Essentially, the fear is a fear of what might happen if defenses of the ego fail. This fear of what would happen if the ego cannot keep anxiety at bay and that they would be expressed through some impulsive action. This type of anxiety, in other words, is fear of being overwhelmed by an uncontrollable urge to commit some act or think

Theories of Emotion, History of. Table 3 How neurotic anxiety develops

1. Child expresses aggressive or sexual impulses and is strongly punished for acting on these impulses.
2. Reality anxiety is experienced when the child thinks about the punishment for these acts.
3. The child attempts to reduce anxiety by repressing whatever stimuli are associated with the punished impulses. Repression is the ego defense mechanism of wiping something out of consciousness through purposeful, but nonconscious "forgetting."
4. Neurotic anxiety represents the partial breakdown of repression. The anxiety seems objectless because the individual is not conscious of the original experiences that originally caused anxiety, having repressed them.

some thought by which will prove harmful to oneself. Phobias and free-floating anxiety are example of this type of anxiety.

3. Moral anxiety also has an intrapsychic source. In this case, the source of the fear is of what might happen if anticathexes of ego fail. Feelings of guilt and/or shame in the ego are aroused by perception of danger from one's conscience (an aspect of the superego which is the internalized agent of parental authority). It is loosely tied to neurotic anxiety because the chief enemies of the superego are all the things that the id wants (primarily sexual and aggressive impulses).

Key Issues

Many of the key issues surrounding emotions have grown out of tensions between differing theoretical perspectives or advancements in research methods and measurement techniques (e.g., qualitative research methods; instrumentation for measurement of autonomic and central nervous system activity).

Cultural Similarities and Differences

Examining similarities and differences across cultures has appealed to many researchers across a variety of viewpoints. Theorists in the Darwinian tradition believe that similarities across cultures inevitably point to a biologically driven emotion system. Whereas social constructivists believe differences are evidence that "emotion" is a culturally defined category of

behavior and experience. Both positions are supported by evidence. A small set of emotional expressions are expressed and understood in all cultures studied. Some general conditions typically elicit the same class of emotions from people all over the globe. Differences in emotion generally occur in the following ways: how situations are appraised what types of emotion are typically felt in response to situations, how emotion experiences are described as different from other types of experiences such as illness or spirit(ual) influence, how that emotion is dealt with and regulated, and how one should behave when experiencing an emotion.

The universality of any given emotion depends on the breadth of the category. The more general the level of cross-cultural comparison, the greater the universality. For example, “anger” involves the sense of having been wrongfully deprived of what one is due, whether that is a possession, reputation, or other object of value. Belief about what an individual is entitled to, of course, varies across cultures and historical time, but the realization of violated entitlement generally elicits an anger-like experience and behavior. In contrast, how that experience is represented in language and beliefs about what to do with the anger, such as what constitutes the appropriate response, the social consequences for acting on the anger impulse, and so on, reveal larger differences and greater variability across time and culture.

The Nature of Emotional Experience

Key issues in this arena include the extent to which emotion occurs unconsciously and the relation of experienced emotion to emotional behavior, especially facial and vocal expression of emotion. There are also ongoing debates regarding the structure of “mixed” emotions, that is, whether they represent an actual combination of discrete emotional states (e.g., anger plus fear) or are experienced as mixed because of the rapidity with which attention switching can take place. Related to this last point regarding mixed emotion is an ongoing debate as to whether emotion is best conceptualized as a set of discrete states, such as anger, fear, and happiness, or is better described as a two-dimensional space within which individually-identified emotions are distributed along bipolar dimensions of intensity and hedonic valence.

Emotion experiences occur on many levels and involve the integration of many systems of the body.

As a result, it is possible for one to experience aspects of an emotion or behave in an emotionally congruent way without even recognizing the presence of emotion. Emotion involves a hedonic judgment (i.e., this is good for me; this is bad for me) which is often made automatically and unconsciously. This information can be processed outside of conscious, directed awareness, thus emotion-consistent behavior may occur without awareness that emotion is affecting one’s actions. Fear offers a good example of how rapidly unconscious evaluations of potential threats are made (Le Doux 1996).

The relation between experience and expression is also debated. In this area, the question is whether emotional expression is a readout of experienced emotion, even if that unregulated, unedited expression occurs only fleetingly. An alternative view detaches experience from expression and views emotional expression exclusively as a means of communication. In this view, expression is only loosely, if at all, related to the motivational state or action readiness that characterizes emotion.

Embodiment theory posits that the body, through sensations and perceptions of the body’s relation to the external world, constitutes a system of knowledge influences how people process emotion-related information. For example, when facial expressions of emotion match the emotion in a task, such as smiling while looking for happy images in a collage, people perform the task faster. There is also research-based evidence that people tend to feel emotional states associated with facial expressions. Research on the *facial feedback hypothesis* (Laird 2007) shows that research participants induced to smile, for example, through holding a pencil with the teeth, report feeling more happiness than those induced to frown by holding a pencil with puckered lips. In contrast, those induced to frown report feeling more sadness than those induced to smile.

Mood and Emotion Effects on Information Processing and Decision-Making

Mood and emotion can have profound effects on cognitive processes and decision-making. For example, people in positive moods tend to think more broadly, are more likely to use heuristic processing, and will persist longer on a difficult task. In contrast, people in

negative moods are more likely to pay attention to detail, use systematic processing, and give up sooner. People's judgments typically reflect the mood they are in with those in positive moods judging people and events more positively than those in negative moods, and those in negative moods judging people and events more negatively than those in positive moods.

It is important to note that these are general patterns which are affected by whether people are alone or in a group, with the effects of emotions and mood stronger when individuals are alone. Furthermore, mood effects are influenced by one's perceived efficacy to achieve a goal. For example, according to the mood behavior model, when one is in a negative mood, but believes that one's goal can be achieved, that individual is more likely to persist than if the goal is not seen as achievable.

Beyond looking at how mood and emotion alter cognition, the interconnectivity of mood and emotion with cognition is becoming more widely recognized. For example, economists are proposing interesting emotion-based models of decision-making as alternatives to rational choice models. Investigation of emotion on decision-making grows out of the clinical finding that patients who retain high level of cognitive functioning, but lose their ability to experience emotion, have difficulty deciding between different options, especially when the options have relatively equal positive and negative components (e.g., Damasio 1999). This work suggests that an affective component of emotions helps lead to decisions, often unconsciously.

Emotion Stereotypes, Group Differences, and Intergroup Emotion

Some beliefs about emotion operate much like other stereotypes, a form of cognitive shortcut that entails quick and unconscious generalization about an individual based on his or her group membership. One of the most persistent beliefs about emotion is the stereotype which equates emotionality with females and inexpressivity or stunted emotion with males. These stereotypes, however, do not match what women and men actually report about their own experience as it occurs. When women and men are asked to report their felt emotion, differences are rarely if ever found when the reports are obtained close to the time that the emotion occurs, as for example, when people keep emotion diaries. On the other hand, if people are

asked to describe past experiences, describe what generally happens, or give a global self-evaluation, their reports more closely resemble gender-emotion stereotypes (e.g., Robinson et al. 1998). Thus, it appears that stereotypes can influence people's self-reports about their experience when questions are framed generally.

Another line of research has shown that stereotypes affect the emotions that are attributed to outgroups, that is, sets of individuals who are perceived to differ from one's own immediate reference group in definable, enduring ways (Leyens et al. 2001). Most notably, more primitive emotions are attributed to members of the outgroup, whereas more complex emotions (e.g., sympathy, remorse) are attributed to ingroup members. Furthermore, outgroup members are typically ascribed lower status emotions (sadness, fear, anxiety) that have action tendencies of withdrawal from the environment, whereas ingroup members are ascribed higher status emotions (anger) that have action tendencies to engage and alter the environment.

Investigation of emotion language and the cultural meaning assigned to emotion has thus revealed a political dimension in that beliefs about what emotion is, how it operates, and when and how it should be manifested are interpreted in the interests of regulating the organization and functioning of social groups. This has been an important line of work in contemporary sociology, but over the past decade has been given more attention in psychological research as well.

Emotional Development

Research on emotional development has come to focus on the intersection of emotion and cognition as developmental processes, exploring how individual socialization and cultural factors are involved in the integration of these two processes (Calkins and Bell 2010). Much emphasis has been placed on the development of emotion regulation as well as the role of emotion dysregulation in adjustment difficulties and psychopathologies (Cole et al. 2004). Neuroscience techniques are widely used in empirical research with infants and children. Recently, exploration of genetic mechanisms for the emotion-cognition link has surged in popularity. Other developmental investigation of human emotion has been explicitly concerned with emotion and emotion regulation capacities as they have an impact on adjustment in academic and social settings.

Emotional Intelligence

Interest in emotional intelligence (EI) has continued to grow internationally since the idea, which had been around in one form or another for decades, was popularized in the 1990s. There are two broad streams of thinking on EI that currently dominate research and applications. The first derives from Peter Salovey and Jack Mayer's (1990) four-branched abilities-based model and identifies EI as comprised of four distinct yet related abilities: *perceiving emotions*, which includes not only the ability to read one's own and others' emotions, but also to perceive emotion in cultural artifacts; *using emotions*, which entails using emotion in the service of various cognitive activities, such as identifying the optimal mood for completion of specific types of problem solving; *understanding emotions*, which involves understanding emotion labeling and the relation among emotions; and *managing emotions*, which is concerned with regulating one's own and others' emotions. Essentially, any emotion-relevant ability is encompassed by one of the four branches, making the construct's definition quite broad. The second model offers an even broader definition of emotional intelligence. It encompasses what some say is more accurately described as general social intelligence, rather than a uniquely emotional intelligence. Measurement using this model relies on self-reported personality attributes and behavioral preferences. This model is associated most closely with Reuven Bar-On's multidimensional EQ-i and Goleman's Emotional Competency Index (ECI), and it is most widely represented in commercial ventures.

Neuroscience

Neuroscience has the potential to examine a range of issues in emotion theory that continue to be debated. By presenting images of what area the brain is recruiting or inhibiting in order to complete a task, functional magnetic resonance imaging (fMRI), for example, can allow us to infer that certain emotion processes might be more active than others in a situation. Though fMRI is still a young science, it has already confirmed many initial expectations of how emotion is processed. For example, strong connections between the amygdala (a structure that is involved in processing negative emotions such as fear) and the hippocampus (a structure associated with memory) have helped explain why episodic memories are so

powerful. The almost immediate activation of the amygdala in response to negative stimuli in the environment has confirmed the early appraisal processes proposed by Arnold. The extensive connections between these structures and the prefrontal cortex (a structure that is responsible for higher order thought) demonstrate the great interconnectivity between "rational" thoughts and emotion.

Neuroscience has also advanced understanding of specific emotional experiences. For example, the capacity for empathy appears to have its neurological basis in the mirror neuron system, a system in the brain that is activated both when an individual performs an action and when the individual observes the same action performed by someone else. As a person reports empathizing with another, parts of the anterior insula, anterior cingulate cortex, and inferior front cortex are active, which some have suggested demonstrates that the empathic perceiver is experiencing the same emotional state perceived in another. In other words, neuroscience has helped to demonstrate that empathy does not just involve an understanding of another's emotional situation but actual coordination of emotion-relevant neural pathways.

Emotion in Other Animals

Great advances in understanding of nonhuman animal emotion have been made in the past 2 decades. For example, the capacity for self-awareness as demonstrated by mirror self-recognition has been shown in the great apes, elephants, dolphins. Intergroup cooperation between animals and other socially oriented skills in some species suggest that emotions are more developed and complex than originally thought.

Jaak Panksepp (2005) has developed a model of emotional processes that explains the continuity of emotional reaction across mammalian species. Building on the fact that a number of neurological circuits are common to humans and animals, Panksepp suggests that these circuits subserve four basic emotion types named in terms of their extreme manifestation: fear, expectancy, rage, panic. The difference between animal and human emotion lies in the significant role that cognitive processes and meaning-making play in human emotional life. Emotions afford the individual the capacity for flexibility in response to classes of similar opportunities or challenges.

Individual Differences and Personality

People will vary greatly as to what emotions they typically experience, and the range of that experience. Often referred to as temperament, this individual difference is believed to be innate rather than learned. Emotion is related to temperament in complex ways as though temperament can make a person more susceptible to emotional experiences, different kinds of environments also interact with what emotions should be typically experienced. For example, some individuals who report low agreeableness tend to be annoyed more easily than others, something which might matter when driving through a crowded, city street, but might matter less when on an open-road at night with no other cars around. Other individuals are high self-monitors, taking emotional cues from others in understanding and regulating their own emotional state. Yet self-monitoring might matter less in situations where strong emotions are expected, as in the context of the death of a loved one, than in situations with less pronounced emotion elicitors.

When explaining issues such as developing phobias or other emotion-related disorders, a diathesis-stress model is often invoked. The diathesis-stress model proposes that individuals may have a predisposition to a certain disease but without the required environmental influence, the disorder will not appear. For example, a person may have a predisposition for depression, but if the triggers for depression are never encountered in individual's social environment, depression will not manifest.

International Perspectives

The study of emotion has grown dramatically in the past 30 years and has done so as an international, interdisciplinary field. As is true for most of psychology, it is dominated by researchers in the USA and Europe, but there has also consistently been a strong representation of Japanese and Chinese researchers.

Multinational and cross-cultural studies have had an impact on core areas of emotion theory and research. General findings regarding areas in which cross-cultural similarity and differences are commonly observed are discussed in an earlier section of this paper. Among specific topics that recently have benefited from international perspectives, two stand out.

Developmental researchers have outlined the complex interplay between universal developmental milestones and culture-specific scaffolding for emotional socialization. A second area that continues to benefit from international perspectives is the study of emotionally expressive behavior. A number of researchers have shown that there is an ingroup bias in reading emotion content and intensity. Others have identified apparently culture-specific expressive “dialects” in some facial expressions of emotion.

Future Directions

Understanding of emotion has advanced dramatically since William James asked “What is an emotion?” Overall, one of the clearest directions for emotion research is integrating research across disciplines to achieve a common understanding of emotion. Another clear direction for emotion research is application, involving taking what has been learned in the laboratory and applying it to promote positive social change. Three specific areas of research are discussed below.

Neuroscience

Neuroscience is a young field, and full of promise. As methods advance, the cost of conducting this research will decrease and its effectiveness increase. fMRI holds some of the greatest potential for advancement and is beginning methods to move beyond its early stages where areas of the brain were simply mapped out to delineate their functioning. New techniques such as diffusion tensor imaging will allow for networks of activation to be mapped out. Such techniques will show how different brain regions are interconnected and allow us to better understand how emotional disorders such as phobias and bipolar disorder operate. Understanding these networks will also help to aid treatment and improve its effectiveness. For example, through neuroscience we can better investigate when and how memories form so as to help break linkages of certain thoughts and memories with negative emotions (such as with phobias or people suffering from post-traumatic stress disorder).

Artificial Intelligence and Face Recognition

Modern research has recognized the pivotal role that emotion plays in decision-making. Rational choice

models proposing that people weigh the costs and benefits of a situation and seek to optimize rewards do not infallibly predict behavior. Future work on creating “intelligent” computers that are able to mimic human behavior will need to factor in the numerous ways that emotions affect decision-making as have been outlined in this chapter. In addition to programming artificial intelligence, another field that will benefit from the application of emotion research is face recognition. Face researchers have demonstrated that the emotions conveyed on the face present a unique contribution of information regarding how people recognize and process social information.

Integrating Biology and Cultural Knowledge

Advancements in genetics have revealed that certain genes may predispose individuals to various illnesses such as depression and anxiety disorder. Psychologists and sociologists have demonstrated that stressful environments and cultural factors contribute to the development of these disorders. These two bodies of knowledge will enable research to move beyond simplistic nature vs. nurture debates to the development of when and how nature and nurture interact.

Conclusion

In this entry we have discussed the evolution of theory and research on emotion from the standpoint of Western scientific psychology. Theories of emotion are found in the oldest philosophical schools of thought. With the development of a modern definition of emotion in the nineteenth century, the longstanding view of emotions as antithetical to reason dominated early philosophy-based psychological theories. Contemporary emotion theory has evolved to consider emotion as a necessary element of rational decision-making and emotion communication a significant feature in promoting effective social relationships, self-understanding, and even physical and mental well-being.

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Theories of Memory, History of

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Introduction

In attempting to formulate a history of theories of memory, it must be noted that the English word

“memory” itself has a broadness of application that is not paralleled in other languages. In French, the words *la mémoire* refer to the ability that the mind–brain system has for retaining representations both of internal events and of external reality; and the words *un souvenir* refer to an individual retained representation generally identified by its content (referent). For example, if one wanted to translate the question, “Do insects have memory?” into French, one would use *la mémoire* as an equivalent for the English word “memory.” But if one wanted to translate the question “How strong is your memory of your first day at school?” one would use *le souvenir*. An analogous classification is found in German, where memory-the-ability is translated as *das Gedächtnis* and an individually experienced memory representation is translated as *eine Erinnerung*.

These observations lead to the surmise that the appropriate scientific language for the study of memory-the-ability is most likely to be the language of neurophysiology, and that the appropriate scientific language for the study of experienced memory representations is likely to be the language of experimental psychology and/or phenomenology. Above, both types of language were subsumed in the compromise expression “mind–brain system.” Looking back at the history of memory theories, those theories dealing with the brain substrates of memory can be considered to constitute one cluster of theories and those theories dealing with the experiential aspects of memory (such as recognizing, recalling, and identifying) as a separate cluster. It will come as something of a surprise, therefore, that two of the most important names in the history of memory theory shared the renegade belief that the word “memory” ought to be avoided in the course of developing a theory about retention and retrieval. J.B. Watson (1878–1958) believed that a scientific account of memory had to be firmly based on neurophysiological grounds, while J.F. Herbart (1776–1841) believed that because experience is all that humans have to go on in interpreting reality, a study of memory as experience took priority over the understanding of the brain mechanisms underlying memory. These points may be briefly elaborated because, in the major part of this article, theories of memory will be put into historical time-slots bounded by the names of Herbart and Watson, as well as by the “cognitive revolution” of the late 1950s.

Herbart wanted to emulate in psychology the success achieved by Sir Isaac Newton (1642–1727) in physics. Using his laws of motion, Newton had been able to explain how an array of physical objects could exert forces on each other at a distance in such a way that the array was transformed from a jumble of moving objects into an equilibrated “system.” An example is a solar system in which a set of planets move round a large central object (a sun) with predictable velocities at predictable distances. Herbart argued that mental experience could be described in analogous terms; at a single moment of time, one might potentially feel and see and hear and think a jumble of experiences, but, so quickly as to appear instantaneous, the jumble settles into a state of equilibrium in which one or two experiences dominate and others are no longer experienced. An “experience” is something mentally cognized; only the person experiencing, for example, an itch (*and* the desire to scratch it), experiences it firsthand. Herbart adopted the German word *Vorstellung* to refer to a single mental experience, which might be a sensation (like an itch), a sensory image (like an image of a movie in which somebody is scratching his head), a covertly uttered sentence about the present (“I wish I could get rid of this itch”), or about the past (“This itch reminds me of my first day at school, when I wore scratchy clothing”), or about the future (“This itch will go away by itself”).

In this theoretical framework, there is no need to distinguish between *Vorstellungen* on the basis of whether their content represented the present, the past, or the future. What mattered at any moment was the degree to which each of the *Vorstellungen* concurrently being consciously experienced dominated each of the others. Herbart’s laws of inhibition exerted between concurrently experienced *Vorstellungen* was his equivalent of Newton’s laws of gravitational force exerted between concurrently present physical objects (Boudewijnse, Murray, & Bandomir, 1999, 2001).

Almost exactly the opposite approach was taken by J.B. Watson. Watson knew far more about the brain and nervous system than did Herbart, and had concluded that brain tissue had the capability of providing neural substrates of what Watson called “habits.” The Russian physiologist I.M. Sechenov (1829–1925) had argued that the meaning of the word “reflex” could, with scientific justification, be extended to apply, not only

to unlearned reflexes such as the eyeblink or the knee jerk, but also to reflexes elicited as habits following a series of repeated pairings of the reflex with a stimulus that normally did not elicit the reflex. To give a twentieth-century example, a human might begin to blink to the sound of a tone if he or she has experienced a series of tones each of which is followed immediately by a harmless puff of air to the eye (Hilgard & Campbell, 1936). For Sechenov, an immediate and involuntary eyeblink to a tone could be classified as a “reflex” conditional upon prior training.

Sechenov’s legacy in the history of psychology was enormous. I. Pavlov (1849–1936) noticed that the dogs he was using for his studies on digestion would exhibit alerted behavior when the person feeding them could be seen or heard approaching; Pavlov soon moved on from studying digestion to studying salivation as a “reflex” response to nonfood stimuli that had been regularly paired with food stimuli in the dogs’ experience. Watson seized upon the Russian research on induced habits as a foundation for a theory of human development based on the acquisition of habits varying in sophistication from a baby’s responses to food to a scholar’s responses to a learned book. A chart showing how a six-year-old has been able to acquire the rudiments of language and of social behavior by way of conditioned reflexes that chain themselves into “habits” of responding can be found in Watson’s book entitled *Behaviorism* (1924/1930, p. 138).

During the 1920s and 1930s, Watson was not only being criticized by members of the fledgling Gestalt movement (see below), but also found himself attacking the beliefs of the psychoanalysts. He made the important point that what Sigmund Freud (1856–1939) and others had called “unconscious” memory representations may actually be “unverbalized” memory representations. A toddler might fall off the edge of a slide in a playground and be distressed; but he or she has not yet learned to speak, so does not say anything to himself or herself about the event; but the event, along with its accompanying emotions, might somehow be retained and show itself later in an otherwise hard-to-explain fear of children’s playgrounds. According to Watson, there is no *need* to talk about the unconscious, only about whether or not the event had been registered in the brain in terms of a verbal format (easy to access by fluent speakers) or in terms of an emotional

format that could be stimulated, for example, by the sight of a playground.

It was also during this period that Watson maintained that the scientific usefulness of the word “habit” implied that the introduction of the word “memory” into scientific discourse was both superfluous and potentially misleading. A careful reading reveals that Watson never denied that the brain had the capacity to retain what was needed to set up a habit (i.e., he never maintained that *la mémoire* should be dropped from scientific parlance), but he strongly denied that one needed to use the word “memory” for individual acts of nonverbal or verbal retrieval (i.e., he wanted to replace *un souvenir* with a “habit” or chain of habits). It should be noted that Watson published these opinions in magazine articles and these have been collected in the book entitled *The Ways of Behaviorism* (Watson, 1928).

Following Watson’s claims for a physiologically based approach to learning and memory, and his espousal of Pavlovian conditioning as the foundation for learning throughout a lifetime, attempts were made to build theoretical accounts of learning that, just as had been achieved by Newton and other physicists, would be axiomatic in nature. Of course, the best known of these ambitious theories was that of Clark L. Hull (1884–1952), which actually went through two stages of development. First came a theory of human learning in which individual memory representations (*les souvenirs*) were considered to be verbal habits describable in terms of physical stimuli and overt responses linked together by a chain of so-called mediating responses (Hull et al., 1940). For example, a list of nonsense syllables could be represented as a chain of individual verbal responses that, by force of repetition, could be learned “by heart” (“by rote”). The second stage was a theory of animal learning in which the number of trials needed to acquire individual learned habits (e.g., learning to turn left at a choice-point in a T-maze) could be predicted on the basis of an experimenter’s knowledge of the animal’s needs and of several other variables (Hull, 1943). In Hull’s animal studies and many others inspired by him, the most frequently used subjects were laboratory-bred white rats.

Following the 1950s, objections surfaced not only to the idea that human verbal behavior could be broken

down into simple chains of “mediated responses,” but also to the idea that the best subject for the study of retention in animals was the rat. With respect to the choice of subject, Kandel (2006, pp. 145–149) has described how, in the development of his theory of how the brain is able to retain simple habits, resistance was initially offered to his opinion that, in order to study, say, how the course of classical conditioning was paralleled by measurable events in the brain, the best kind of brain to study would be one much simpler than that of the rat. Such a brain is possessed by the giant marine snail *Aplysia californicus*, an organism capable of acquiring conditioned reflexes but that possesses a brain consisting of only about 20,000 neurons grouped into nine separate clusters; the typical mammalian brain, including that of the rat, has about 100,000,000,000 neurons.

With respect to the perceived inadequacy of accounts of human retention and retrieval that were based on Hull’s conditioning theory, a number of psychologists, including some influenced by the Gestalt theory, introduced into psychology a vocabulary that revived the use of the word “memory,” both in the sense of *la mémoire* (as in “short-term memory,” “working memory,” and “long-term memory”), but also in the sense of *les souvenirs*. Research on retention and retrieval processes in humans expanded from the study of rote memorization of nonsense material to the recall of autobiographical memories (*les souvenirs*), the recall of stories, the learning of foreign languages, and even the recall of intentions that had been formulated a short while earlier (“prospective memory”). This new vocabulary formed the backbone of a literature arising from the so-called cognitive revolution, generally asserted to have begun in 1956 (Baars, 1986; Murray, 1995), and which is still in vogue.

But earlier, it was remarked that *la mémoire* was most appropriately explicable in terms of physiological conceptions, whereas it has been just stated that modern cognitive theorists, when talking about short-term memory, long-term memory, and working memory, have extended conceptualizations of *la mémoire* into subclasses within psychological domains. A magnificent resolution of potential confusion has been achieved in Kandel’s (2006) summary of his lifetime’s work on memory, which took him from a biologically based account of how *la mémoire* operates in the snail

Aplysia to an equally biologically based account of how short-term memory, long-term memory, and working memory operate in humans. Accordingly, therefore, before presenting the events within each of the four stages into which the history of memory theory can be divided (pre-Herbartian, Herbartian to Watsonian, Watsonian to cognitive revolution, cognitive revolution), it will be shown how Kandel's research on the biology of memory storage— in species ranging from *Aplysia* through mice to humans— yields a corpus of factual data with which any psychologically based theory of memory has to be consistent.

Kandel divided the primitive memory of *Aplysia* into three kinds, all of which he subsumed under the heading of “implicit memory,” an expression popularized by Tulving (1972, 1983), during the cognitive revolution, to refer to those actions that indicated that retention had taken place that was nevertheless not susceptible to conscious inspection by humans (e.g., most motor skills and, possibly, some learned emotional responses, such as a preverbal child's fear of the playground). Let S be a weak or neutral sensory stimulus that activates a reflex movement response in *Aplysia*. For example, S can be a touch of moderate strength to the skin of the snail's siphon (an excretory tube). This stimulus initially yields an unlearned gill-withdrawal reflex (so that the animal's respiratory abilities are protected). But if S is repeatedly presented alone, the snail's gill-withdrawal reflex becomes less and less intense and frequent, as if the snail were learning that a touch to the siphon was not necessarily harmful. This kind of learning is called “habituation.”

Second, if a sequence of five rapid touches is given to a different pathway, and then, after a short interval, stimulus S (a single touch of moderate strength to the siphon) is administered, the gill withdrawal to S is stronger, faster, and more predictable than had been the case in the habituation studies. This increase in responding, based on recent experience with sustained and intense stimulation, is called “sensitization”; a history of how habituation and sensitization have been studied in vertebrates has been provided by Davis and Egger (2003).

Third, if a noxious stimulus, such as an electric shock to the tail, *regularly* appears just after the stimulus S (the touch to the siphon), it will be found that the neutral stimulus S eventually elicits a strong gill-

withdrawal response, almost as if S, previously neutral, had acquired aversive properties because of having been paired with the shock. The strength of the enhanced response to S when S is associated with classical conditioning is greater than the enhanced response to S when S is associated with sensitization (Kandel, 2006, p. 170). This was the task used by Kandel and his colleagues to study classical conditioning.

In these habituation, sensitization, and classical conditioning tasks, a stimulation of a sensory neuron (here, associated with the siphon) leads to a change in the response in the synapse connecting the sensory neuron to a motor neuron (here, associated with the gill). In *Aplysia*, it proved possible to isolate individual cells within clusters and thereby to study the changes in response at a single synapse separating a sensory neuron from a motor neuron. It was discovered that habituation weakened the responsiveness at the synapse with the motor neuron, that sensitization enhanced the responsiveness at that synapse, and that the time during which these changes persisted (a matter of minutes) depended on the length of time that the synaptic regions had been subjected to stimulation. Classical conditioning involved either weakening or strengthening changes, depending on the synapse being studied.

But intense and/or sustained stimulation can also lead to long-term habituation, sensitization, and classical conditioning (a matter of hours or days). When investigated, it was found that not only were there changes in responsiveness at the synapse, but that there were also outgrowths from the sensory neuron, outgrowths that made new, additional, synapses with the motor neuron.

Humans and other vertebrates possess a complicated brain that includes special clusters of neurons grouped into the “hippocampal formation.” From studies of rats and mice, it seems that the neurons in this area have become specialized for the retention of spatial information. There is good evidence that in a juvenile vertebrate, the hippocampal cells are not particularly activated simply when the animal is placed into a new environment; but within minutes of being kept there, hippocampal cells do respond to any sensory stimulus (visual, auditory, etc.) associated with that place. These cells, therefore, have been called “place-memory cells.” The subject is able to utilize this retained multisensory information

in the course of learning spatial tasks such as finding escape routes, finding where food was previously hidden, and so on. In these hippocampal cells, the long-term facilitation in responsiveness associated with sensitization and with classical conditioning is probably mediated by a form of synaptic retention mechanism that is different from the mechanism used in *Aplysia*; this vertebrate mechanism is called “long-term potentiation.” But, as in *Aplysia*, long-term retention is also associated with the growth of new neural appendages that form new synapses between sensory and motor neurons. Furthermore, damage to the hippocampus can be associated not only with defective spatial learning in rats and mice, but also with extreme kinds of human amnesia in which short-term memory is intact, but acquisition of new long-term memories (*les souvenirs*) is impossible (Scoville & Milner, 1957 on the case of H.M.; Neath & Surprenant, 2003, pp. 178–180 give updated information on H.M.).

Because a major difference between humans and *Aplysia* lies in the fact that the former possess consciousness as well as sentience, while the latter probably possess only sentience, and because the retention processes that had evolved in *Aplysia* are, therefore, probably not associated with consciousness, those processes underlay what Kandel had called “implicit memory.” Following the same logic led to Kandel’s conclusion that the hippocampal formation is crucial to the retention processes underlying “explicit memory,” because, in humans, the recall of narratives and of autobiographical *souvenirs* is carried out consciously.

The biochemical events responsible for long-term implicit memory in *Aplysia* are far more complicated than earlier historical attempts to explain the biology of memory would have led one to believe. Neural network models and S-R chain models of the kind that proliferated since Hull’s model of 1943 were perforce uninfluenced by three new findings intrinsic to Kandel’s model, because these new findings were only discovered after about 1980.

The first discovery was that, within a *single* sensory neuron, there are certain proteins located not at a synaptic junction, but in the *nucleus* of the neuron itself that control whether or not the synaptic transmission of information concerning a sensory stimulus will, or will not, be retained for long periods. A protein called CERB-1 acts to facilitate the transmission, and

another protein, called CERB-2, acts to prevent the facilitation of that transmission. The neurotransmitter in both cases is glutamate and the facilitation is caused by the growth of new synapses connecting the sensory neuron with the motor neuron.

The second discovery was that, again within a single sensory neuron, the way CERB-1 operates to facilitate the growth of a synapse is to send messages from the nucleus out into the cytoplasm near the point where the new synapse will grow. These messages are sent when CERB-1 acts on (“expresses”) a *gene* (part of a DNA molecule that is already present in the nucleus of the cell); this *regulatory gene* then switches on an *effector gene* that causes messenger RNA to go out of the nucleus, along with certain proteins, to those particular synapses, in that sensory neuron, that can be stimulated by serotonin. At the sites of those synapses, new proteins are synthesized locally to help the development of extra cell-tissue that will form a sidearm that extends from the cell body and, therefore, adds a new synapse, the neurotransmitter for which is glutamate that connects the sensory neuron to the motor neuron.

The third discovery was that one part of these new proteins has the ability to transform *itself* into a new structure, one that self-perpetuates, and thus allows the new synapse to retain its transmissive properties indefinitely. These new proteins resemble a class of proteins called *prions*. Prions have conventionally been thought of as disease causing because their transformed forms can actually be destructive to neuronal tissue (as in mad cow disease). But the property of self-perpetuation also appears to have evolved into a biologically adaptive mechanism that can be used as a vehicle for retention in implicit memory.

With certain modifications, the above account of the neuronal structures that form the basis of long-term memory in *Aplysia* holds also for events in the mammalian hippocampal formation. One difference is that the molecule that allows a stimulus to activate a sensory neuron is serotonin in *Aplysia*, but dopamine in humans. But, in both species, glutamate remains the neurotransmitter that mediates transmission from the sensory neurons (and/or associated interneurons) to the corresponding motor neurons in *Aplysia*, and from place-memory cells (and/or associated interneurons) to the corresponding motor neurons in rats and humans. The biochemical mechanisms underlying

habituation and sensitization in *Aplysia* involve other molecules that do not need to be discussed here, for example, cyclic AMP and protein kinase A (Kandel, 2006, pp. 262–267).

Standing back, it will be just seen how innovative Kandel's account was, involving, as it did, events in the nucleus of the neuron, genes that are localized within the neuron, and prion-like proteins that serve to perpetuate anatomical changes to the neuron. Kandel's own assertions about the relevance of his theory to psychological manifestations both of *la mémoire* and *les souvenirs* include five that deserve to be highlighted here.

1. He argued that a very intense stimulus could have the effect of turning on the CERB-1 protein but also of bypassing the turning on of the CERB-2 protein. Hence, little in the way of inhibition would stop the *souvenirs* of the intense stimulation from being perpetuated for a long time period (Kandel, 2006, pp. 264–265).
2. He argued that, in humans, only those stimuli that are consciously attended to might activate neural events that lead to long-term retention of those stimuli. The brain region in humans that is most responsible for ensuring that attention is paid to the stimuli most salient in importance is the hippocampal formation (Kandel, 2006, pp. 311–316).
3. He argued that forgetting was directly related to the amount of activity associated with CERB-2 proteins. For example, a low level of CERB-2 activity might explain why some individuals are exceptionally good memorizers; and (normal) increases in CERB-2 activity over the years might explain some of the (normal) forgetting associated with aging in humans (Kandel, 2006, p. 266).
4. He argued that it takes time for the regulator gene to switch on the effector gene that will then facilitate the growth of new synapses for long-term retention processes. This time period coincides roughly with the time period required for the consolidation of individual habits in vertebrates and of individual *souvenirs* in humans (Kandel, 2006, p. 262).
5. He argued that the mechanism of memory storage in neurons is extraordinarily similar for all animal species, ranging from *Aplysia* through *Drosophila* (fruit fly) through mice and rats to humans (Kandel, 2006, pp. 421–423).

The remainder of this article, therefore, will track the progress of memory theories through four time periods: the pre-Herbartian period, the period from Herbart to Watson, the period from Watson to the cognitive revolution, and the period of the cognitive revolution itself. In each of these four sections, separate subsections will be devoted to quantitatively expressed theories and to qualitatively expressed theories. Within each subsection, following the tenets of Paivio's (1971, 1990, 2003) dual coding theory, verbal memory will be discussed separately from visual memory. At the end of each section, special attention will be devoted to historical events within the period covered by that section that revealed insights into the first three of Kandel's manifestations, namely, (1) the long-lasting effects of over stimulation, (2) the role of brain localization in long-term human memory, and (3) hypotheses about the mechanism of forgetting. Psychological evidence concerning consolidation (4) will be introduced wherever appropriate. A conclusion section will elaborate on the importance for memory theory of Kandel's posited universality of near-identical neuronal retention mechanisms across species (5).

A Chronological Summary of Theories of Human Memory

Pre-Herbartian Memory Theories

Qualitative Theories

Memory for Verbal Material

The only book that has survived from ancient times that was devoted entirely to memory was the *De Memoria* of Aristotle, written about 350 BC (see McKeon, 1941). Aristotle pointed out that a conscious search for, say a word, could be conducted following a number of possible strategies. If one is trying to put a name to a face, one might try to imagine faces similar to the one given, or try to recall the time and place when one last met that person, or mentally exaggerate or change certain features of the face. In each case, one is hoping that the missing name will come to mind. These three strategies were named Aristotle's three laws of association, namely, association by similarity, association by contiguity, and association

by contrast. Over the succeeding centuries, these laws were modified or amplified by various philosophers of mind. Changes of particular interest include David Hume's (1739/1955, Book I, Part III) addition of association by causality and omission of the law of contrast (he thought it a special case of association by similarity); Sir William Hamilton's (1852, p. 913) suggestion that all three laws exemplified a mental process he called "redintegration," to be illustrated below; and William James's (1890/1950, p. 566) assertion that all three laws were by-products of a single "elementary causal law of association [namely]. . . the law of neural habit." A review of the history of Aristotle's laws of association has been provided by Warren (1921), but the exceptionally scholarly review by Hamilton (1852, pp. 889–910) should also be consulted.

Aristotle believed, in contrast to some of his predecessors, that the human memory system had no contents at birth; that is, at birth the system was like a blank wax surface, a *tabula rasa*, on which nothing had been written. Plato had believed that a newborn carried memories (*souvenirs*) from previous lives. Many scholars of the period between Aristotle's death and the start of the scientific renaissance in the early seventeenth century claimed, probably mistakenly, that Aristotle had asserted that individual *souvenirs* acquired during a lifetime might survive bodily death, becoming components of a nonmaterial entity called the Agent Intellect (Murray, 1988, Chapter 2).

The likening, by Aristotle, of *la mémoire* to a wax tablet and of *les souvenirs* to written symbols on that tablet was one of many attempts to find metaphors that would capture the essence of human memory. Plato had described *souvenirs* as being like birds flying in an aviary that could not easily be captured in the course of retrieval. St. Augustine compared *la mémoire* to a storehouse or a palace. A review of these and other metaphors was provided by Roediger (1980).

Verbal transformations were also made a basis for memorizing long lists of historical names and dates and even scientific data. A widely propagated example was Grey's (1730/1859) book entitled *Memoria Technica*. In this scheme, the memorizer learned to fluently associate each digit with a vowel and a consonant. For example, the number 1 was associated with *a* and *b*, the number 2 with *e* and *d*, and the number 3 with *i* and *t*. Then,

a number such as 312 could be transformed verbally into *tad* or *ibe* (both easily pronounceable). Practice at these transformations was supposed to help the memorizer learn the dates of the reigns of English kings, or of the years in office of Catholic Popes, or of the major battles of history.

Memory for Visual Material

It was in the context of the memorization of the successive points to be made in a speech that visual memory was harnessed in the mnemonic scheme known as the Method of Loci. A sequence of places was mentally visualized, for example, a plan of the seating-places of individuals at a banquet, or of the rooms in a house or palace. One mentally wandered in a set order through those locations, assigning to the first the first point to be made in the speech, to the second the second point, and so on. This mnemonic technique was first proposed in Classical Athens, but, from the medieval period until well into the nineteenth century, visual schemes of palaces, theaters with fixed seating arrangements, and so on were actually published. Some illustrations of these mnemonic schemes have been provided by Yates (1966); and Paivio (1971, pp. 168–173) show a scheme offered by Feinagle in 1813 that consisted of a combination of the method of loci (a room divided into 50 parts) and a simplified form of the number–letter transformation method popularized by Grey (1730).

In medieval manuscripts, the contents of a page were often highlighted by the uses of different scripts, colors, indentations, and illustrations designed to help the reader to retain those contents (Danziger, 2008, pp. 73–83).

Kandel's Psychological Manifestations

The Effects of Overstimulation

In a book on oratory addressed to a Roman named Herennius, its author, once thought to have been Cicero (106–43 B.C.), claimed that certain events could be retained reliably and with little effort because they were "exceptionally base, dishonourable, extraordinary, great, unbelievable, or laughable" (Caplan, 1954).

Brain Localization

According to Lones (1912), Aristotle's ascription of *la mémoire* to the heart might have been justified given

the current state of knowledge of human physiology. But at the time of Galen (ca. 130–200 A.D.), a general scheme of brain activity, illustrated by Murray (1988, pp. 40–43; 56–58), had ascribed the seat of memory to the third (posterior) ventricle of the brain. Interestingly, the first (anterior) ventricle was thought of as the brain region that pulled together information from the various senses (a property now associated with the place-memory cells of the hippocampal formation). The second (middle) ventricle subserved reasoning in humans and instinctive behavior in animals. For scholarly details, Wolfson (1935) should be consulted. This emphasis on the ventricles was only decisively broken down at the end of the seventeenth century, thanks mainly to Thomas Willis (1621–1675) (Spillane, 1981).

Theories of Forgetting

Both Aristotle and Plato had stressed that some forgetting was because the (metaphorical) writing on the wax tablet had been permanently wiped off, while other forgetting was due to a temporary failure to retrieve *le souvenir* that was being searched for. But the most explicit distinction between permanent forgetting (often called, somewhat misleadingly, “decay”) and temporary inaccessibility (often called, ambiguously, “interference”) explanations of forgetting was due to Juan Luis Vives (1492–1540). Vives also pointed out that a single stimulus could “fire off” a whole train of well-integrated visual and verbal associations, a property of retrieval that was later taken up both by Hamilton (1852), who named this part-to-whole kind of association “reintegration,” and by Pribram (1969), who compared human memory with a holographic record. Murray and Ross (1982) have provided an annotated translation of Vives’s contribution to memory theory.

Memory Theories from Herbart to Watson

Quantitative Contributions

Memory for Verbal Material

Herbart (1824/1890) deduced that three verbal *Vorstellungen* could inhibit each other to such an extent that the dominance of two of the *Vorstellungen* over the third could be sufficiently strong for the third to no longer participate in consciousness.

Memory for Visual Material

Again, if all three *Vorstellungen* were visual, one of them could be lost from consciousness because of the combined inhibitory forces of the other two.

On the other hand, if two *Vorstellungen* were verbal, and one was visual, the visual need not necessarily be forced out of consciousness; and if two were visual, and one was verbal, the verbal need not necessarily be forced out of consciousness either. This condition allows for the coexistence in consciousness at any one moment of *Vorstellungen* that differ from each other in their sensory nature. “Complications” was the name given to combinations of *Vorstellungen* that do not inhibit each other to the extent that one or more of them are driven out of consciousness. As noted by Murray and Bandomir (2002), this Herbartian postulate is consistent with twentieth-century evidence that verbal and visual mental representations can coexist in consciousness more easily than can an equal number of mental representations that are all verbal or are all visual. This evidence has been reviewed by Penney (1989), who has called the hypothesis of the coexistence in immediate consciousness of separate verbal (or auditory) and visual mental representations the “separate streams hypothesis.”

When only two *Vorstellungen* are in consciousness, both are diminished in strength by their mutual inhibition, but neither can actually be pushed out of consciousness. If, however, the two *Vorstellungen* arise from stimuli from the same sensory dimension (say, auditory) and those stimuli are equal in time of onset, duration, intensity, and frequency, then the two corresponding *Vorstellungen* (presumably almost identical) can fuse into one *Vorstellung*. However, two *Vorstellungen* that are clearly different in content, but are co-experienced at the same time, can partially fuse, so that if one of them rises into consciousness, it can help pull the other into consciousness along with it.

Herbart (1824/1890) argued that a memory *Vorstellung* would survive, even though it had temporarily been excluded from consciousness. In the present-day “free recall task,” 20 sequentially presented words, say, are to be recalled immediately in any order. Typically, some eight words are correctly reported in a minute or so. But 16 or more words can be recalled if participants are given an alphabetic or semantic “cue” to each word. Tulving’s (1983,

Chapter 10 and 11) “encoding specificity hypothesis” contended that preexperimentally established associations can indeed serve as effective retrieval cues in free recall tasks, but it also contended that the way in which each word had been encoded at presentation could be even more effective in enhancing the probability of recall of that word. Laming (2009) has produced a mathematical model based on the assumption that a failure to recall a given word in a free recall task can be due to a temporary difficulty in retrieving the memory representation of that word rather than to a permanent absence of that representation. Both Tulving’s encoding specificity hypothesis and Laming’s model are consistent with Herbart’s assumption that a *Vorstellung* A no longer in consciousness can be assisted back into consciousness if *Vorstellung* A has been partly fused with an associated *Vorstellung* B already in consciousness. With hindsight, *Vorstellung* B can be seen as representing a retrieval cue in a free recall paradigm.

Qualitative Contributions

Memory for Verbal Material

Abercrombie (1843) wrote a widely sold text designed to instruct readers in the findings of the fledgling science of psychology. In his chapter on memory, he emphasized that to ensure long-term retention of words and facts, they should be given maximum attention at the time of initial learning, and should also, as far as possible, be made to form associations with related words and facts. This view is exactly that of Kandel (2006, pp. 311–316).

Research and speculation on verbal memory took a sudden upturn in the 1880s; Wundt’s (1874) widely used textbook of psychology had said little about memory, and, for reasons outlined by Boudewijnse, Murray, and Bandomir (2001), had been critical of Herbart’s mathematical psychology. But Ebbinghaus (1885) reported his studies of the serial learning of nonsense syllables, materials designed to minimize the presence of verbal and emotional associations as facilitators of the memorizing process. He was able to confirm the Herbartian postulate that after a list of syllables A, B, C, . . . G had been learned by heart, the association between A and B was stronger than that between A and C or between A and G. He also put forward his famous forgetting curve, showing that the forgetting of a series

of syllables, as measured by the time it took to relearn the series after an interval, was relatively greater at short intervals than at long intervals. Kandel (2006, p. 210) describes this finding more precisely: “. . . forgetting has two phases: a rapid initial decline that was sharpest in the first hour after learning and then a much more gradual decline that continued for about a month.”

William James (1890) distinguished between “primary memory” where a memory representation has entered and remained in consciousness, and “secondary memory” where a memory representation had entered consciousness, then left it, and then returned into consciousness. Kandel (2006, pp. 209–212) considered that Ebbinghaus’s initial sharp decline in recall and James’s very temporary “primary memory” were important forerunners of the late twentieth-century distinction between short-term memory and long-term memory. Kandel then described how Müller and Pilzecker (1900) essentially repeated Ebbinghaus’s experiment on forgetting but showed that if one group of participants had to learn a new list *immediately* after having learned a first list, relearning the first list 24 h later was very difficult. However, if another group had learned a new list *two hours after* learning the first list, relearning the first list after 24 h was relatively easy. Müller and Pilzecker proposed, therefore, that learning the second list immediately after learning the first list had prevented the first list from being retained, much as if the *souvenirs* of the first list had not been consolidated into permanent *souvenirs*.

In an experiment designed to discover the number of separate objects that could be counted given only a single, very short glance at the objects, Jevons (1871) had found that only about four objects could be confidently described as being four in number; the number of objects greater than four had to be guessed at. Jacobs (1887) attempted to discover how many verbal stimuli (e.g., single digits) could be recalled in correct order after one presentation. The digit span turned out to be about seven, but extensive later research has shown that a claim can be made that the digit span, like Jevons’s “span of apprehension,” is actually more like four, with the extra recalls coming from intralist associative or elaborative subvocal rehearsal (Cowan, 2001). Nineteenth-century research on the memory span has been reviewed by Murray (1976), early twentieth-century research by Blankenship (1938), and late twentieth-century research by Watkins (2003).

Memory for Visual Material

Partly because of the role played by visualization in the practice of mnemonics, discussion of visual memory in humans was sufficiently widespread for Galton (1883) to feel justified in undertaking surveys of the prevalence of visual imagery among his colleagues. He found that there was wide variation in the ability to visualize, for example, the breakfast table at which one had eaten that same day; and that the digit series 1, 2, 3, . . . 10 was often mentally represented as a visual pattern with lines connecting the digits. In a related study of associations, he noted that a visualization of oneself “acting out” one’s emotions was surprisingly common (“histrionic” associations). He also invented “composite photographs,” in which the photos of each member of a family could be superimposed in such a way as to reveal those features that were common to most members of the family.

Galton fully accepted Darwin’s (1859) theory of evolution, and so did Darwin’s colleague G.J. Romanes (1848–1894), a physiologist whose work on invertebrates foreshadowed the discovery of the synapse at the end of the nineteenth century. Romanes (1882, 1883, 1888) attempted to explain how voluntary behavior, emotional versatility, and problem-solving abilities had evolved in animals, including humans. His analysis of problem solving led him to distinguish between “receptual memory,” in which an organism responded to a stimulus in a manner that had been learned because of prior acquaintance with that stimulus, and “conceptual memory,” in which an organism can respond to a stimulus by mentally relating it to other similar or contextually related stimuli. Clearly, conceptual memory is confined to species with a human-type consciousness, and Romanes (1888) was ingenious in the way he demonstrated, partly from observations of his own children, that language acquisition goes from an initial stage in which verbal responses are essentially receptual, to a final stage at which the responses are “conceptual” insofar as words can be consciously strung together to form sentences. This is mentioned here because the distinction between “receptual” and “conceptual” types of memory has close affinities with the later distinction between “implicit” and “explicit” types of memory.

It was also in the context of evolutionary theory that Wesley Mills (1847–1915) wrote diaries about the

behavior patterns of newborn kittens, puppies, and the young of other species (Mills, 1898). Mills described dogs as having exceptional memory for what had been experienced in particular places. But it would be decades before place memory in vertebrates would be investigated in laboratory settings and a link established between place memory and the evolution of the hippocampal formation.

Kandel’s Psychological Manifestations

The Effects of Overstimulation

In Pavlov’s laboratory in St. Petersburg, a flooding of the river Neva in 1924 penetrated the kennels and forced the laboratory staff to make Pavlov’s dogs swim from their kennels to the laboratory. As one historian has phrased it: “Subsequently many dogs reacted in a very irregular fashion in their experiments; this was attributed to the effect of the traumatic experience on ‘weak’ nervous systems” (Boakes, 1984, p. 130). More exact details of these “irregular” responses were given by Pavlov (1927/1960, pp. 313–318).

Brain Localization

T.A. Ribot (1839–1916) was at the forefront of science writers who introduced France to new developments in psychology (Nicolas & Murray, 1999); but he is best remembered for his book on amnesia in which he formulated what is now called Ribot’s Law. In global amnesia (and also in specific amnesias like aphasias), the disintegration of the ability to recall *souvenirs* follows a set order: recent *souvenirs* are the first to be forgotten and *souvenirs* acquired during childhood survive the longest. Ribot referred to recent *souvenirs* as “unstable” and to early *souvenirs* as “stable.” The law is consistent both with a theory requiring a consolidation mechanism and with Kandel’s discovery of specialized biological mechanisms that can ensure long-term retention over many years.

Mechanisms of Forgetting

It was understood that some forgetting is a consequence of a *souvenir*’s never having been consolidated. Herbart’s suggestion that two identical memory *Vorstellungen* can fuse into one adds “fusion” as a source of potential forgetting to “decay” and “interference.”

Memory Theories from Watson to the Cognitive Revolution

Quantitative Contributions

Memory for Verbal Material

Within the framework of S-R psychology, the model of Hull et al. (1940) of paired-associates learning, in which the first syllable or word of a pair is denoted as the “S-term,” and the second syllable or word as the “R-term,” attained its credibility from one postulate in particular. This was the assumption: given that there are both excitatory and inhibitory forces exerted on the *souvenir* representing a single S-R pair, the inhibitory forces decay with time more quickly than do the excitatory forces. Without this assumption, learning by humans, over a series of trials, of S-R associations might be impossible. According to this theory, each trial serves to add to the strength of the association of the S-R bond, an idea given further credibility by the later demonstration, by Martin (1965), that one can experimentally dissociate from each other the *souvenirs* of the S-term, the R-term, and the S-R bond for any pair in a to-be-learned list.

It had earlier been noticed by Ebbinghaus (1885) that in the serial learning of a list of, say, 13 nonsense syllables, participants could recall the first few syllables on the very first recall trial. In the Hullian model, it is not mathematically necessary that the strengthening to a maximum level of the bond between the S-term and the R-term of any particular pair should require at least two trials. A major challenge to the “cumulative” theory of bond strengthening in the Hullian model came when evidence was provided that a full-strength S-R bond could be acquired in one trial. The best-known demonstration that one-trial learning (sometimes called “all-or-none learning”) could take place in paired-associates learning by humans was given by Rock (1957). He presented a list of paired associates and found that a proportion of the stimuli elicited a correct response on the very first attempt at recall. He then deleted those pairs that had been wrongly responded to and replaced them with new pairs on the second trial. A control group had a second trial containing all the same pairs as had been used on the first trial. Rock reported that the number of trials needed to acquire *souvenirs* of all the pairs, such that

presentation of any S-term always yielded its correct R-term, was unaffected by the difference in presentation conditions in the two groups. To rephrase this conclusion: when the probability was 1.00 that every S-term yielded a correct response of its associated R-term, it did not matter whether an S-term that had yielded an incorrect R-term on trial n had been provided, or not provided, with a new R-term on trial $n + 1$.

Moreover, it had been known from Darwin’s time that some learned responses in animals could be acquired on one trial. Lloyd Morgan (1895) had reported that a bird could eat a bad-tasting caterpillar just once and avoid such caterpillars afterward. Much later, Garcia, Ervin, and Koelling (1966) demonstrated that a learned aversion by rats for a food that caused digestive problems *hours* later could be acquired in one trial. The ensuing skepticism about the need to assume that all learned responses in animals and humans necessarily entailed *repeated* exposures to the associated stimuli had a major influence on the understanding of classical conditioning in the ensuing decades (Berman, 2003).

One way of getting around the dilemma of having to choose between one-trial and accumulative theories was to choose a *measure* of responding that was neutral in the sense that measures of learning and of memorization efficiency could be obtained no matter whether one-trial or accumulative learning was operative. Such a measure is the *probability* of making a response, a measure that necessarily lies within the range 0.00–plus 1.00. Before Hull’s time, Thurstone (1930) had been the pioneer in applying probability theory to the prediction that, over trials, the increase in the probability that all the responses would be given correctly would go from 0.00 (or perhaps a little more if lucky guesses are possible) to 1.00; a follow-up model by Gulliksen (1934) was actually tested using rats in a discrimination learning task. In both models, the effect of a successful response (signaled by reward to rats, or by feedback to humans) on trial n was to enhance the probability that the same response would be given on trial $n + 1$, and the effect of punishment was to decrease the probability of the response on trial $n + 1$.

One development of probabilistic theory that would come to challenge the Hullian model in comprehensiveness was “stimulus-sampling theory,” started by Estes (1950) and applicable mainly to

humans. Here, the response to an S-term is presumed to be based on a process whereby the S-term itself is composed of one or more elements, each of which is associated with one response. On a single trial, a stimulus with only one element will probably be examined (“sampled”) in its entirety, but a stimulus with more than one element might have only a proportion of those elements sampled. The theory shares with those of Thurstone (1930) and Gulliksen (1934), the assumption that positive reinforcement enhances the probability that the response given on trial n will be repeated on trial $n + 1$.

Another development was the “operational” approach started by Bush and Mosteller (1955) and mainly applicable to animals. If the probability of giving a correct response on trial n of a learning task is p , then the probability of giving a correct response on trial $n + 1$, assuming no forgetting, is p plus a small proportion of responses that were wrong on trial n but are now correct on trial $n + 1$. The questions of interest are how that small proportion is estimated. Is its magnitude affected by punishment? Just *how* does the proportion vary with how close the animal is to the ultimate goal of achieving $p = 1.00$?

A valuable review of the history of mathematical learning theory from 1930 to 1970 is given by Coombs, Dawes, and Tversky (1970, Chapter 8); and a review of how the all-or-none approach compares with both the Hullian approach and the stimulus-sampling approach in the prediction of human learning curves was given by Restle and Greeno (1970, Chapters 1 and 2). Estes (2003) has recently shown how the thread underlying the move from Hullian to stimulus-sampling models and to Bush and Mosteller’s (1955) model was the appreciation that, in a learning task, animals are more likely to sample some of the stimuli within immediate view, whereas humans are more capable of treating any stimulus as a whole, making it possible to learn to respond to, or verbally memorize that stimulus on a single trial.

Memory for Visual Material

Because J.B. Watson was such a profound disbeliever in the existence of visual imagery, academic research on that topic was unfashionable in this period, especially in North America. In Germany, the term “eidetic imagery” had been used to refer to visual imagery that differs

from visual sensory effects in having the same colors (not the complementary colors) of the pictures that had just been studied (Woodworth, 1938, pp. 45–47). Haber and Haber (1964) surveyed 280 children aged between 5 and 18 and discovered that only 5–6%, almost of all of whom were 5–6 years old, possessed eidetic imagery. More recent work has been reviewed by Crowder (2003).

Qualitative Contributions

Memory for Verbal Material

The Gestalt school collected empirical data on the interface between sensory science and the science of knowledge. Their emphasis on the “unlearned” principles whereby the external world, as perceived through the senses, left neural representations that were automatically organized in such a way as to facilitate the perceiver’s mental interpretation of what had been sensed, leads one to ask if this ability to reinterpret the raw mosaic of sensations in a holistic manner was something that had evolved and that had been passed from generation to generation via a genetic encoding. Unfortunately, the Gestaltists wrote too little about evolution for more to be said other than that Köhler, who, in a series of articles, emphasized that all mental experiences can be explained without recourse to any natural forces other than those of physics and chemistry acting within, on, and/or between cells (Murray & Farahmand, 1998). But all three major Gestalt psychologists, Max Wertheimer (1880–1943), Kurt Koffka (1886–1941), and Wolfgang Köhler (1887–1967) consistently tried to link self-reports of perceptual experiences with activity in the nervous system; and it has recently been revealed that Max Wertheimer, over the course of his academic career, tried to quantify Gestalt psychology. D. Brett King and Michael Wertheimer (2005) describe communications between Hull and Max Wertheimer in which Hull challenged Wertheimer to produce an axiomatized quantification of Gestalt theory in the way that Hull (1943) had produced his axiomatization of behaviorist principles.

Among the consequences of their synthetic view concerning perception and knowledge was the insight, first reported by Köhler and von Restorff (1937), that

the law of grouping by similarity of objects in the visual field, essentially a law that concerns spatial grouping, had an analogue in the temporal domain. According to the law of spatial grouping by similarity, a display, say, of four triangles and five circles distributed randomly on a surface will be perceived as two groups of shapes, one containing triangles and the other containing circles. Now let those four triangles and five circles be presented successively, in random order, one after the other. The *second* triangle to be presented will be “recognized as” a repetition of the first triangle, and so will be mentally grouped with it. The same goes for the circles. Therefore, the act of recognition is a temporal analogue of the spatial law of grouping by similarity.

This way of considering recognition as a kind of Gestalt grouping led von Restorff (1933), working under Köhler’s supervision, to reinterpret what went on in paired-associates learning and in the serial learning of verbal materials. Items that were similar in a list were mentally grouped together by the participant, and if the material should be nonsense syllables, the lack of semantic, meaningful components would make that very grouping actually detrimental to learning. On the other hand, anything that made one pair stand out from the others, for example, being printed in red while all the other pairs were printed in black, would serve to isolate the red-printed pair from the “crowd,” and, therefore, be more distinctive and more likely to be correctly responded to on the first trial of a series of paired-associates trials. The notion that serial and paired-associates learning could be described in terms of crowding and isolation, rather than in terms of the acquisition of S-R chains, was not widely publicized and therefore did not succeed in challenging Hullian or probabilistic approaches to learning until the 1960s.

Memory for Visual Material

It was argued by Wulf (1922) that the *souvenirs* of visual targets, such as random shapes, underwent automatic changes in *la mémoire* in the direction of simplicity (“good figure,” e.g., a circle with a small gap in its circumference would ultimately be reproduced as a circle without a gap) or exaggeration (a sharpening of a particular detail of a shape). The ensuing literature was summarized by Riley (1962), who rejected the

notion that the Gestalt theory of autonomous changes in *souvenirs* with the passage of time had been supported in that literature. Moreover, an article by Hebb and Foord (1945) showed conclusively that random shapes are often remembered as verbal, rather than as purely visual, *souvenirs*. An ambiguous shape that could be described as “curtains in a window” or as a “diamond in a square,” when reproduced after an interval, would be more curtain-like or more diamond-like than the original ambiguous shape, depending on the verbal description assigned to it when it was first presented. This is a clear demonstration that labeling, using words, markedly influences the accuracy of reproduction, from memory, of visual material.

Kandel’s Psychological Manifestations

The Effects of Overstimulation

Freud theorized that forgetting was often “motivated” by an unconscious desire to “repress” *souvenirs* that were ego damaging. The discovery in World War I of cases where traumatic events on the battlefield, instead of being forgotten, were exceptionally well recalled both in dreams and in waking life, led to the adoption of this persistence of involuntary recall as a primary symptom of “war neurosis” (“shell shock”). Freud’s own explanation was that strong, physically traumatic, stimulation could override the ego-relevant aspects of the experience and overload the whole system, including the corpus of *souvenirs*.

Brain Localization

During this period, research on the brain tended to repeat with better neurological understanding and nineteenth-century controversies. Evidence that *les souvenirs* did not need to be localized to a cortical area other than the cortex used for the perceiving of, and responding to, a stimulus was provided, in the course of a lifetime’s research, by Lashley (1929, 1950/1960). Controversies persisted over whether the various forms of aphasia were caused by damage to specific areas of the left temporal lobe (Head, 1926). What is striking about this period is the lack of interest in the hippocampal formation as a mediator of retentive processes in the central nervous system. On the other hand, studies of brain injury to the cerebral cortex in humans,

often caused by motorcycle accidents, provided clear evidence that a severe trauma to the head could disrupt a consolidation process (Russell, 1959).

Mechanisms of Forgetting

It is often taken for granted that a memory trace, that is, the neural substrate of a *souvenir*, once consolidated is fixed and unchanging. Bartlett (1932) provided striking evidence, from studies of the repeated recall, by the same participant, of stories that not only was the recall of a written story rarely verbatim, but was also more in the nature of a conventionalized gist or summary; for Bartlett, a *souvenir* was more like a “schema”; repeated activation of the schema, in successive recall acts, served to alter details of the schema in much the same way as the serial telling, from person to person, of a scandalous narrative allowed that narrative to take on new characteristics in the course of gossip. The processes of conventionalization that he observed in serial and in repeated reproduction tasks are still of considerable interest in present-day sociology and social psychology circles (Danziger, 2008, pp. 137–141, 266–267).

A new form of forgetting was postulated in the Gestalt literature on crowding. If list A is learned well, followed by the learning of a second list B, relearning list A is usually harder than it is when there is no list B to be learned in the retention interval. Explanations of this phenomenon of retroactive inhibition in terms of interference theory, that is, in terms of S-R chains, were available (Melton & Von Lackum, 1941). But in Ceraso’s (1967) account, explaining retroactive inhibition in terms of response crowding, the forgetting of which list the memory representation of a given S-term had come from, list A or list B, was also demonstrated to be a factor determining the slow relearning of list A. When this kind of forgetting came to be evoked in later interference theories of retroactive inhibition, it was called a “failure of list differentiation” (Postman & Underwood, 1973). Proponents of post-Hullian verbal learning theories also found themselves obliged to view serial learning and paired-associates learning as if they were exercises in the “organization” of *souvenirs* rather than as exercises in the chaining of *souvenirs* of verbal stimuli and responses (Postman, 1971). A fuller account of this literature was given by Murray (1995, pp. 118–123).

Memory Theories during the Cognitive Revolution

Quantitative Contributions

Memory for Verbal Material

Bower’s (1961) all-or-none model of paired-associates learning was complemented by his use of a computer program that allowed the numerical magnitude of a variable to be estimated iteratively until, when a particular magnitude of that variable was inserted into Bower’s equation for the learning curve, the deviation of the obtained learning curve from the predicted learning curve was statistically insignificant. This technology played a fundamental part in making more persuasive a wave of mathematical models of human memory that appeared in the period following 1960.

In particular, a class of “stochastic” models of learning was invented, according to which a response to a stimulus entered or did not enter a “learned” state (from which it might then enter or not enter a “forgotten” state, depending on the model). Atkinson and Shiffrin (1968) delivered a model of human verbal learning in which immediate memory (primary memory) was identified with the presence of a very brief “iconic” or “echoic” sensory memory (terms introduced by Neisser, 1967) that was then encoded as a mental representation in a short-term auditory-verbal-linguistic store (STS). Secondary memory was identified with the presence of mental representations in a long-term store (LTS). The transitions from sensory store to STS, and from STS to LTS, depended on the amount of attention paid by the participant and were quantified in terms of transition probabilities. The incorporation of a “forgetting” state into a stochastic model was introduced by Bernbach (1965). Excellent introductions to these stochastic models of learning were provided in textbooks of mathematical psychology written by Coombs, Dawes, and Tversky (1970), Restle and Greeno (1970), and Laming (1973). Again, Estes (2003) throws light on the historical development of “state” learning theories by pointing out that if in stimulus-sampling theory, a memory representation of a stimulus should be encoded in its entirety during the sampling, it makes sense to say that that representation is in a learned (as opposed to an unlearned) state. Estes (1960) himself developed a way of investigating

whether paired-associates learning took place in a continuous or in an all-or-none manner.

In a typical stimulus-sampling theory, the number of potential “states” of learning achieved by a given trial has an infinity of possible values, as compared with the small and finite number of states typical of stochastic models. But state models had the incidental consequence of reviving interest in primary memory. Estes (1972) started his own program of research on the role of association forming in the retention of order information in memory span tasks. He suggested that the representation of an association between two adjacent items in primary memory should be specified in terms of a hierarchy of features. If, for example, the pair were *mif-zon*, the association between *mif* and *zon* was postulated to be the outcome of an association between *mif* and a control element and the outcome of another association between *zon* and that same control element. The association *mif-zon* was considered to constitute a single feature that had as its constituents two-syllable features and each of these in turn had as constituents three-letter features. Upon the initial input of two items, such as *mif* and *zon*, an

- ▶ [A]ssociative structure is established, with reverberatory loops connecting the representation of each item to a contextual control element. The structure reactivates the representations cyclically, initially following the input sequence... there is some constant probability θ of a perturbation in timing which will result in the next reactivation being advanced or delayed. . . (Estes, 1972, p. 180).

This “perturbation” model was to be amplified, not only by Estes (1997), but by others in a second wave of models, focused on human *souvenirs*, rather than on the acquisition of S-R associations, that dominated research at the end of the twentieth century.

In particular, the perturbational model underlay several models that purported to explain, not only the bow-shaped serial position curve of immediate recall (a primacy effect, a relatively hard-to-recall middle section, and a recency effect), but also analogous serial position effects found in the course of serial learning and paired-associates learning. The recency effect in the so-called free recall tasks, where the *order* of the to-be-remembered items did not have to be retrieved, was shown to reflect a recency effect containing some four

items, provided those final items were the first to be recalled (Glanzer & Cunitz, 1966). The primacy effect in free recall was shown by Tan and Ward (2000) to have resulted from the fact that the initial items of a list were more likely than were any later items to have received fleeting subvocal rehearsals during the presentation of those later items and would, therefore, be more likely to appear as recalled members in the context of a recency effect.

The feature model of Nairne (1990) integrated both the feature aspects and the perturbational aspects of Estes’s (1972) model with a model that assigned forgetting to an “overwriting” mechanism. This mechanism is closer to Herbart’s fusion mechanism than to retrieval failure (“interference”) based on inadequate cuing, because an overwriting mechanism, like a Herbartian fusion, leads to a genuine deletion of one of the two memory representations involved in the overwriting or fusion. In two subsequent feature models, the OSCAR model of Brown, Preece, and Hulme (2000) and the SIMPLE model of Brown, Neath, and Chater (2007), it was specified that forgetting due to decay could be discounted, especially in short-term memory. Lewandowsky, Duncan, and Brown (2004) claimed to have obtained experimental support for this assertion. In a serial recall task, Oberauer and Lewandowsky (2008) have provided further experimental support for the conclusion that “purely temporal views of forgetting are inadequate” (p. 544).

The Theory of Distributed Associated Memory (TODAM) model of Murdock (1983, 1993) includes “features” that were represented by one-dimensional arrays of values (0 and 1) called “vectors.” These vectors could be “convoluted” to form aggregated memory representations, and could be “correlated” with the vectors representing incoming stimuli whenever these incoming stimuli elicited recognition or recall responses. A rationale for using TODAM to provide a quantitative vehicle for comparing human *souvenirs* to Galton’s composite photographs was offered by Metcalfe (1991).

The Search of Associative Memory (SAM) model (Raaijmakers & Shiffrin, 1981; Gillund & Shiffrin, 1984) was a development of Atkinson and Shiffrin’s (1968) stochastic model concerning transition probabilities associated with the movements of memory

representations between a short-term store and a long-term store. In SAM, however, no memory representation is considered to be theoretically isolable from its spatiotemporal context in a list, and for this reason, the SAM model makes predictions about retroactive inhibition in laboratory tasks that are directly comparable with those of Ceraso's (1967) Gestalt model of list learning (Mensink & Raaijmakers, 1988; Murray, 1995, Chapter 4).

Tasks that involved retrievals from long-term memory of individual memory representations that had already been cognitively organized into unified groups in terms of hierarchical, rhyme/rhythm, categorical, and/or autobiographical principles were investigated in the laboratory of Gordon H. Bower, and reviewed by Bower (1972), who offered a Free Recall by an Associative Network (FRAN) model, and by Anderson and Bower (1974), who presented a more comprehensive Human Associative Memory (HAM) model. Anderson went on to produce a series of models that incorporated these principles of organization along with postulates concerning the mechanisms of retention. These Adaptive Control of Thought models include ACT (Anderson, 1983), ACT-R (Anderson & Mantessa, 1997), and ACT-R 5.0 (Anderson, 2004). The last of these models attempted to identify the psychological processes discussed by the model with the activities of different brain parts known, partly from brain-imaging studies in humans, to be excited in the course of mediating those processes.

Helpful summaries of Nairne's feature model, TODAM, SAM, MINERVA2 (Hintzman, 1984), and connectionist models (criticized by Ratcliff, 1990) can be found in Neath and Surprenant (2003, pp. 363–394). Several SOAR models based on the computer programming of "production systems" are summarized by Newell (1990). Elsewhere in their review of contemporary findings on human memory, Neath and Surprenant (pp. 214–217) discuss a phenomenon that none of the above models has found easy to explain, namely, the so-called mirror effect. In an immediate probed yes/no recognition task, a list of sequentially presented "target stimuli" is followed by one more stimulus (a "probe stimulus") that has to be judged as "old" or "new" with respect to the target stimuli. If there is a series of experimental *conditions* that increase in difficulty in such a way that fewer and fewer correct

"old" judgments to old probes (hits) are yielded, these same conditions will also yield more and more incorrect "old" judgments to new probes (false alarms). A false alarm rate cannot be derived from a hit rate simply by subtracting the hit rate from 1.0. The Partial Matching Theory (PMT) of Murray et al. (1998, 1999) did provide equations that successfully predicted the mirror effect.

In discussing retrieval processes, most of the above models, to which may be added that of Glanzer, Adams, Iversen, and Kim (1993), who also predicted the mirror effect, had included assumptions about the probability distributions of potential responses, probably a legacy of an influential and pioneering model of immediate probed yes/no recognition accuracy that had made use of signal detection theory (Wickelgren & Norman, 1966). The PMT model involved probabilities as variable names, but did not use signal detection theory, and did not need, therefore, to specify any probability distributions. Ratcliff and Starns (2009) have provided further criticisms of the uncritical adoption of signal detection theory into models of recognition memory.

Qualitative Contributions

Memory for Verbal Material

The Self-Organizing Consciousness (SOC) theory of Perruchet and Vinter (2002) included the assumption that if two mental representations are concurrently being consciously experienced, and the two are identical in content, the two will be recognized consciously *as* being identical. Perruchet and Vinter were able to explain a number of instances of *implicit* learning in humans; most of the models described in this and in the previous section had focused on *explicit* learning in humans. Tulving (1983) had classified human memory into several categories, including implicit (or "procedural") memory such as skilled movements or the recital of verbal material learned by rote; and explicit memory, with a distinction made between episodic memory (largely consisting of autobiographical *souvenirs* localized in a spatial and/or temporal context) and semantic memory (abstract, usually verbal, knowledge of such matters as history, science, and acquired second languages; the place and time at which these *souvenirs* were first acquired were not usually localized). One kind of implicit memory that had long puzzled

researchers was the acquisition, by children without formal training, of the rules of grammar in their first language. Perruchet and Vinter were able to give an account (of the acquisition of linguistic rules) that relied mainly on participants' abilities to recognize similarities between, or identities of, the contents of consciousness at differing times. More recently, Jones and Mewhort (2007) have developed a Bounded Encoding of the Aggregate Language Environment (BEAGLE) model that uses the order in which individual words are experienced in unsupervised everyday life to build up a lexicon whose usage illustrates an implicit acquisition of some of the regularities underlying sentence comprehension.

The Working Memory Theory (WMT) of Baddeley and Hitch (1974) was put forward to account for the fact that if one imagines the content of consciousness (primary memory) at a given moment to consist entirely of a recording-like short-term store, this cannot explain how patients with the damage to the STS are nevertheless capable of reasoning, identifying, and conversing; nor can it account for the retention of subsidiary information over and above that encoded verbally into STS. No flow diagram was offered by Baddeley and Hitch, but, 12 years later, Baddeley (1986, p. 71) offered a flowchart with three components: an articulatory loop that preserved, for a short time, what had been vocalized to oneself concerning the to-be-remembered material; a visuospatial scratch pad that preserved, also for a short time, what had been retained, perhaps in the form of a visual image, of the to-be-remembered material; and a central executive that masterminded whether the concurrent contents of consciousness were articulatory and/or visual and whether any of those contents would receive extra maintenance or elaborative rehearsal.

Much of the evidence for the articulatory loop depended on the evidence that the concurrent articulation aloud of irrelevant material ("articulatory suppression") during the attempted memorization of visually presented verbal material could reduce immediate recall of that material from maybe 70% correct to about 20% correct (Murray, 1967). If the same material were presented auditorially, the reduction was less (Murray, 1968). Much of the evidence for the visuospatial scratch pad came from the evidence, to be outlined below, for dual coding in human memory,

visual and verbal, provided by Paivio (1971). Baddeley (1986, p. 142) showed that the effects of articulatory suppression on memorization were less damaging when meaningful (and, probably, visual-imagery-evoking) words, rather than nonsense syllables, constituted the to-be-remembered material. The accruing evidence, summarized by Penney (1989), for the selective interference of visual inputs with visuospatial immediate recall, and of verbal inputs with verbal immediate recall, is a vital part of the evidence supporting Baddeley's (1986) model.

More recently, Baddeley (2006) has added an "episodic buffer" to WMT, allowing for a greater determination of the central executive's ongoing strategy by *souvenirs* laid down in the past concerning the participant's own moods and motivations. Among the criticisms of WMT are the arguments of Jones, Hughes, and Macken (2006, 2007) to the effect that the temporal "streaming" of successive inputs into consciously perceived "groups" categorized by communalities of sensory modality can provide an alternative to accounts based on "boxes" called visuospatial scratch pads and articulatory loops. Rebuttals of this objection were provided by Baddeley and Larsen (2007a, b). Other critics disparaged the use of "boxes" to represent cognitive structures; a preference for a feature analysis of memory representations characterized by sensory content runs throughout the feature models from that of Nairne (1990) to that of Neath and Nairne (1995) to that of Brown, Neath, and Chater (2007). New criticisms will probably emerge as a consequence of the discovery that single neurons can mediate more than one psychological function, rather than just one function (see below).

In terms of the lift WMT has given to research productivity on short-term memory, however, there is no question as to its historical importance. Surveys of the various changes in the names given to the "boxes" of WMT, as well as of the extension of WMT to various areas of applied memory research, will be found in a volume edited by Andrade (2001). The present-day value of WMT in the study of classroom learning by children, and in the study of normal age-related forgetting, has been emphasized by Moulin and Gathercole (2008). WMT can also be used to explain how distracting sensory inputs can be voluntarily ignored (Dalton, Santangelo, & Spence, 2009).

Memory for Visual Material

As indicated above, it was Allan Paivio (1971) who first amassed a large amount of scattered material in order to put together his “dual coding hypothesis,” according to which humans have evolved two major ways of thinking, one involving visualization, and one involving language. More corroborating evidence was added by Paivio (1990); and, most recently, Paivio (2007) has assimilated his dual coding hypothesis into a general theory of the evolution of the human mind, a theory characterized by the emphasis Paivio placed on his beliefs that visual memory emerged prior to verbal memory in geological time, that a high-quality visual memory is possessed by many animal species (especially vertebrates), and that the vestiges of this visual memory ability are still present in humans. Of course, these psychological speculations are consistent with the discovery of place-memory cells in the hippocampus. The possession by young children of nonverbal visual memory abilities that precede the acquisition of verbal memory abilities has been supported by evidence reviewed by Paivio (1990, Chapter 5). In animals, “Clark’s nutcracker, the mnemonic champion of the food-storing birds in field tests and laboratory tests of spatial memory (Kamil, Balda, & Olson, 1994), is the species most dependent on stored food and also has the largest hippocampus” (Paivio, 2007, p. 253). It is important to note that even though animals and pre-verbal children may possess some kind of visual memory representations, and maybe even visual imagery, the connection with consciousness as described in verbal reports by human adults remains controversial (Marks, 1999; Paivio, 2007, pp. 254–257).

Experimental demonstrations of how visual stimuli can be processed in such a way as to suggest that any retention thereof does indeed involve visual, rather than verbal representations, include Standing’s (1973) demonstration that after seeing as many as 10,000 pictures followed by a sample of those pictures intermixed with new pictures, the probability of giving correct “old” responses to old pictures was very much higher than was the case in a comparable experiment using words instead of pictures. Shepard and Cooper (1982) reviewed evidence that adults can mentally “rotate” an abstract shape sufficiently well that the shape, when rotated by a certain number of degrees, can still be correctly recognized as being the same

shape. With respect to children, Paivio asked his 7-year-old daughter

- ▶ to picture a “big” letter N in her mind. When she said she had it, I asked her to tilt it over on its side and asked “Now what do you see?” “I see a Z,” she promptly replied, which means she must have rotated the imaged letter 90 degrees. (Paivio, 2007, p. 53)

Whenever two or more categories of *la mémoire* are posited, it is persuasive if one can report that the different categories can be experimentally dissociated. For example, Tulving (1983, Chapter 5) gave examples of experimental dissociations between implicit and explicit memory, as well as between episodic and semantic memory. With respect to dual coding theory, Murray, Mastronardi, and Duncan (1972) were able to dissociate the effects of attending to verbal meanings of colored words from the effects of attending to the physical appearance of those same words. Several studies reviewed by Murray and Newman (1973) were able to dissociate the information that had been retained about the names of shapes scattered in a matrix from the information about the locations of those shapes in the matrix. Paivio (1971, Chapters 9, 10, and 11) reviewed experimental dissociations, in several different kinds of memorizing tasks, between memory for the names of the contents represented by pictures and memory for the visual characteristics of those contents. Farah, Hammond, Levine, and Calvanio (1988) reported that a brain-damaged patient showed a deficit on performance on tests designed to demonstrate “visual” skill, but no deficit on tests designed to demonstrate “spatial” ability. Garden, Cornoldi, and Logie (2002) were able to dissociate the effects of interference with visuospatial processing from the effects of interference with verbal processing during the learning of how to navigate around an unfamiliar town. When bilateral lesions of the posterior cerebral hemispheres are present in humans, the contents (the “what”) and the locations (the “where”) of visual images can be dissociated (Levine, Warrach, & Farah, 1985). In their review of face recognition, Hanley and Cohen (2008) have shown how it is possible to dissociate a sense of familiarity with a given face from the recall of the name of the person associated with that face. The fact that Baddeley’s (1986) version of WMT included a dissociation between the visuospatial and the

articulatory components of working memory is an indication of how influential Paivio's dual coding theoretical approach has been on memory theory in general.

Kandel's Psychological Manifestations

Effects of Overstimulation

After the Holocaust, World War II, and the wars in Korea and Vietnam, it was recognized by the American Psychiatric Association in 1980 that a special category of illness, to be called posttraumatic stress disorder (PTSD), should be incorporated into the Diagnostic and Statistical Manual of Mental Disorders (3rd edition). Often, the traumata in question involved more than one experience, of course; the political, legal, and psychotherapeutical consequences of the recognition of PTSD, as well as its importance for memory theory, are discussed by Danziger (2008, pp. 205–215).

Flashbulb memories for where and when one was when a major piece of news was announced have now become a topic of independent research.

- ▶ Hearing the news that President John Kennedy had been shot, the bombing of Pearl Harbor, the first landing on the moon, the terrorist attacks on the World Trade Center in September 2001, or the death of Princess Diana, are among the examples that have been studied. (Williams, Conway, & Cohen, 2008, p. 63)

Brain Localization

The great technological innovation of this period was the invention of brain-imaging devices such as positron emission topography (PET), functional magnetic resonance imaging (fMRI), and magnetoencephalography (MEG). A pioneering account of the initial findings of these devices relevant to an understanding of cognitive psychology showed that brain activity during visual searching was closely linked to cerebral activity indicative of selective attention (Posner & Raichle, 1994, pp. 47–51). Mentally imagining a letter F and looking at a letter F elicited brain activity in the same cerebral regions (p. 97). The anterior cingulate gyrus acts like an executive controlling the attention paid to visually orienting oneself, to individual features, and to the contents of working memory, be they visuospatial or verbal (p. 173). When pseudowords were being rehearsed subvocally in working memory, a PET scan showed increased

activity in those parts of the frontal cortex normally associated with speaking; but some participants also showed strong activation in the visual cortex as if they were trying to remember the visual appearance of the pseudowords as well (p. 234). Kandel (2006, p. 306) described an innovative employment of fMRI that showed that the hippocampus of London taxi drivers increased in size with their years of experience; taxi driving demands a high level of place memory.

The unexpected anatomical discovery of this period, pioneered by Rizzolatti, Fadoge, Gallese, and Fogassi (1996), was that some single cells, in an area of the premotor cortex of macaque monkeys that is concerned with arm movements, responded when a monkey saw *another* monkey perform, say, a grasping movement; furthermore, the monkey perceiving the movement actually imitated the movement despite never before having performed that particular grasping movement in that spatiotemporal context. Experimentation also revealed that the imitation seemed to mirror not merely the muscular actions observed, but also the intentions of the imitated performer (e.g., the grasping of a particular object when the animal was in a particular need-state concerning that object). When these observations were extended to humans (making use of PET, fMRI, and MEG recordings, but not single cell recordings) brain responses registered while preschoolers were watching, and imitating, other persons carrying out various gestures suggested that the preschoolers were also aware of the goals that the gesturing person had in mind (Iacoboni, 2009, pp. 62–70). These observations could also be extended to situations where adults observed the faces of other adults who were undergoing emotional experiences; the observers tended to imitate the facial movements. A particular pathway called the insula connects the area of premotor cortex to the limbic system, known to mediate the activation and expression of emotions such as fear and anger. But what was extraordinary about these new research findings was the evidence for the participation of individual neurons in the apparent storage not only of imitated actions, but also of the intentions motivating those actions, and of the emotions associated with those actions.

The boundaries between sensation, perception, emotion, and cognition seem to be blurring. The fact that single place-memory neurons in the hippocampus can

apparently store not merely where an event happened, but also the sights, odors, and sounds associated with that location, lead one to speculate that the boundaries between sensation, perception, and attention in immediate memory tasks might also be blurring. Earlier, Zeki (1992) had dramatically shown how, in studies of visual perception, the boundaries between color sensation, contour sensation, brightness sensation, and movement sensation are blurring. Future theories of memory may be less modular than they were in the past.

Mechanisms of Forgetting

Waugh and Norman (1965) reintroduced the term “primary memory” into the modern literature when they demonstrated, using an immediate probed recall task that the memory representations of visually presented numbers can apparently “knock out” the memory representations of numbers that had been visually presented earlier. The participants had been instructed to avoid verbal rehearsal of the numbers. The term “overwriting” was introduced by Broadbent and Broadbent (1981) in their study of the immediate yes/no probed recognition for seven cards on each of which was drawn an assemblage of three nonsense shapes. Grodzinsky (2000) surmised that a “trace-deletion hypothesis” could be used to demonstrate that Broca’s area (which is close to the insula) was involved particularly in processing non-syntactical or nonlexical components of language comprehension; Murray (2000) suggested that visualization and overwriting were involved in the comprehension task examined by Grodzinsky. “Knockout,” “overwriting,” and “deletion” are all words having in common the notion that a neurological substrate (a memory trace) can be changed to such an extent that the corresponding *souvenir* can be said to have been erased. “Erasure” can be added, therefore, to “fusion,” “decay,” and “interference” as a fourth potential cause of forgetting.

Conclusion

Toward the end of his Nobel-Prize winning career in research on auditory science, von Békésy (1967) wrote a book entitled *Sensory Inhibition*. Giving examples of how, in several sense modalities, neighboring receptor neurons can inhibit each other at the peripheral level prior to their sending sensory messages to the brain, von Békésy maintained that these inhibitory

mechanisms had evolved for the purpose of ensuring that the brain was not overwhelmed by too much sensory information at any one moment. Murray (1994) suggested that the memory system behaves analogously in humans. The most obvious kinds of inhibition are those afforded *during* perception by selective attention to competing sensory features in primary memory, and those afforded *shortly after* perception by consolidation mechanisms. But, if an overwriting or fusion mechanism depends on the identity or strong similarity to each other of two memory representations that are concurrently in consciousness, this mechanism will reduce redundancy and thereby help to preserve an acceptable level of distinctiveness between individual memory representations. Such a mechanism must be of adaptive value in an environment where competition between people must coexist with benevolence between people.

More generally, there is a difference between a history of theories of memory, such as this article, and “biographies of psychological objects”—histories of how the word “memory” has reflected social and medical beliefs down the centuries. Following the success of Foucault’s (1965/1973) study of the concept of “madness” in history, Hacking’s (1995) study of how memory was conceptualized in nineteenth- and in twentieth-century medical and legal circles, and Danziger’s (2008) study of the impact upon memory research of ongoing social concerns and fashions, provide outstanding examples of biographies of the psychological object called memory. Wright and Loftus’s (2008) account of the *impact* of experimental studies of eyewitness reports upon judicial administration systems in several industrialized countries shows how academic psychology can actually affect society.

Important earlier contributions to the history of theories of memory include Edgell’s (1924) survey of such theories, Gomulicki’s (1953) history of trace theories of memory, Young’s (1961) bibliography of memory (with special attention to mnemonic systems), Norman’s (1970) introduction to a number of competing models of memory, many of which incorporated mathematics, and Searleman and Herrmann’s (1994) review of discoveries in applied memory research. The new understanding of the biology of memory also had important precursors, including Gaito’s (1966) investigations into the role of RNA in human memory storage, and John’s

(1967) survey of evidence about how electroencephalography (EEG) and related methods have contributed to the understanding of human memory.

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Basic Biographical Information

THORNDIKE, EDWARD LEE (August 31, 1874–August 9, 1949) might be regarded as the “father” of

American learning psychology (Craighead and Nemeroff 2001) and published around 500 books and articles during his 55-year career (Plucker 2003). Thorndike taught that psychology should not focus on mental elements or conscious experience but should study behavior and his research and theories of learning or association propelled learning theory into a very important place in American psychology.

Thorndike was born in Williamsburg, Massachusetts, married Elizabeth Moulton on August 29, 1900, and had five children including Robert Lee Thorndike.

He obtained his Bachelor's degree from Wesleyan University in 1895 and then graduated from Harvard University, obtaining his Master's degree in 1897 where he studied under William James and he began his animal research. In 1898, under James M. Cattell, Thorndike obtained his PhD at Columbia University and he was part of the faculty from 1899 to 1940 at the Teachers College, spending his entire 50-year career at Columbia. During this time, Thorndike continued his work with animals and this was published in a monograph titled, "Animal Intelligence," but he also did research and taught about human learning, mental testing, and education. In addition, he was an assistant professor of Pedagogy at Case Western Reserve University during this year (Craighead and Nemeroff 2001).

In 1912, Thorndike became the president of the American Psychological Association, and in 1934, he became the president of the American Association for the Advancement of Science. Also, from 1942 to 1943, he was a William James lecturer at Harvard University. In addition, Thorndike was the second president of the Psychometric Society (Plucker 2003).

It has been said that Thorndike was influenced by Wechsler, R. B. Cattell and that Thorndike's students included Bingham, R. Thorndike, and L. S. Hollingworth (Plucker 2003).

Contributions

He was once the leader in the human education field and used his animal intelligence studies, such as his puzzle box problems, to study human educational experiences. Thorndike played a major role in developing knowledge of operant conditioning. Early work in 1913 involved the use of cats and these puzzle boxes. The cat was placed in the puzzle box to see how they maneuvered through it and how long it took them to

maneuver through it to get to the reward. To escape and reach the reward, the cats had to pull out a bolt or pull on a string to open the door. Usually by accident, the cats would find their way out, but after repeating the process a number of times, the cats learned the correct response (Woolfolk 2004). This led to Thorndike's Law of Effect which was defined as any act that produces a satisfying effect in a given situation will tend to be repeated in that situation. Thus, this established the basis for operant conditioning. Operant conditioning is defined as learning in which voluntary behavior is strengthened or weakened by consequences or antecedents, events that precede an action (Craighead and Nemeroff 2001).

The law of effect, in Thorndike's view, was the basic governing principle of learning, but he felt that it could not be that simplistic. To account for all the learning that had or had not occurred, in addition to the law of effect, Thorndike proposed the law of exercise and the law of readiness (Craighead and Nemeroff 2001).

Thorndike believed that the two most basic intelligences are Trial-and-Error and Stimulus-Response Association. His Law of Effect states that responses to a situation that are followed by satisfaction are strengthened and that responses that are followed by discomfort are weakened. He added his Law of Exercise that states that stimulus-response connections that are repeated are strengthened and stimulus-response connections that are not used are weakened. The Law of Exercise was later found to lack validity. In addition, Thorndike added his law of readiness which was defined as the need to attend if one is to learn anything. He suggested that the nervous system had to be tuned for certain connections to operate; it had nothing to do with maturity or age. And, unlike the law of effect, the law of readiness was not something that could be manipulated; it just had to be there (Craighead and Nemeroff 2001).

The law of belongingness, suggesting some kinds of material were more easily learned than others, and the law of associative shifting, which was meant to incorporate the conditioning into the law of effect, were also proposed by Thorndike but were not very successful (Craighead and Nemeroff 2001).

Thorndike and his students used objective measurements of intelligence on human subjects as early as 1903, and by the time the United States entered WWI,

methods for measuring a variety of abilities and achievements were developed. A test of intelligence, known as the CAVD, was developed by Thorndike in the 1920s that consisted of completion, arithmetic, vocabulary, and directions test. It was intended to measure intellectual level on an absolute scale and became the foundation of modern intelligence tests (Plucker 2003).

Important distinctions were drawn among different classes of intellectual functioning by Thorndike as well. Standard intelligence tests only measured “abstract intelligence.” “Mechanical intelligence” was defined as the ability to visualize relationships among objects and understand how the physical world worked.” In addition, “social intelligence” was defined as the ability to function successfully in interpersonal situations (Plucker 2003).

Four general dimensions of abstract intelligence which included Altitude, Width, Area, and Speed were also proposed by Thorndike. Altitude was considered the most important and was described as the complexity or difficulty of tasks one can perform, width was defined as the variety of tasks of a given difficulty, area is a function of width and altitude, and the number of tasks one can complete in a given time was called speed (Plucker 2003).

Thorndike also developed psychological connectionism in which, through experience, neural bonds or connections are formed between observed stimuli and produced responses. So, intellect aids the formation of neural bonds. He theorized that people of higher intellect could form more bonds, as well as form bonds more easily, than people of lower ability and that the ability to form bonds was rooted in genetic potential through the genes’ influence on the composition of the brain. It was also theorized that the content of intellect was a function of experience. Thus, the idea that a measure of intelligence could be independent of cultural background was rejected by Thorndike. In short, Thorndike believed that connectionism was the connection between situations and response, not associations between ideas and that stimulus–response units were the building blocks from which more complex behaviors are formed (Plucker 2003).

See Also

- ▶ Cattell, Raymond B.
- ▶ Skinner, B. F.

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Thurstone, Louis Leon (May 29, 1887–September 30, 1955) was a pioneering psychometrician, dedicated professor, and amateur photographer, best known for his work in factor analysis and for discovering the law of comparative judgment.

Basic Biographical Information

Louis Thurstone was born in 1887 in Chicago, Illinois. His parents were both Swedish immigrants who

changed the family name from Thunström to Thurstone due to the often misspelling and mispronunciation of the name. Thurstone's interest in mathematics may have stemmed from his father, Conrad (Thunström) Thurstone, who instructed arithmetic in the Swedish Army; and later became a Lutheran minister, as well as a newspaper editor and publisher. Both his mother, Sophia (née Stråth), and younger sister Adele, were musically talented. During his younger years, the family moved to several cities within the United States. When Thurstone was 8 years old, the family relocated to Stockholm, Sweden; while finally settling in Jamestown, New York when Thurstone was 14. Thurstone attributed his attitude of objectivity on his multicultural upbringing, often criticizing colleagues for their subjectivity in publishing.

In 1905, at the tender age of 15, Thurstone wrote his first publication – a letter to the editor of *Scientific American*, detailing a solution to utilize Niagara Falls as a power-source while also maintaining attractiveness. Three years later, as a college freshman at Cornell, he again published in *Scientific American*, this time as an academic contributor introducing a new geometric method for trisecting an angle (Thurstone 1912). Following this achievement, he decided to pursue studies in engineering and received a Master's degree from Cornell in 1912. It was during this time that he was submersed into the field of psychology which was then known as “human engineering.” After a short stint working in Thomas Edison's laboratory, Thurstone returned to academia, first as a professor at the University of Minnesota, and then as a doctoral student at the University of Chicago, where he received his PhD in psychology in 1917.

While pursuing his doctorate, Thurstone began an assistantship in the Division of Applied Psychology at the Carnegie Institute of Technology, where he later became a Professor and headed the department until 1923. Recruited to Washington, D.C., he began working for the Institute for Government Research. This was to be Thurstone's first experience with failure – an experiment on Navy officers on learning during sleeping foundered. All was not lost, however; as there he met and married Thelma Gwinn, a fellow psychologist. In the fall of 1924, the newlyweds relocated to Illinois, where Thurstone took on a professorship at the University of Chicago. He would remain there until his retirement in 1952 (Thurstone 1952).

Major Contributions

During his career at the University of Chicago, Thurstone established the Psychometric Laboratory in the Social Sciences Division. It was here that he began studying intelligence and learning, and came upon his discovery of the *law of comparative judgment* (Thurstone 1927). This model introduced the concept of discriminial dispersion in scaling operations, or using a pairwise comparison to measure psychological traits. Taking this mathematical reasoning into the world of social psychology, Thurstone explored the points of view toward several controversial topics, such as minorities, criminals, communism, birth control, censorship, and patriotism, and created the first attitude scale (Thurstone 1928). He then transitioned his experiments on the study of attitudes into the study of intelligence, creating a notorious debate within the field of psychometrics (especially with the prominent psychometrician Anne Anastasi). He believed intelligence existed in seven distinct areas: verbal comprehension, word fluency, number facility, spatial visualization, associative memory, perceptual speed, and reasoning. He later merged these studies into what he called Primary Mental Abilities, or PMAs, which would begin his significant and monumental discoveries in factor analysis (Thurstone 1938).

Credited with coining the term “factor analysis” (developed by Charles Spearman), Thurstone felt Spearman's *g*, with its unitary form, lacked the ability to analyze the dimensionality of the human mind, especially in terms of intelligence. In order to create a solution to this problem, Thurstone proposed the concept of multiple-factor analysis (Thurstone 1947). Since oblique rotations in factor analysis often achieve the optimal solution, Thurstone felt that factors of intelligence were correlated and therefore not statistically independent. He regarded second-order factors (the factor analysis of intercorrelations of first-order factors) as meaningful, and therefore justified the need for multiple-factor measurement and exploratory factor analysis.

Using his new analytical methods, Thurstone changed the world of intelligence testing and measurement for all time. Rejecting the use of a singular general intelligence score (such as raw scores or mental-age scores), he proposed the usage of a standardized mean and standard deviation for IQ

scores that are still in use today. His introduction of communality, or the sum of the proportions of common-factor variance of a test, laid the groundwork for such modern-day psychometric theories as item-response theory (specifically the Rausch model) and hierarchical linear modeling. In addition, his work on adapting Spearman's simple structures of factor analysis introduced methodology that has resulted in the interpretability of factor analyses in psychological constructs.

With his love of mathematics intertwined with psychology, Thurstone was disappointed to discover that most psychological publications rejected research that included mathematical equations or submissions that were deemed as being "too technical." In order to rectify this problem, Thurstone, along with E. L. Thorndike and J. P. Guilford, founded the Psychometric Society in 1935, becoming Society's the first president (based upon his experience as the president of the American Psychological Association, or APA, in 1932). The Society also created the journal *Psychometrika*, with the goal of advancing study of quantitative measurement in psychology. In addition, he became the president of the Division on Evaluation and Measurement of the APA in 1947.

The following year, the Thurstones embarked on a yearlong spell as visiting professors at the University of Frankfurt (Germany). With them, they brought a collection of American textbooks, including many of Thurstone's publications on factor analysis. Thurstone was shocked to discover that these were the first books from outside Germany that the University had experienced since the onset of World War II in 1939. This occurrence became the driving force behind Thurstone's acceptance of a Visiting Professorship at the University of Stockholm in 1954, where he would begin a European "tour," conducting lectures and seminars in Germany, London, Uppsala, Göteborg, Oslo, Helsinki, and Edinburgh. After Thurstone retired from the University of Chicago in 1952, he was appointed the Director of the Psychometric Laboratory at the University of North Carolina, where he continued his research and teaching until his death in 1955.

See Also

- ▶ [Anastasi, Anne](#)
- ▶ [Thorndike, Edward](#)

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Tinker, Miles A.

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Basic Biographical Information

Born: August 22, 1893; Died: March 4, 1977.

Miles Tinker got a late start on an academic career after service during World War I. Ultimately he became associated with the University of Minnesota and had a nearly 50-year career there.

Major Accomplishments/Contributions

His work was uniformly experimental and quantitative: One of his earliest studies involved variations in hand-drawing regression lines (Tinker 1923). At Stanford for the Ph.D., where his mentors were Terman and ▶ [Miles, Walter R.](#), he continued his interests in mathematics and measurement. His doctoral work (Tinker 1927) was a comprehensive study of the legibility of mathematical formulae utilizing Miles' modifications of Dodge's tachistoscopic apparatus. Tinker published several articles on this work (e.g., Tinker 1926; Tinker 1928) and, after joining the faculty at Minnesota, he dedicated much of his career to working out the details of legibility. He continued to develop modifications of tachistoscopic apparatus, and began, with ▶ [Paterson, Donald G.](#) in 1930, a long series of meticulous studies

of the factors affecting the readability of type. Paterson and Tinker considered type face, illumination, surface quality, spacing, and several other factors. This work culminated in their 1940 book *How to Make Type Readable* (Paterson and Tinker 1940) which became a standard reference in applied print areas. Tinker continued to modify this work and reissued a comprehensive summary in 1963, *The Legibility of Type* (Tinker 1963), which continues to be cited widely in typographic and other graphic arts contexts and legal contexts, including experimental typography, typeface law, and information design. Tinker and Paterson's work also has provided psychological substance to historical studies of reading and legibility (e.g., Saenger 1997).

Along with his studies of type legibility, Tinker also studied various other factors contributing to reading, and became a leading contributor not only to experimental reading research but also to the study of illumination, a field in which he also became a recognized authority. Tinker continued to publish extensively on reading well into his seventies and was influential in the area of reading instruction as well, authoring several textbooks in the area which went into multiple editions. Tinker also made significant contributions to the history of psychology, authoring, with Paul Farnsworth and Burton Thuma, an early study rating psychologists' importance to the development of the field (Tinker et al. 1927), and also tabulating the theses of Wundt's American students (Tinker 1932). Later he authored a monograph on the history of the University of Minnesota Psychology Department (Tinker 1953) which provided a good midcentury interim report on the development of one of the most productive academic departments in the USA. Within the Minnesota department, Tinker contributed a great deal to establishing the strong empirical tone of the department. He revised W. S. Foster's book of psychology experiments after Foster's death (Foster and Tinker, 1929) and also assisting in writing two further manuals of laboratory procedure connected with Minnesota's compulsory laboratory course. He was also, along with Paterson, a productive teacher and sponsor. One of Tinker's students, Saadia Gelb, who assisted in Tinker's work on susceptibility to optical illusions (Tinker 1938), became a noted Zionist.

See Also

- ▶ Miles, Walter R.
- ▶ Paterson, Donald G.

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Titchener, Edward Bradford

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Edward Bradford Titchener was an Anglo-American psychologist and founder of the American school of psychology called structuralism.

Titchener was born in Chichester, Sussex England on January 11, 1867 and died on August 3, 1927 in Ithaca, New York (Boring 1927). He excelled in his public school education and attended Brasenose College, Oxford for his undergraduate education. He was attracted there to the ideas of George Berkeley,

Herbert Spencer, and James Mill, among others. It was from one of Mill's books that he realized that it was possible to analyze the mind into simpler parts (Titchener 1909). It was also at Oxford that Titchener discovered the ideas of Wilhelm Wundt. He was accepted to Wundt's laboratory in Leipzig, Germany but, to get laboratory experience, Titchener spent a year in the physiology laboratory of John Burdon Sanderson. Burdon Sanderson imbued in Titchener the importance of explanation of mental events in terms of physiology. What Titchener came away from Oxford with was a grounding in the philosophical empiricism and associationism of his day and also with a materialistic view of mind, considering mind and consciousness as natural processes without recourse to the notion of a soul. He respected the structure of associationism but did not accept its use of inference and hypothetical constructions over direct observation and description.

Arriving at Leipzig in 1890, he discovered that Wilhelm Wundt's ideas were as philosophical as they were scientific. Wundt's assistant, Oswald Külpe, the lecturer in the course on experimental psychology Titchener took at Leipzig, introduced Titchener to Ernst Mach's *The Analysis of Sensations*. Mach proposed a positivistic approach to psychology that would allow the analysis of complex mental states into simple elementary states using direct observation and description and not making use of logical constructions such as those used by Wundt and the associationists (Bradley 1971). What Titchener took away from Wundt's laboratory was the superficial framework of Wundt's system but without its philosophical and logical underpinnings.

After Titchener received his Ph.D. in 1892, he accepted an assistant professorship at Cornell University in Ithaca, New York. He remained there for his entire professional career. Initially teaching in the Sage School of Philosophy but, in 1895, he became professor of psychology and head of the newly formed department of psychology. He built on the laboratory set up the year before he came by Frank Angell and made of it one of finest psychological laboratories in the world.

Titchener found that there were no textbooks in America that represented experimental psychology as he viewed it. To correct for this, Titchener published his

Outlines of Psychology (Titchener 1896, 1897, 1899), based on Oswald Külpe's *Grundriss der Psychologie* (Külpe 1893), both influenced by Mach's positivism. Titchener tried to find a positivistic middle ground between British associationism and Wundt's voluntarism. He was a reductionist and sought a physiological explanation for all mental phenomena. In 1907, James Rowland Angell, then head of the Chicago functionalists, coined the name structuralism for Titchener's psychology in distinction to his own functionalism (Angell 1907). Titchener never used the term with the "ism" but the name structuralism was adopted de facto, nevertheless.

In the 35 years of Titchener's professional career, he produced over 40 Ph.D. graduates and many other masters degree students. More than half of his Ph.D. students were women. His first doctoral student, Margaret Washburn, was the first woman to receive a Ph.D. in psychology in America.

Titchener's *Outline of Psychology* (Titchener 1896, 1897, 1899), went through three editions before being replaced in 1910 by his *A Textbook of Psychology* (Titchener 1910). His four-volume *Experimental Psychology*, appearing between 1901 and 1905 became the standard experimental manual in psychology for over 30 years (Titchener 1901, 1902, 1905).

In these and other books, Titchener represented the task of the psychologist as analysis, synthesis, and explanation. Titchener's method was a form of analytical introspection that involved focusing attention on one aspect of the complex experience to the exclusion of others thus analyzing out each of the elementary components of the complex.

A key concept in Titchener's structuralism was meaning. He believed that pure sensations are meaningless. When groups of sensations appear together and particularly when there is a memory image of them in past experience, the context produced gives meaning to the whole. Because meaning emerges from that combination, the meaning is what is new in the resulting experience. As one combines larger and larger units, new meanings arise, continuing into the higher mental processes. For this reason, Titchener was adamant that when a perception or other complex processes were analyzed into their elementary components, the meanings found in the whole should not be projected into the elements. One had to separate the meanings from

the “facts of experience” in carrying out the analysis (Evans 1975, 1990).

Titchener was a purist in that he believed experimental psychology should have only the scientific goals of understanding the nature of things rather than applying them. Application, for Titchener, was something to be done by other fields of study.

Titchener’s psychology went through several changes over the years and his psychological position became widely represented in American colleges and universities.

A major change occurred after 1913. This was due, at least in part, to attacks made on the legitimacy of his concept of elements and attributes by Carl Rahn, then at the University of Chicago. Added to this was the imageless thought controversy with the students of his old schoolmate, Oswald Külpe, over the existence of images in the thought processes. The issue was never resolved and it turned many young psychologists against the use of introspection as a primary method in psychology. Some, like John B. Watson, called for its abolition entirely substituting for them behavioral measures and concepts (Evans 1972; Watson and Evans 1990).

In the 1920s, Titchener dropped his use of elements and developed a multidimensional psychology based on phenomenological observation rather than introspection. This “lost psychology” never found its way into print except for some of the dissertations of his last students. It was left uncompleted when Titchener died suddenly in 1927. After Titchener’s death, his psychological system evaporated. (Boring 1938; Evans 1972).

Titchener’s main contribution to experimental psychology, perhaps even more so than his system, was in his emphasis on the laboratory as the core of the psychological enterprise. That emphasis was codified in his four-volume *Experimental Psychology* (Titchener 1901, 1902, 1905).

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Tolman, E. C.

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Basic Biographical Information

Born: April 14, 1886; Died: November 19, 1959.

Edward Chace Tolman was born in Newton, Massachusetts, and followed his brother Richard, who became an eminent chemist, to MIT, graduating in 1911. He then entered Harvard for graduate work in psychology, obtaining the PhD in 1915 under Hugo Münsterberg, but influenced mainly by R. B. Perry, E. B. Holt, and R. M. Yerkes. His first academic post was at Northwestern University, but due to his pacifist views this became untenable. Through the influence of Herbert Langfeld, he was able to move to the University of California at Berkeley, where he remained for the rest of his career.

Major Accomplishments/Contributions

His early work involved imagery and memory, but after he arrived at California he threw himself headlong into the comparative psychology of learning with the aim of constructing a comprehensive objective account of all psychological phenomena based on behavioristic criteria. Early in this process he began to speak in terms not of isolated stimuli and response, but rather

of patterned responses defined by purpose (e.g., Tolman 1923). Alongside and integrated with this effort was Tolman's long association with Gestalt psychology, which he had encountered at its beginnings and with which he was associated throughout his career. This blending of objective behaviorism, pragmatic, and realism, and Gestalt ideas resulted in Tolman's major theoretical work, *Purposive Behavior in Animals and Men* (1932), the ideas in which were expanded and elaborated over the next two decades.

Tolman in his time was recognized as one of the chief behavioristic theorists in psychology, but his legacy to psychology is much larger. Some of the findings from his laboratory served as central points of discussion which moved behaviorism far beyond a primitive stimulus–response position, though it is fair to say that behaviorism never was that simple in any of its incarnations (Smith 1986).

Probably the most significant of these was his demonstration of “latent learning,” a form of incidental learning in which a rat, having knowledge of a maze and having been reinforced for running a particular route, would select a previously traversed but unreinforced route to a goal when the original route was blocked. This appeared as objective evidence for a species of memory or concept formation, an important step in establishing cognition and representation as scientifically valid subjects of psychological study. Another important contribution is Tolman's conception of an organism with embodied tunings responsive to differential fields of force in its environment, based on ideas drawn from Kurt Lewin and Egon Brunswik. Tolman's model organism, which he termed the “schematic sowbug” based on its elongated capsule shape in his diagrammatic representation of it (Tolman 1939), continues to be influential in both psychological and robotic thinking. The most enduring of Tolman's theoretical contributions is his idea of the “cognitive map,” an internalized representation of the necessary perceptual and motivational information necessary to successfully navigate a complex environment, which validated the early theorizing of cognitive psychology (Tolman 1948).

At the beginning of the Second World War, Tolman turned to an examination of the relations between drives, needs, and society. In his Presidential address to the Society for the Psychological Study of Social Issues (SPSSI) in 1940, he drew explicitly on Freudian ideas to

propose a utopian conception of “Psychological Man,” whose needs and drives would be fulfilled in the most complete, balanced, realistic, and socially nondestructive way possible (Tolman 1941). He expanded on this theme in an extended essay on war the next year, advocating fundamental changes in economic systems to relieve frustration of needs and the substitution of a supernational governing agency to replace narrow loyalties to national groups (Tolman 1942). At the end of his career, Tolman became identified with one of the most well-known cases involving academic freedom in the USA. The University of California, acting under national and state pressure, in 1950, required its employees to sign an oath of loyalty which, Tolman believed, violated both personal and academic integrity. Compelled to resign when he and many other members of the faculty, including the psychologists Warner Brown and Hubert Coffey, would not “sign on the dotted line” (Tolman 1950), he eventually prevailed in a lawsuit filed under his name and was reinstated in 1952, retiring in 1954. At the very end of his career Tolman, a master theory builder, said that the best that could be done in creating theory was to follow one's own inclinations and have fun – which he did (Tolman 1959).

See Also

- ▶ [Brown, Warner](#)
- ▶ [Gestalt Psychology](#)
- ▶ [Holt, E. B.](#)
- ▶ [Langfeld, Herbert Sidney](#)
- ▶ [Lewin, Kurt](#)

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Trauma Psychology

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Trauma psychology is both the name of a Division within the American Psychological Association (Division 56, Trauma Psychology) and an area of specialization within the practice of psychology by psychologists. Trauma psychology is a paradigm that permits investigators and practitioners to understand the process by which people perceive adversity, react to it, recover to a resilient or growth state or to an unwanted state; draw upon the experience with varying levels of psychosocial growth, at varying levels of trauma, for varying periods of exposure, and varying conditions of recovery.

Trauma Psychology as a Paradigm

The trauma psychology paradigm emerged in 1978 with the publication of the book, *Stress Disorders among Vietnam Veterans* (NY: Brunner/Mazel). Charles Figley noted in the Introduction: “The following is an attempt to capture the essential dynamics of the war environment to allow the reader to appreciate better the stress disorders which evolved from it” (p. xx). The book includes summaries of research that challenges the prevailing assumptions about mental disorders can be caused by adult traumatic experiences (trauma) and not be childhood adversities or flawed interpersonal relationships. In the Introduction and throughout the book, it was asserted that stress disorders were caused by war experiences, primarily; that trauma is primarily psychological in nature, though Traumatology’s roots are in medicine. The Introductions specifically included a description of trauma psychology by identifying trauma as a function of four major factors:

1. Combat stress
2. Protective factors especially unit integrity or morale
3. The psychosocial resources at the homecoming
4. Access to external resources

The trauma paradigm assumes that stress is the best universal marker for measuring psychological trauma. Though the origin of stress dates with Hans Selye, psychological trauma dates back far longer according to historians of the illness of hysteria, the modern-day equivalent of an anxiety disorder with a significant overlap with the symptoms of PTSD. The consensus is that of the earliest Egyptian medical textbooks that describe the “moving womb” to describe what today can be considered panic or anxiety attacks, most often affecting women. The treatment was, in effect, aromatherapy to “woo the womb back to its rightful place.”

Much later, seventeenth-century philosophers discussed the impact of stress on human temperament and physiology. Modern theories of stress begin with the nineteenth-century concept of traumatic neurosis. From the middle of the century, railway accidents resulted in increased litigation by injured persons suffering from chronic pain and stress-induced paralysis. Being a newer paradigm, it is only within the last 5 years has the concept made its way into psychology textbooks.

Perceiving Trauma

Perceiving trauma is as subjective as perceiving beauty. One person may be more or less affected by an intense experience (e.g., impact of a tornado destroying part of one’s home) based on, among other things, (a) their life experiences, (b) their demographics (e.g., gender, age, and ethnicity), (c) their level of responsibility for others – especially children – during the trauma, (d) their perception of their own actions, and (e) reports of fellow survivors. It is common that among a group of 100 exposed to a high noise, only a portion would actually register a disturbance in the Amygdale as a disturbing memory (i.e., trauma memory that triggers neurobiology reactivity).

Reacting to Trauma

Once the person perceives that there is a threat and especially when the person experiences fear (for self or others in their stead), there are large variations in

individual levels of stress exposed to the same stressor, as noted earlier. There are, similarly, large variations in individual levels of stress reactions most often highly correlated with the perceived stress, with considerable outliers. Most agree that reactions to trauma are largely determined by three factors: Trait resilience (lifelong adaptability), state resilience (e.g., coping style, social support), individual regulation (e.g., self control), thriving (level of human development thriving based on activities of daily living), and the recursive effects on learning (i.e., reinforcing beliefs about safety and hope) to survive based on experiences.

Traumatic Stress Injuries

These injuries occur when adversity overwhelms the person's capacity to function and errors occur in their experiences with the activities of daily living. This lowering of functioning as measured by ADL scores represents the impact or the deficits of injuries. Like physical injuries, however, there is a tendency to heal without any noticeable, lasting indicators. However, early evidence indicates that all traumatic stress-disorder cases first displayed indicators of lowered functioning weeks if not months and years before displaying symptoms of a traumatic stress disorder.

Traumatic (or Post-traumatic) Stress Disorders (e.g., PTSD)

Oppenheim coined the term *traumatic neurosis* to describe what he believed was a "molecular derangement" of nerve tissue. Initially, Freud accepted this notion, postulating with Breuer in their work, *Studies in Hysteria*, an organic "hypoid state" that made one vulnerable to hysterical stress symptoms when stimulated by a traumatic event. Freud held that the traumatic event in hysteria was sexual trauma stemming from oedipal stress. Yet, as Figley notes (1978), there was a gender bias toward believing that men rarely manifested fear-based symptoms when the evidence was overwhelming, dating back to the Allied Medical Services of 1916 believe that "shell-shocked" soldiers were suffering from a psychological disorders that are treatable. Indeed, the military psychiatry motto in those days was PIE (Primacy, Immediacy, and Expectancy) with considerable emphasis on expectancy of the traumatized to recovery and take their post. Indeed, we now know that enabling the traumatized to return to

the context – personally or virtually – and working down the traumatic stress response is the most cost-effective approach to the unwanted consequences of traumatic events.

Recovering from Trauma

Some have argued that you never recover from trauma; that there is no such thing as returning to normal, just a "new" normal. Recovery from trauma comes when one can take a deep breath, recall the event, and no negative consequences occur (e.g., uncontrollable crying, anger, sleeplessness, and other indicators of physiological arousal). What is required to meet that goal; that shift is unknown since there is so much variation in the trauma induction and reduction process.

Importance of Context

Trauma psychology has been one of the first to recognize early in the emergence of the field that context was critical in any model or framework. The context of the traumatic event, the state of mind of the traumatized person; the person's personal beliefs and how these beliefs was challenged by the traumatic event; the experience of racism, sexism, and many other transient social and interpersonal perpetration – purposeful or accidental, implicit or explicit, conscious or unconscious.

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Basic Biographical Information

Born: April 26, 1889, Died: May 27, 1932

Troland could justly claim – although he never asserted it – to have the greatest command of scientific knowledge of all of the psychologists of his generation. A graduate of MIT in 1912, he pursued the Ph.D. at

Harvard under Münsterberg, where like his contemporary Tolman, he was drawn to the philosophers and to ► **Holt, E. B.** But Troland really blazed his own trail. After his doctorate, he spent his Sheldon traveling year at the General Electric's laboratories in Nela Park in East Cleveland, Ohio. He returned to Harvard in 1916 as an instructor and was promoted to Assistant Professor in 1922, the highest academic rank he held. While working on the doctorate he completed, with Daniel Comstock of MIT, a précis of physical theory for scientists in other fields (Comstock and Troland 1917). He had amassed enough skill in color theory and vision science to be the 31st member of the American Optical Society (after the first 30 charter members in 1916), and over the next few years authored many original contributions and reviews, culminating in his 1922 summary of the field, *The Present Status of Visual Science* (Troland 1922a). Troland's psychophysical acumen combined with his inventive and entrepreneurial skills to propel him toward the new technology of color motion photography: Between 1918 and 1932 he was intimately connected with the development of the Technicolor process and eventually became chief engineer of the Technicolor Corporation. His work with Technicolor eventually overtook his academic practice which he resigned in 1930 to move to California to be more closely involved in the commercial application of color film in Hollywood. He died in an accidental fall from Mt. Wilson in Los Angeles.

Major Accomplishments/ Contributions

Visual scientists rightly claim Troland as an eminent figure, but his ambitions went far beyond the boundaries of that field. Troland, already skilled in the translation of abstract science into accessible popular terminology, wrote two very well-regarded popularizations of psychology during the 1920s: *The Mystery of Mind* in 1926 and *The Fundamentals of Human Motivation* in 1928, both of which enjoyed a wide readership. He was also an adept historian and participated in the translation of Helmholtz's *Physiological Optics*. He had more than an amateur's interest in parapsychology, authoring a detailed analysis of the relation between parapsychology and Freudian theory (Troland 1914), and, while supported by the Hodgson Fellowship for Psychical Research at Harvard in 1917, constructed an

automated apparatus to present stimuli in experiments on clairvoyance (Troland 1917/1976). His negative results on the one hand were considered by parapsychologists a challenge to redouble their efforts, and on the other hand, its technological innovation reinforced the idea that parapsychology might be a legitimate area of scientific research. Troland's first love, however, was consciousness. The National Academy of Sciences' Troland Awards, supported since 1984 from a bequest from his estate, are presented to investigators less than 40 years of age interested in the connection between consciousness and the physical world. This description mirrors Troland himself, who devoted much time and energy over his short lifetime to working out the implications of a monism derived from W. K. Clifford's "idealistic monism" in which the psychic was the primary and ultimate referent of science. Troland viewed consciousness as a causal force: as he put it in a 1922 article, "Each introspective field of consciousness in the psychical monist's universe exercises an influence upon the course of events in the universe in conformity with exactly the same laws by which any other factor in this universe exerts an influence (Troland 1922c, p. 206)." Consciousness was, in Troland's view, embedded in a neural matrix whose operation was revealed by psychophysical study, the logical extension of the original psychophysical project of Fechner and Helmholtz (Troland 1922b). According to Troland, the neural elements of the mind each possessed physically determined conscious attributes, specifically the ability to sense pain (nociception) and pleasure (beneception). This implicitly panpsychic system, a monism with windows that opened outward, articulated with Troland's utopian vision for society. Derived from several sources but chiefly from the Fabian socialist and American philosophic visionary James MacKaye in *The Economy of Happiness* (MacKaye 1906), Troland's hedonist philosophy envisioned a world in which the determinate nature of consciousness would support engineered interventions to produce a world in which happiness might be maximized. Although Gordon Allport observed that Troland had, going beyond the environmentalist behaviorisms of his time, attempted to account theoretically and physiologically for the "stamping in" process of the law of effect (Allport 1929), Troland's philosophic view of psychology was so far at variance from current psychologies that it

could not gain much of a hearing: His version of hedonism served as the antithesis for Tolman's account of pleasure in *Purposive Behavior in Animals and Men* in 1932. In philosophy, he was an early influence on the philosopher Charles Hartshorne, but it is as a psychophysicist that Troland lives on: He is one of the few psychologists to have a physical unit named after him, the troland, a measurement of retinal illuminance.

See Also

- ▶ [Holt, E. B.](#)
- ▶ [Tolman, E. C.](#)

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Tulving, Endel

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Tulving, Endel (May 26, 1927–present) is a leading researcher into human memory research, best known for proposing the now-accepted distinction between episodic and semantic memory (Bower 2000). His other contributions include demonstrating the separate roles of the right and left frontal lobes in memory encoding and retrieval.

Endel Tulving was born in Tartu, Estonia, in 1927, the son of a judge in a small town (Tulving et al. 1989). Endel attended a private school, where he was a good student, always first in his class (GCS Research Society 2009). Unfortunately, Endel found his classes uninteresting, having decided that everything interesting in the sciences had already been discovered (GCS Research Society 2009). He took more interest in track and field athletics (APF Gold Medal Award: Endel Tulving 1994). His energy went into beating his personal bests, constantly aiming to improve his performance (GCS Research Society 2009).

Life changed after Estonia was absorbed into the USSR in 1940. In 1944, when the Soviet Army entered Estonia, Endel and his younger brother were separated from their parents and were sent to Germany (Tulving et al. 1989). Endel was not to see his parents again for 20 years. He finished his schooling in Germany, discovering an interest in the mind and behavior, which presented him with puzzles yet unsolved (GCS Research Society 2009).

After leaving high school, he taught and interpreted for the American army, taught German to war orphans (University of Alberta 2008), and for one year attended medical school at Heidelberg (Tulving et al. 1989). In an American refugee camp, he met fellow Estonian Ruth Mikkelsaar, who was also from Tartu (Tulving et al. 1989).

Endel immigrated to Canada in 1949. After a year as a laborer, he became an undergraduate in psychology at the University of Toronto. Around the same time, he and Ruth were married. With her encouragement and support, he graduated in 1953 at the top of his class and with first-class honors. After a further year completing a master's degree, he went on to earn a Ph.D. in experimental psychology at Harvard, with a dissertation on oculomotor adjustments and visual acuity (Tulving et al. 1989).

In 1956, he returned to Toronto, where a lectureship had been created for him. He found this position challenging and rewarding but also found there was no laboratory space, equipment, or funding (APF Gold Medal Award: Endel Tulving 1994). It was not practical to continue his research on vision. Instead, he chose to study verbal learning, an area with which he was not familiar, because it seemed straightforward and needed little material support. At Toronto, there was little

pressure to publish: Endel was able to take his time in developing his work (Tulving et al. 1989). Meanwhile, he returned Ruth's support by encouraging her to enter Ontario College of Art, from which she graduated in 1962. Ruth has said that Endel helped her to find confidence and trust in herself, and to express herself fearlessly (Tensuda 2000).

Apart from a short period at Yale, Tulving remained at Toronto until he reached the retirement age of 65. During these years, he also had opportunities to spend time at Stanford, Oxford, and elsewhere.

Tulving is best known for proposing, in 1972, the distinction between episodic and semantic memory (Tulving 1972).

Episodic memory is the remembering of events, while semantic memory is the remembering of general facts and knowledge – in Tulving's words (1972, p. 386) a “mental thesaurus” (Tulving, 1972, p. 386). Thus, one may know the words of a song (semantic) or may recall a time when it was sung (episodic), but not necessarily both.

Episodic memory has a number of distinguishing features. Tulving believes that no other species has it. A dog or cat knows who its friends and enemies are, but there is no evidence that it can recall any encounters with them. A second feature is auto-noetic (self-knowing) memory. The experience of remembering an event has a personal quality not associated with any other form of knowledge. Another feature is chronesthesia, the subjective sense of past, present, and future. No other kind of memory is related to time.

Tulving also demonstrated that laying down a memory is distinct from retrieving it: that often one cannot recall a fact or is not even aware of its existence, and yet it can be accessed with an appropriate probe. This is the foundation of the “cognitive interviewing” used by police to help witnesses recover details (Memon and Bull 1991).

Tulving has said that his research has been strongly influenced by two factors – accidental discoveries and bright, stimulating collaborators and students. He has also been described as an engaging colleague and a charismatic teacher (Tulving et al. 1989).

He also likes to work hard and devote long hours to his research, an attitude he learned at Harvard

from such teachers as E. G. Boring (Tulving et al. 1989). He has explained “the more you learn and know in the area of your work, the more interesting your jobs and projects become” (GCS Research Society 2009). When he reached retirement age at Toronto in 1992, therefore, he was not inclined to stop. In his words again, “why would I stop something I like to do?” (University of Alberta 2008). Instead of accepting retirement, he was appointed as the first incumbent of the Anne and Max Tanenbaum Chair in Cognitive Neuroscience at the recently established Rotman Research Institute of Baycrest Centre, North York, Ontario (now affiliated with the University of Toronto).

In 1994, he used PET scans to show that the brain's right hemisphere is relatively more active during retrieval of episodic memories, while the left is relatively active in retrieving semantic information (GCS Research Society 2009).

In 1995, he proposed a fuller model of memory identifying five systems: working memory, episodic memory, semantic memory, procedural memory, and perceptive memory (Tulving 1995).

Now semiretired, Dr. Tulving continues to study episodic memory at the Rotman Research Institute, where he has been working on “mental time travel,” the human ability to recollect events we have observed or participated in, and also to think about the future (GCS Research Society 2009).

Ruth Tulving, meanwhile, is a distinguished artist. The couple have been married for more than 50 years and have two adult children and five grandchildren (Tensuda 2000).

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Uexküll, J. von

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Basic Biographical Information

Jakob Johann von Uexküll was born on September 8, 1864, at Keblas, Estonia, on the estate of his aristocratic German family with long-standing historical ties to the Baltic region (Kull 2001). He attended the Domschule in Reval (now, Tallin) before entering the University of Dorpat (Estonia) in 1884 to study zoology. Receiving a *cand.zool.* degree in 1889, he moved to the Institute of Physiology at the University of Heidelberg (Germany) to study research methods under **Wilhelm Kühne**, the noted German physiologist and successor to **von Helmholtz**. Following Kühne's unexpected death in 1890 and freed by his family's considerable wealth, Uexküll decided to pursue research as an independent scholar and author. Until the mid-1920s, he worked in Heidelberg and, during the summers from 1892 to 1902, the Zoological Station in Naples, Italy. His discoveries involving the neuromuscular functioning of invertebrate marine mammals led to the grant of an honorary doctorate in medicine by the University at Heidelberg in 1907.

Entering middle age in the early years of the twentieth century, Uexküll began a decisive turn away from physiology and toward theoretical biology, the primary focus for the rest of his life's work. His biological studies led to the establishment of the Institute for Umwelt Research and appointment as honorary professor at the University of Hamburg (Germany) in 1926. Though he was formally retired from this professorship in 1936, he retained direction of the Institute until 1940.

An ardent opponent of materialism, mechanism, and Darwinian explanations in the sciences, Uexküll demonstrated in diverse ways a fundamentally conservative attitude toward government and society as well. Uexküll never embraced Nazi ideology or any party affiliation in the 1930s. However, his early close ties to Houston Stewart Chamberlain (1855–1927), the arch Teutonic nationalist, and his own promotion of the metaphor of the (German) state as a kind of unified organism (in *Staatsbiologie*, 1920, revised 1933) served to shield Uexküll from political danger or interference in the last decade of his life (Harrington 1996).

In 1903, Uexküll married a German countess, Gudrun von Schwerin. Between 1904 and 1909, the couple had three children, a girl and two boys. Following his full retirement in 1940, he moved with his wife to the island of Capri (Italy) for health reasons and died there on July 25, 1944.

Contributions

Uexküll's contributions of primary interest to psychology reside in his notion of the *Umwelt* (i.e., the phenomenal world or subjective universe) of every living organism and the ways in which living organisms necessarily differ from nonliving objects (and their scientific study). Beginning with his 1909 volume, *Umwelt und Innenwelt der Tiere* (*The Outer World and Inner World of Animals*, revised 1921), Uexküll argues that living organisms continually interact with the world, that is, all other living organisms and nonliving objects, according to their own array of sensor and effector organs. Thus, each organism experiences the world in a quite specific and individual fashion that is determined by the range of its own sensory apparatus and motor capabilities. These sensory and effector organs arise themselves according to the specific *Bauplan* (i.e., blueprint or building plan) of that type of organism and may further be shaped by both temporal

experiences and spatial locations. In Uexküll's famous example, to a tick, all mammals are the same thing, that is, they belong to the same *Umwelt*. Triggered by the odor of mammalian sweat, a tick will drop from its perch onto a mammal's hair that guides the insect to the mammal's skin and there, cued by the heat of that skin, the tick will begin to suck blood. Uexküll conceptualized such a sequence of sensory cues (*Merkmale*) and responsive behaviors (*Wirkmale*) as forming a "functional circle" (*Funktionskreis*) in which the organism itself serves to integrate the sequence. Such active processes are untrue for nonliving objects that do not possess intrinsic *Baupläne*. Indeed, objects in the form of machines can be understood as nonliving systems that merely carry out the plans they receive from others.

In 1920, Uexküll authored *Theoretische Biologie* (published as *Theoretical Biology* in 1926), a major philosophical review of his experimental and observational work in biology and its integration with his strong Kantian idealism. For Uexküll, reality as a whole (*Natur*) can never be accessed directly by any living organism which can only appropriate specific aspects of reality as *Umwelten*. In 1940, he published a final synopsis, *Bedeutungslehre* (*The Theory of Meaning*), in which he articulates an understanding that biology (as opposed to physiology) is a fundamentally semiotic undertaking (Uexküll 1940/1982). Biologists attempt to understand how organisms employ, decipher, and respond to signals in the environment as these living beings create their own external realities.

Commentators have noted similarities between Uexküll's notion of the *Umwelt* and Dewey's reflex arc in which both concepts seek to establish an essential dynamic unity between stimuli and responses. J. J. Gibson's concept of affordances echoes in some respects Uexküll's reflection on the dynamism and complexity uncovered in the relationship of organisms with their environments. A range of researchers – including comparative psychologists, ethologists, and biosemioticians studying animal behavior and communication – have found in Uexküll's work seminal ideas involving how the personal "microenvironments" of organisms powerfully determine how these organisms behave (Chang 2009). Finally, proponents of various theories of embodied cognition (e.g., Maturana and Varela) and researchers in robotic and artificial

intelligence confront conceptual challenges related to biological phenomena and activity examined throughout Uexküll's writings nearly a century ago.

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University College London, History of Psychology at

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Basic History of the Department

University College London is the oldest and one of the largest constituent colleges of the University of London; it now has its own degree-awarding powers. Founded in 1826, on nondenominational principles (in contradistinction to the Universities of Oxford and Cambridge), it encouraged the development of a number of new subjects of university study.

Before the formation of a Department of Psychology, the subject was pursued in other departments, notably medicine, other science departments, and philosophy. Members of the College include the neurophysiologist Charles Bell, the physicians John Conolly, Henry Maudsley, and John Elliotson (the last of whom introduced mesmerism/hypnosis for surgical operations at University College Hospital), the biometrists W.F.R. Weldon and Karl Pearson, the statistician Ronald A. Fisher, and the geneticist Lionel S. Penrose. Francis Galton (q.v.) was also closely associated with the College and inspired much of the work later conducted in the Department of Psychology.

From 1853, lectures on psychology were offered under philosophy of mind. The syllabus included sensations, intellectual faculties, consciousness, the nervous system, phrenology, personality, emotions, and volition. George Croom Robertson, Grote Professor of the Philosophy of Mind and Logic 1866–1892, was an original and penetrating psychological thinker. A pupil of Alexander Bain's, who had also studied under du Bois-Reymond in Berlin, Lotze in Göttingen, and Broca in Paris, he stressed the active, physiological (especially muscular) nature of sensation. As the first editor of the journal *Mind* 1876–1892, he did much to make Continental work known to British readers.

James Sully (q.v.), Grote Professor 1892–1903, was the first genuine psychologist rather than philosopher to hold the chair. He too had studied abroad: under Lotze in Göttingen, and Helmholtz and du Bois-Reymond in Berlin. The author of many psychological texts, he played a crucial role in the institutional development of psychology in Britain and encouraged the development of child study and educational psychology. He called the meeting at University College in 1901 at which the British Psychological Society was formed and was instrumental in setting up one of the first psychological laboratories in the country.

William McDougall took over as director of the laboratory in 1900, before taking up the Wilde Readership in Mental Philosophy at Oxford in 1904 and moving to the United States in 1920. Carveth Read succeeded James Sully in 1904. He had studied under Wundt in Leipzig and Kuno Fischer in Heidelberg. His interests were more in theoretical than in experimental psychology.

Charles Spearman was appointed in 1907, taking over the directorship of the laboratory, succeeding to the Grote Chair in 1911, and becoming Professor of Psychology in 1928, when a separate Department of Psychology, independent of Philosophy was formed. He began the work on psychometric and differential psychology for which the Department became famous. He was succeeded by Cyril Burt in 1932, who continued this tradition of work on human intelligence, achieving his avowed aim of making the Department a focus for the study of individual differences.

The American Roger W. Russell was appointed in 1950. Interested in the biological basis of behavior, he introduced the study of animal learning. In 1959, he

was succeeded by George C. Drew, known for his work on skills, including the effect of alcohol on driving. Robert J. Audley, a pioneer in mathematical models of decision making, succeeded to the chair in 1979.

From 1993, shorter terms of office as head of Department were occupied by Henry Plotkin (1993–1998), an evolutionary epistemologist; Oliver Braddick (1998–2001), a vision scientist; and Alan Johnston (2001–2003), a cognitive scientist. The current head is David Shanks, a cognitive psychologist, who has been head since 2003. In a restructuring exercise in 2008, the Department of Psychology was replaced by a Division of Psychology and Language Sciences, containing eight research departments. These include cognitive, perceptual, and brain sciences; cognitive neuroscience; developmental psychology; clinical, educational, and health psychology; and human-computer interaction.

Significance

The Psychology Department at University College London has been one of the largest, strongest, and broadest in the United Kingdom. For many years, it has been the largest provider of taught postgraduate psychology courses in Europe. The College hosted the International Congress of Psychology in 1892 and in 1969.

The laboratory set up by James Sully, with support from Francis Galton (q.v.) and science professors in the College, opened in January 1898. Sully raised money to purchase equipment from Hugo Münsterberg who was leaving Freiburg for Harvard, and to employ W.H.R. Rivers, Lecturer in the Physiology of the Special Senses at the University of Cambridge, who had given occasional lectures on experimental psychology at the College and started to develop practical psychological work in Cambridge. The laboratory aimed to measure physical and physiological aspects of mental processes.

The work of Spearman and Burt constituted the London School of differential psychology and psychometrics. It aimed to provide scientifically rigorous measurement and statistically sophisticated analyses of human ability. Spearman proposed a two-factor theory of intelligence (1904): a single general factor (*g*) underlying all intellectual functions and specific factors (*s*) underlying particular functions. The method of correlation, building on the foundations laid by Francis Galton and Karl Pearson, was used to demonstrate the existence of *g*, originating what later became

known as factor analysis. Spearman provided both empirical and theoretical support for his hypothesized hierarchical structure of human ability. Though it met with much opposition (L.L. Thurstone and Karl Pearson were amongst his opponents) and was ultimately superseded, it became internationally recognized and dominated research on individual differences for 2 decades. Spearman also aspired to discovering fundamental laws of psychology, and hypothesized “noënetic” principles of educating and generalizing relationships. He was also responsible for the Spearman–Brown prophecy formula for assessing the reliability of psychological tests and the well-known rank correlation statistic. In 1924, he was awarded a fellowship of the Royal Society for his pioneering work on the application of mathematical methods to the analysis of the human mind.

Cyril Burt was appointed psychologist to the London County Council in 1913, “the first applied psychologist in the world.” This enabled large-scale mental testing of school-children, and led to developments in child guidance and educational psychology. Burt’s special interests were in subnormality and juvenile delinquency. Later in his career he concentrated on mathematically refining the technique of factor analysis. Burt believed in and worked to demonstrate the heritability of intelligence.

After his death he was accused of fraud – of fabricating data and analyses, particularly in connection with studies of monozygotic twins reared apart. A heated controversy ensued, inevitably entangled with political opinion, neither finally resolved nor probably resolvable because crucial evidence is now lost. Although these attacks tarnished his reputation, first-hand reports testify to Burt’s dedication and achievement as a scholar and teacher.

A sign of the Department’s eclecticism is the long tradition of teaching psychoanalysis. This began with J.C. Flügel, a member of staff in the Department from 1909 to 1944, at the time the only practicing psychoanalyst to hold a senior academic position in Britain (he was appointed senior lecturer in 1920 and assistant professor in 1929). Flügel acted as a sort of “liaison officer” between psychoanalysis and academic psychology. In Cyril Burt’s opinion, Flügel’s abiding work lay in his fruitful attempts to synthesize Freudian psychoanalysis with the orthodox tenets of British psychology as taught by Ward, Stout, and McDougall. Flügel was

followed by Cecily de Monchaux, another practicing psychoanalyst and member of staff in the Department from 1949 to 1977.

A Freud Memorial Chair in Psychoanalysis was established in 1974. For the first 10 years, this was an annual appointment. In 1984, its term of office was extended. Joseph Sandler was appointed, establishing a Psychoanalysis Unit, whose mission is to strengthen the links between psychoanalysis and other academic disciplines. The current holder of the chair and director of the Unit is Peter Fonagy, who succeeded in 1992.

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University of Denver, History of Psychology at

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History

The University of Denver is the second oldest institution of higher learning in the Rocky Mountain West. Established initially as a private, church-sponsored school in 1864, it closed in 1867 and reopened as a true university in 1880. Among its first offerings was Mental Science also termed Mental Philosophy, both of which relied primarily on the religious orientations of pre-Jamesian American psychology espoused by Thomas Cogswell Upham and Lawrence Perseus Hickok. This single course was restricted to the senior year, taught by the Chancellor of the university who was a Methodist cleric and always associated with a corrective course in Christian Evidences. There was a potential danger in understanding how the mind works.

In 1898, Daniel Edward Phillips who earned his Ph.D. at Clark University was hired as a Professor of Philosophy and Pedagogy. He introduced the ideas of

William James and Titchnerian structuralism and developed a program of standard psychology courses. The department's main role was to support education. Phillips was not a researcher but did write an elementary psychology text.

Achievements

In 1929, with the departure of Phillips and the arrival of Thomas R. Garth and Lawrence W. Miller, a new emphasis on behavior and measurement took hold. An anti-clinical orientation, specifically opposed to Psychoanalysis, prevailed. Counseling, largely of an educational nature was acceptable. Garth conducted research primarily on Native Americans and Hispanics of the Southwest and published work regarded as "Race Psychology." Miller constructed objective questionnaires for use in education and counseling and wrote articles on a broad range of psychological topics. During this period, psychology was officially split between education with Miller as its head and a mainstream behavioristic course grouping directed by Garth. With the death of Garth in 1939, the two departments became one under Miller until his passing in 1961. A classical reinforcement learning view dominated teaching and research. An animal laboratory was constructed and the overall department orientation embraced experimental psychology. Though some mainline clinical training appeared, counseling with an educational emphasis remained primary. Slowly, the number of faculty publications was increasing.

Following Miller, the department radically changed under the direction of Kenneth B. Little, former director of the small grants division of NIMH. Hiring and evaluation now accentuated research, grant-getting, and publication. Rather suddenly, federal grants and contracts were being sought. Colloquia with national scholars and faculty were regularly presented. The experimental focus was now supplemented by Child-Development and Child-Clinical programs composed of new faculty with growing professional reputations.

In 1969, Little left the university to become Executive Officer of APA; however, the stress on research was greatly strengthened by Little's successor, Kenneth Purcell. Nonproductive faculty were either replaced or if they had tenure, were pressured to seek grants or leave. Again, the department grew in size and the Child Development program was soon recognized nationally.

In the mid-1970s, Purcell became a college dean for 8 years after which he returned to the department as head of the clinical program. During his absence, the voice of faculty in department administration increased and an atmosphere of heightened cooperation was evident. For the next 7 years, a number of chairs were elected by the faculty, each holding the position for 1–3 years until 1983 when G. Nicholas Braucht presided for 7 years. The stress on grant support was maintained and the department became second in the university in such funding. With surprising rapidity, undergraduate psychology majors joined faculty and graduate students in department laboratories and joint publications and convention presentations became common. This trend has continued along with a strong formal program to recognize and financially support undergraduate scholarship.

In the 1980s, university financial problems ensued and a number of faculty left the department. After a few years, these troubles were resolved and growth resumed. Currently, there are 22 full-time faculty plus a number of adjunct faculty. The stress on scholarly productivity has resulted in very active research programs and an annual output of many books and journal articles.

Currently regarded as one of the premier departments in the university, a 2009 U.S. News and World Report placed the Psychology Graduate program within the top 100 in the nation. In its 130-year history, psychology at the University of Denver has continued to grow in size and scholarly reputation.

University of Frankfurt, History of Psychology at

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Frankfurt has a glorious tradition as one of the leading free imperial cities in the German empire. Such cities generally disliked harboring troublesome universities inside their walls, an ancient attitude which changed only at the end of the nineteenth century. As a first step

for a future university, the affluent commercial city founded a *Commercial Academy* (*Akademie für Sozial- und Handelswissenschaften*) in 1900 which was transformed into a university in 1914. In 1905, the *Academy* established a psychological institute. Its founding director was Karl Marbe (1869–1953) who had studied with Hugo Münsterberg (1863–1916) in Freiburg, with Götz Martius (1853–1927) at Bonn, with Wilhelm Wundt (1832–1920) in Leipzig, and then had joined Oswald Külpe (1862–1915) at Würzburg. Not only was he himself wealthy, he also had an uncommon talent to acquire donations for the new institute which became one of the best equipped in Germany. As the teaching obligations during this early phase were modest, his attention could focus on research. The institute soon developed a substantial reputation, so that the *Society of Experimental Psychology*, the present *German Society for Psychology*, decided to hold their third biannual congress there in 1908. Despite the excellent research possibilities, Marbe preferred to work at a genuine university, and when Külpe left Würzburg to go to Bonn, Marbe accepted a call to Würzburg as his successor. Marbe's successor in Frankfurt was Friedrich Schumann (1863–1940), a disciple of Georg Elias Müller (1850–1934) in Göttingen and assistant at Carl Stumpf's (1848–1938) Berlin psychological institute.

Schumann employed as his assistants Kurt Koffka (1886–1941) and Wolfgang Köhler (1887–1967) whom he knew from Berlin. As a free researcher, Max Wertheimer (1880–1943) joined the institute, did his pioneering research on the phi phenomenon and drafted the theoretical framework for Gestalt psychology. Koffka's successor was Adhemar Gelb (1887–1936), and Kurt Goldstein (1878–1965) worked at the nearby neurological institute. The Frankfurt psychological institute therefore rightfully claims to be the birthplace of Gestalt psychology. When in 1928 Schumann retired, Max Wertheimer succeeded him, but was ousted in 1933 by the Nazi government. The chair was left empty, and Wertheimer's assistant, Wolfgang Metzger (1899–1979), managed the institute with modest means and political adaptability. When in 1941 the Berlin ministry decreed examination regulations for psychologists at German universities, as the *Wehrmacht* needed qualified psychologists, the university at Münster expanded its staff and called Metzger on

a chair of psychology. In Frankfurt, Edwin Rausch (1906–1994), who till then had worked as auxiliary assistant, kept the institute from passing away. After the war, he became the official director of the institute without, however, receiving the chair. This post was eventually given to him in 1964. In 1965, a second chair was installed, and a second psychological institute created, this one in the Philosophical faculty, whereas the traditional institute belonged to the Science faculty. This awkward situation was later remedied, and a larger, coherent institute forged. The hundredth anniversary of the Institute was commemorated in 2005, and a study of its history published (Moosbrugger 2005).

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Basic History of the Department

The University of Georgia (UGA) in Athens, GA, is the oldest state-chartered University (1785) in the United States of America, although the University of North Carolina began operations in 1795 compared to UGA in 1801. Psychology was represented in UGA's first curriculum in a course titled "Moral and Mental Philosophy." Over the years, psychology-related courses evolved from "Mental Philosophy" to "Mental Science." "Psychology" first appeared as a UGA course in

1897, but the course remained philosophically oriented. In 1900, William James's scientifically oriented textbook, *Psychology, Briefer Course*, was used. Oscar S. Straus, a German-Jewish emigrant to Georgia who served as Secretary of Commerce and Labor under Theodore Roosevelt, funded the establishment of a laboratory at UGA in 1902. It was equipped similarly to E. B. Titchener's (1867–1927) laboratory at Cornell University, and Titchener's textbook and laboratory manuals were used.

From UGA's beginning until 1908, psychology was joined with philosophy within the Franklin College (later, the Franklin College of Arts and Sciences). When the Peabody College of Education was established (1908), psychology and philosophy were transferred to Peabody College. In 1912, the construction of Peabody Hall to house the Peabody College was nearing completion, and UGA's first *bona fide* doctoral psychologist, Ludwig Reinhold Geissler (Ph.D., 1909, Cornell, supervised by E. B. Titchener), was given the responsibility to design separate rooms for the study of vision, audition, other senses, and a room to study attention and memory.



Ludwig Reinhold Geissler 1879–1932

In 1916, Austin Southwick Edwards (Ph.D. 1912, Cornell, Titchener) replaced Geissler who moved to Clark University (Worcester, MA). Soon after his arrival, Edwards was called to the US Army where he served as a Captain under Major Robert M. Yerkes in

the group that developed the Army's Alpha and Beta tests. Returning to UGA in 1919, Edwards soon realized that the Peabody College administration did support psychology as a science, and Edwards led a successful "mutiny" (his word) to have psychology returned to the College of Arts and Sciences. The present-day Department of Psychology originated in 1921. Edwards also succeeded in having psychology grouped with the natural sciences, a legacy which today finds psychology grouped with the biological sciences as well as the social sciences; however, the department offers only B.S., M.S., and Ph.D. degrees.



Austin S. Edwards 1885–1976

Despite having earned his doctorate as an experimental psychologist, Edwards published in experimental, social, educational, and clinical psychological journals. He founded the Psychology Clinic (officially recognized in 1930) and served as its Director until 1950. Edwards also served as department Head until his retirement in 1951. Georgia was among the earlier states to pass state licensing laws for psychologists, and Edwards served on the committee that drafted the law, he served on the first state Board of Examiners, and he received license #1 in the state of Georgia.

Edwards was the only psychologist in the professorial ranks at UGA until 1930. System-wide budget cuts during the economic depression resulted in the reassignment of psychologists Florene Young (1901–1994) from the State Normal School and May Zeigler

(1882–1976) from the Georgia State College for Women to UGA. Florene Young served as assistant director in the Clinic until the directorship was passed to her in 1950; she remained as Clinic Director until her retirement in 1968. Young (1969) compiled an unpublished but accessible history of the department that includes an essay titled “Building a Department” by A. S. Edwards. Zeigler published an abbreviated history of psychology at UGA (Zeigler 1949).

When Edwards retired in 1951, the department had approximately seven faculty members; “approximately” applies to faculty numbers here because there has long been a mix of full-time and part-time appointments not necessarily resulting in a whole number. The faculty numbered 10 by 1959. By 1968, the department had 40 faculty members and was spread over three campus buildings. In 1969, a new six-story building was opened for psychology’s exclusive use, and today there are 45 faculty members. In 1970, the department was subdivided into five Ph.D. specialty programs: Applied which included Industrial-Organizational, Biopsychology since renamed Neuroscience and Behavior, Clinical, Experimental since renamed Cognitive-Experimental, and Social. In 1987, the Life-span Developmental program emerged, and these six represent the current organization. Discussion is presently underway to consolidate some programs as much cross-program integration has occurred in recent years.

As indicated with Geissler and Edwards, Titchener’s influence was strong in the early establishment of psychology at UGA. Two other Titchener students had a significant impact on psychology’s development at UGA. Preceding Geissler was Celestia S. Parrish who is best remembered for having established the first psychology laboratory in the south, which she did at Randolph-Macon Woman’s College (R-MWC) in Lynchburg, VA, in 1894. Parrish was in charge of mathematics and pedagogy at R-MWC when she volunteered to obtain the necessary education to enable R-MWC to offer psychology. She persuaded Titchener to take her on as a part-time student. By attending summers she earned a Ph.B. (bachelor’s) degree under Titchener in 1896. In 1902, Parrish became Professor of psychology and pedagogy at the Georgia State Normal School which was also located in Athens, GA. She also taught child psychology at UGA during the summers, before women were on UGA’s regular faculty and

before women were admitted as students. Circumstantial evidence suggests that she was likely instrumental in establishing the psychology laboratory at UGA in 1902 (see above). With funding donated by George Foster Peabody, she oversaw construction of a building on the State Normal School campus to be used for practice teaching, and she built a state-of-the-art experimental psychology laboratory modeled after Titchener’s and the one at R-MWC.



Celestia S. Parrish 1853–1918

William Thomas James (1903–1998) enrolled at Cornell in 1926 hoping to earn a Ph.D. under Titchener, and he had classes with Titchener before his death in 1927. James then earned his Ph.D. under H. P. Weld and subsequently worked with Howard Liddell at the Cornell Farm. Liddell had worked with Pavlov and was among the early American psychologists to bring Pavlovian research to the United States. In 1946, James established UGA’s first animal research laboratory where he did both comparative and physiological research. Young’s history (1969) also includes an essay by James titled “Establishing Animal Laboratories at the University of Georgia.”

Significance

Perhaps the department’s faculty’s first contribution to psychology beyond UGA resulted from L. R. Geissler’s role in founding and editing the *Journal of Applied Psychology*. It has recently been shown (Thomas 2009)



William Thomas James 1903–1998

that Geissler was the principal founder (together with G. Stanley Hall and J. W. Baird) and was chief editor for the first 4 years. It is also clear that Geissler began working to found the journal during his last year (1916) at UGA; he solicited the participation of the 19 “co-operating editors” shown in the first issue as well as manuscripts for the first issue. Geissler’s additional contributions included writing a defining article for the first issue, “What is applied psychology?” which, among other things, differentiated between “applied” and “pure” psychology on the dimensions of “AIM,” “STANDPOINT,” “SCOPE,” “PROBLEM,” and “METHOD.” In volume 2, Geissler published “A plan for the technical training of consulting psychologists” which outlined academic programs and requirements to become an “assistant consulting psychologist,” a “consulting psychologist,” or an “expert consulting psychologist” depending on one’s level of education (bachelor’s, master’s, and doctoral degrees, respectively).

Systematic records have not been maintained of faculty contributions to psychology, so information here should be seen as highly constrained by limited records. In the category of teaching, the department currently confers approximately 350 B.S. degrees each year, and for at least 3 decades has conferred approximately 20 M.S. degrees and 20 Ph.D. degrees each year. The quality of graduate teaching is reflected in faculty members who have been honored by former students

with festschrifts. Two can be identified: “From Perception to Social Organization to Conservation Biology: Research Contributions in Tribute to an Outstanding Mentor, Irwin S. Bernstein.” American Society of Primatologists, San Antonio, TX, August, 2006. Abstracts were published in *American Journal of Primatology*, 2006, v. 68, and “A Biopsychology Festschrift in Honor of Lelon J. Peacock” (occasioned by his retirement in 1990), Southern Society for Philosophy and Psychology, Atlanta, GA, March, 1991. Six papers (some had been committed to other journals) were published as a special issue of the *Journal of General Psychology*, 1993, v. 120, No. 1. Although UGA was slow to integrate racially (1961) and although statistics appear not to have been kept, the department has likely conferred the most Ph.D. degrees to African Americans at UGA. The first African American to earn a Ph.D. (1975), Samuel M. Turner (who died in 2005) had a highly successful career which culminated in his receiving the American Psychological Association’s Distinguished Professional Contribution Award in 1998.

Most faculty members over the years have published at high rates in highly ranked journals and many receive extramural funding with considerable success. Four faculty members at UGA have served as presidents of three international or national academic societies: International Primatological Society (Dorothy Frigaszy), American Society of Primatologists (Irwin Bernstein & Dorothy Fragaszy), and Comparative Cognition Society (Jonathan Crystal). There have been five presidents of four Divisions of the American Psychological Association: Development Psychology (Patricia Miller), Society for Personality and Social Psychology (Abraham Tesser), Society for Clinical Psychology (Karen Calhoun), and Society for Industrial and Organizational Psychology (William Owens & Donald Grant). Four members of this department have served as Presidents of the Southeastern Psychological Association (Henry Adams, Karen Calhoun, Joseph Hammock, and William Pavlik) as has one Ph. D. graduate of this department (Stephen Hobbs). Regional in name but national in membership, the Southern Society for Philosophy and Psychology has had five presidents from UGA (Austin Edwards, Ludwig Geissler, Lelon Peacock, Clyde Noble, and Roger Thomas) listed among such notable past-presidents as James Mark Baldwin, Shepherd I. Franz,

John B. Watson, E. K. Strong, Jr., Knight Dunlap, Karl M. Dallenbach, and Ulric Neisser. Celestia Parrish was a founding member of SSPP.

UGA psychology faculty members who serve or have served as Associate Editors, on Editorial Boards, etc., are too numerous to list, but Editors include those for the *Journal of Personality and Social Psychology* (Abraham Tesser), the *Journal of Psychopathology and Behavioral Assessment* (Henry Adams, founding Editor), and *Psychological Inquiry* (Leonard Martin). National honors and recognition include the Distinguished Primatologist Award (Irwin Bernstein), the Mentoring Legacy Award from the American Academy of Management (Lillian Eby), Fellows of the American Association for the Advancement of Science (Irwin Bernstein, Dorothy Fragaszy, Lelon Peacock, Robert Pollack, and Roger Thomas). Irwin Bernstein is a Fellow in the Animal Behavior Society, Dorothy Fragaszy is a Fulbright Fellow, and several Charter Fellows of the American Psychological Society came from this department. National research awards include the *Organization Research Methods* Article of the Decade (Charles Lance who is on this department's faculty and Robert Vandenberg who earned his Ph.D. in this department and is a faculty member in UGA's Terry College of Business), "Best Paper Published" in the 2005 volume of *Group and Organizational Management* (Lillian Eby), and "Research Article Award" for 2007 by a member of the American Society for Training and Development (Lillian Eby).

See Also

- ▶ Geissler, L. R.
- ▶ Parrish, C. S.
- ▶ Titchener, Edward Bradford

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The institutionalization of psychology at Heidelberg University advanced along a confused and confusing chain of events, thereby mirroring the tangled path of psychology toward being an independent discipline at German universities.

Heidelberg, founded in 1386 and the oldest university in present-day Germany, had offered lectures on psychology in the eighteenth and nineteenth century as much as any other German university. Like everywhere else, there were no specialized chairs of psychology. Teachers of philosophy and of other disciplines dealt with this subject. In the middle of the nineteenth century, Heidelberg unexpectedly came to play an outstanding role in the development of the new, experimental psychology inspired by the experimental methods of physics and physiology. Friedrich Arnold (1803–1890), professor of anatomy and physiology, set up a physiological laboratory where research in sensory psychology was done. One of his students (Gundlach 1986), his nephew Wilhelm Wundt (1832–1920), later created the first Psychological Laboratory and Institute at Leipzig. Arnold's successor in physiology at Heidelberg, Hermann Helmholtz (1821–1894), established a physiological institute and did much of his research in sensory physiology and psychology here (Helmholtz 1863, 1867, 1924/1925). Helmholtz's first assistant, none other than Wundt, developed his main research projects in Heidelberg (Wundt 1863, 1874), kept a private physiological and psychological laboratory, and became professor extraordinarius for anthropology and medical psychology in 1864 in the Medical faculty. Helmholtz left Heidelberg in 1871, and when Wundt did so in 1874, experimental

psychology went with him only to return when Kraepelin accepted the call to the psychiatry chair in 1891.

Emil Kraepelin (1856–1926) had worked in Wundt's Leipzig Institute, had himself set up the world's second psychological laboratory at the Leipzig Psychiatry Clinic, and another, modest one at Dorpat University in the then Russian baltic province of Livonia. His Heidelberg laboratory was reasonably well equipped, served as his base for his pioneering research in work psychology and in pharmacological psychology. Kraepelin founded a journal, *Psychologische Arbeiten*, in 1896, and attracted many international students. When he left for Munich in 1903, the laboratory fell into disuse.

In 1919, the psychiatrist Hans Walter Gruhle (1880–1958) and the psychiatrist-turned-philosopher Karl Jaspers (1883–1969), both pioneers in phenomenological psychology, suggested to turn the neglected laboratory into a psychological institute, but post-war economic misery thwarted the project. Heidelberg obtained such an institute by windfall after the Nazis came to power in 1933 and shut up the *Commercial Academy (Handelshochschule)* in nearby Mannheim. Its psychological institute, directed by Wilhelm Peters (1880–1963) from 1919 till 1923 and then by Otto Selz (1881–1943), was transferred to Heidelberg University. The library and the experimental apparatus were stored in the neglected psychological laboratory at the psychiatric clinic. Selz as a undesirable non-Aryan was fired and later killed in or on the way to Auschwitz. In Heidelberg, the newly acquired institute was nominally run by nonpsychologists from the Medical and the Philosophical faculties and fell into a comatose state.

In 1941, the Berlin ministry decreed examination regulations for psychologists at German universities, as the *Wehrmacht* needed qualified psychologists. Heidelberg University, wishing to offer the relevant curriculum and remembering the scrapheap in the basement of the psychiatric clinic, the remnants of Kraepelin's laboratory and of Peters' and Selz's Mannheim institute, reorganized it as a psychological institute in the Philosophical faculty in 1942/1943. Willy Hellpach (1893–1974) was nominated the institute's director. He had done his philosophical doctorate with Wundt in Leipzig, studied with Kraepelin in Heidelberg, created

ecological psychology (*Umweltpsychologie*), later held high political offices, and had been teaching most branches of psychology as honorary professor at Heidelberg since 1926.

The institute survived the war, as Heidelberg was only minimally bombed, and kept operating. But it was not earlier than 1951 that a corresponding chair of psychology was created. Johannes Rudert (1894–1980), an adherent of the Leipzig school of *Ganzheitspsychologie* and former *Wehrmacht* psychologist, became its first occupant. His successor, Carl-Friedrich Graumann (1923–2007), had studied psychology by correspondence with the University of Saskatchewan as prisoner of war in Canada, and later at Bonn and Cologne. He came to Heidelberg in 1963 and thoroughly modernized the curriculum, introduced American textbooks, oversaw the growing of the institute into a sizable organization with five chairs and many work units, and organized the moving of the institute into the edifice built for Helmholtz where it still resides. The Heidelberg psychological institute now ranks amongst the preeminent institutes in contemporary rankings, and more than 3,000 applicants compete every year for the 100 study openings.

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Even before a Psychological Institute was founded in 1896, important impulses for psychology came out of the Philosophical and Medical faculties at Würzburg. Franz Brentano (1838–1917) taught philosophy and psychology from 1866 until 1873. His student, Carl Stumpf (1848–1936), obtained a chair of philosophy at Würzburg in 1873. Stumpf left for Prague in 1879, and later he founded the Berlin Psychological Institute. In the 1880s, psychiatrist Conrad Rieger (1855–1939) published experimental studies of the will and developed a scale for diagnosing impaired intelligence. His assistant, Wundt's disciple Robert Sommer (1864–1937), later founded the Psychological Laboratory at Gießen and was one of the driving forces behind the founding, in 1904, of the *Society for Experimental Psychology*, the present *German Society for Psychology*. Physiologist Max von Frey (1852–1932), in his fine physiological laboratory, investigated the cutaneous senses and invented various esthesiometers.

Succeeding Johannes Volkelt (1848–1930), Oswald Külpe (1862–1915) accepted the chair of philosophy and aesthetics at Würzburg University in 1894 and founded the Psychological Institute in 1896. He had been Wilhelm Wundt's favorite assistant at the Leipzig Psychological Institute, but disappointed his teacher greatly when in his *Outlines of Psychology* (Külpe 1893, English translation 1895) he rejected basic elements of Wundt's theoretical psychology. Karl Marbe (1869–1953), who had studied with Hugo Münsterberg (1863–1916) at Freiburg, with Goetz Martius (1853–1927) at Bonn, and with Wundt at Leipzig, started teaching in Würzburg in 1896, and was nominated professor and second director of the institute in 1902. Külpe and Marbe attracted a number of talented students. With their experimental research in thinking and cognition, they started what came to be known as the Würzburg school of psychology. Külpe is usually seen as the founder of this movement, but Marbe was no less

important (Marbe 1945). Among its adherents were Karl Bühler (1879–1963), Ernst Dürr (1878–1913), Narziss Ach (1871–1946), August Mayer (1874–1951), Albert Édouard Michotte van den Berck (1881–1956), Johannes Orth (1872–1949), and Henry Jackson Watt (1879–1925). Max Wertheimer (1880–1943) studied with Külpe in Würzburg before developing Gestalt psychology. Although not lavishly equipped, the Würzburg institute soon developed a superior reputation, and the *Society of Experimental Psychology* decided to hold their second biannual congress there in 1906.

When Külpe went forth for Bonn in 1909, Marbe who had left Würzburg in 1905 to establish the psychological institute at Frankfurt, returned to Würzburg as his successor. He induced the university to increase the institute's finances massively and transformed it into one of the best equipped in Germany (Marbe 1945; Schorn 1936). He established a journal for the work done at the institute, *Fortschritte der Psychologie und ihrer Anwendungen*, which encompassed a wide spectrum of topics, among them an uncommon amount of publications on applied psychology. Marbe retired in 1935. His successor, Carl Jesinghaus (1886–1948), had studied with Wundt and Felix Krueger and then made a career in Argentina. During the 10 years he ran the Würzburg institute, he published next to nothing in Germany. A politically shady character, he had to leave the university in 1945.

After the war, in 1947, Gustav Kafka (1883–1953) became director of the institute, woke it up from its slumber, and organized the training of professional psychologists according to the slightly modified examination regulations of 1941. In 1953, Wilhelm Arnold (1911–1983) succeeded Kafka as director of the institute and received a newly installed chair of psychology, the first such chair in Würzburg. This signaled the definitive institutional separation of philosophy and psychology. Arnold directed the institute until 1978, a period in which the number of chairs of psychology multiplied. The institute's hundredth anniversary was commemorated in 1996, and a rich survey of the history of psychology in Würzburg was published (Janke and Schneider 1999).

Since 2009, Würzburg accommodates the *Adolf-Würth-Zentrum für Geschichte der Psychologie* (*Adolf-Würth-Center for the History of Psychology*), the former

Institut für Geschichte der Psychologie at Passau University, with its large collections of historical apparatus and archival material from the history of psychology.

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V

Vocational Psychology

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Introduction

This entry on theories in vocational psychology begins with a definition of the discipline and a summary of historical background for the development of major theories. An overview is provided of the following vocational psychology theories: Holland's (1959, 1997) theory of vocational personality types and work environments; the theory of work adjustment (Dawis and Lofquist 1984; Dawis 2005); Super's (1957, 1990) life-span, life-space theory of career development; L. Gottfredson's (1981, 2005) theory of circumscription and compromise; Krumboltz's (1996, 1996) social learning theory of career choice and decision making; and the social cognitive career theory (Lent et al. 1994; 2000). Key issues of each theory are organized by the subheadings of Explanatory Propositions, Assessments and Interventions, and Research Evaluating the Theory. A brief account is offered of international perspectives on comparative and cross-national theory development in vocational psychology. Future directions are highlighted for needed research in emerging theory development in vocational psychology that addresses the needs of marginalized and underserved populations and includes consideration of the role of work in people's psychological health and well-being (Blustein 2008).

Definition

Vocational psychology in the USA has been identified as a specialty within applied psychology that focuses on

scientific investigations “to advance knowledge about vocational behavior, improve career interventions, and inform social policy about work issues” (Savickas and Baker 2005, p. 15). Vocational behavior has been defined as an individual's thoughts, feelings, and actions in the process of choosing and adjusting to an occupation (Crites 1969). Beyond the developmental process of having and holding one occupation or career at a single point in one's life, the domain of vocational psychology has evolved to include a broader definition of work over the course of a life span in the context of educational, sociocultural, and economic influences. This includes the study of the role of work in people's lives and psychological health (Blustein 2006). Currently, vocational psychology is identified as a discipline primarily within the field of counseling psychology, with contributions from other applied specialties in industrial-organizational, educational, and rehabilitation psychology.

Historical Background

The vocational guidance movement in the USA developed in the early 1900s (Baker 2009). While there were benefits generated by the Industrial Revolution and the prevailing laissez faire economic view of industrial growth, there were also undesirable social consequences such as exploitation of workers (particularly children and immigrants), urban overcrowding and public health risks, and an increasing disparity between the rich and the working poor. Calls for reforms included the view of education as a right for all citizens. Frank Parsons, a social activist leader of the Progressive Movement, established the Vocation Bureau in Boston to provide education for the working poor and to help youth make wise decisions about their occupational futures. In his book, *Choosing a Vocation*, Parsons (1909) outlined a three-step paradigm that established a foundational framework for vocational choice and counseling:

- In the wise choice of a vocation, there are three broad factors: (1) a clear understanding of yourself, your aptitudes, abilities, interests, ambitions, resources, limitations, and their causes; (2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work; (3) true reasoning on the relations of these two groups of facts. (p. 5)

The early development of a scientific basis for vocational psychology applied the psychology of individual differences (also called differential psychology or correlational psychology) to measuring a person's interests, abilities, values, and other vocational attributes, also known as self-knowledge. This was the first factor in vocational choice proposed by Parsons. The science of psychological and educational testing was also used to develop assessment measurements of the structure of work, i.e., occupational attributes and related educational and environmental aspects. Vocational knowledge was the second factor proposed by Parsons in vocational choice. The third factor was the degree of fit or match between personal attributes and occupational attributes, or reasoning on the relations between self-knowledge and vocational knowledge. In the first half of the twentieth century, research in vocational measurement (e.g., in education and military personnel selection) formed the basis of a matching model for person–environment fit, also known as trait-and-factor approaches, in vocational psychology theory development. John Holland's (1959, 1997) theory proposed that vocational choice and adjustment were maximized when individuals pursued careers in environments that matched with their personality type. The structural arrangement of Holland's six vocational personality types approximating a hexagon has been: (a) broadly used and well replicated in research; (b) applied to developing the most widely used vocational interest assessment measurements; and (c) used as a basis for counseling and self-directed tools for vocational exploration and choice, thus extending application of Parsons' framework.

The Theory of Work Adjustment (Dawis and Lofquist 1984), like Holland's (1997) theory, was also based on views of person–environment fit. While Holland's theory focused more on vocational choice, the theory of work adjustment predicted job satisfaction

and tenure (length of time in a job) by assessing the degree of fit between aspects of the individual (such as the employee's abilities and values) and aspects of the work environment (such as the ability requirements of the job and the employer's expectations). René Dawis and Lloyd Lofquist initially developed this theory as a framework to understand the data they had collected from empirical research on how to help vocational rehabilitation clients to adjust to work after a disability (Dawis 2005). Continuing from this scientific foundation, research to date has supported many of the theory's predictions with individuals from some groups. Much research has focused on the development of theory-guided assessments that are archived at the University of Minnesota. The theory of work adjustment has been used in vocational counseling practice to help clients who are dissatisfied with their jobs consider strategies and options for career change or adjustment to a current job.

Another foundational theory in vocational psychology was proposed and refined in the second half of the twentieth century by Donald Super (1957, 1990). Influenced by the discipline of developmental psychology, Super's theory of vocational development viewed vocational choice as a process over the life span that varied by individuals' life roles at different life stages. From Super's theoretical view, vocational choice is not a single event but rather an adjustment process of many vocational choices that are expressions of one's evolving self-concept made in the developmental course of one's life and changing roles. Super's theory spurred several longitudinal research projects; however, most results have not supported specific propositions of the theory. Nevertheless, Super's basic thesis, that vocational choice and adjustment is a process of development, has been well supported. Super's theory has been widely used as a framework for vocational identity development and career exploration activities in schools for children at elementary, middle, and high school levels. Assessment measures and tools guided by Super's theory have been developed for vocational counseling activities with college students and adults. Drawing on various theoretical perspectives, Super continued to develop and refine his theory until his death in 1994, and his theoretical propositions were published posthumously (Super et al. 1996). Savickas (2005) has continued to update Super's theory and has

incorporated a constructivist perspective, focusing on how individuals identify meaningful life themes in their career stories and actively facilitate career adaptability in their vocational choices and decisions.

Linda Gottfredson's (1981, 2005) theory of circumscription and compromise was also based on the view of vocational choice as a developmental process rather than as an event. Modifying Super's (1957) idea of self-concept, Gottfredson's theory focused on cognitive development from childhood through early adolescence to explain why individuals' vocational expectations vary by gender and social class. She proposed that as children grow in their awareness of themselves and their social place in the world, they begin to eliminate vocational options that do not seem compatible with their evolving self-image. Relatively little research attention has been devoted to evaluating Gottfredson's developmental theory of vocational aspirations. However, the theory has been used to ground vocational counseling interventions with children, adolescents, and adults.

Vocational psychology theories also evolved from social learning and social cognitive perspectives. John Krumboltz (1979, 1996) proposed a social learning theory of career choice and decision making. Krumboltz's premise was that individuals make vocational decisions based on beliefs they develop about their vocational preferences and aversions from their learning experiences in social interactions with their environment. Krumboltz's theoretical approach originated from general learning theory, rooted in reinforcement theory and classical behaviorism, and evolved to applications of cognitive behavioral theory. Research has supported some hypotheses generated by the social learning theory of career choice and decision making, particularly in the use of reinforcement and modeling with different media in group and individual settings. Based on his theory, Krumboltz developed occupational simulation tools and an assessment measure of career beliefs. His theory has been used in vocational counseling interventions with individuals in early adolescence through adulthood.

A relatively new vocational psychology theory that has been used to generate substantial research in recent decades is the social cognitive career theory of Lent et al. (1994, 2000). Self-efficacy theory, as one approach to the more general study of social learning and social

cognitive theory, was first used by Hackett and Betz (1981) to study applications to vocational behavior (to explain occupational segregation by gender). Anchored in an integration of social cognitive theory (Bandura 1986) and previous vocational theories, Lent and colleagues' social cognitive career theory focused on a model of how several psychological variables (self-efficacy, outcome expectations, and goals) interact with other personal background and environmental variables (such as gender, race/ethnicity, social supports, and barriers) to predict vocational interests, choices, and performance. Research has supported the use of this theory to understand a wide range of vocational behaviors across many developmental levels with individuals of both genders and various racial/ethnic and culturally diverse groups.

Key Issues

This section includes an overview of major vocational psychology theories. Key issues of each theory are organized by the following subheadings: Explanatory Propositions, Assessments and Interventions, and Research Evaluating the Theory.

Holland's Theory of Vocational Personality Types and Work Environments

Explanatory Propositions. Holland's (1997) theory is based on the premise that by late adolescence most people resemble a fairly stable combination of six types of personalities, or expressions of vocational interests, for which there are corresponding types of work environments. He proposed that the quality of individuals' vocational choices and adjustment varies by the degree of fit between their personality and work environment. Individuals typically can be described as resembling one dominant personality type among the six, along with one or two other types that are secondary. Each personality type describes a characteristic set of activity preferences, values, attitudes, competencies, and problem-solving styles. Drawn from repeated empirical investigations, Holland proposed the following six (RIASEC) personality types: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C).

The Realistic personality type prefers technical, athletic, or outdoors activities and environments

that involve practical, objective, tangible, ordered, or physical manipulation of objects, tools, equipment, machines, plants, or animals. Realistic people may have mechanical problem-solving abilities, psychomotor skills, or physical strength. They may avoid activities demanding subjectivity, artistic expression, or social interactions. Realistic types are often described as reliable, practical, frank, thrifty, modest, natural, or athletic.

The Investigative personality type prefers activities and environments that involve systematically observing, learning about, evaluating, or solving abstract or ambiguous problems. Investigative people may have analytical, scientific, or mathematical abilities. They may prefer to work independently and avoid leadership tasks. Investigative types are often described as intellectual, curious, methodical, rational, and reserved.

The Artistic personality type prefers activities and environments that are unstructured, flexible, and free to allow self-expression, imagination, or creativity. Artistic people may have musical, literary, dramatic, or other artistic abilities (e.g., dancing, drawing, painting, sculpting, or designing). They may avoid activities demanding conformity or systematically ordered tasks. Artistic types are often described as expressive, original, intuitive, innovative, nonconforming, unconventional, or impulsive.

The Social personality type prefers activities and environments that involve informing, explaining, guiding, leading, or helping others. Social people may have interpersonal, verbal, teaching, or empathic abilities. They may prefer educational, therapeutic, or religious activities, and they may avoid mechanical activities. Social types are often described as helpful, humanistic, idealistic, ethical, responsible, cooperative, tactful, friendly, generous, patient, empathic, or insightful.

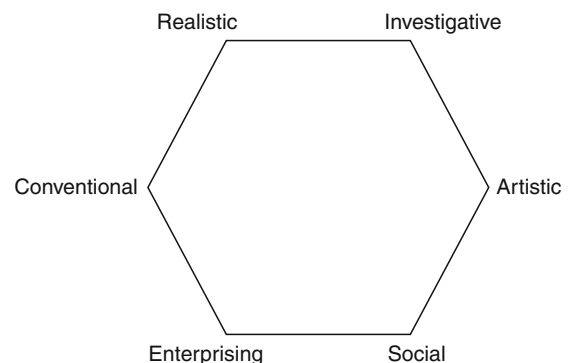
The Enterprising personality type prefers activities and environments that involve influencing, leading, or managing people. Enterprising people may have leadership, selling, speaking, financial, or managing abilities. They may value economic or political recognition and avoid scientific activities. Enterprising types are often described as persuasive, self-confident, enthusiastic, optimistic, ambitious, or competitive.

The Conventional personality type prefers activities and environments that involve organizing data and implementing detailed instructions. Conventional

people may have organizational, clerical, or numerical abilities. They may avoid ambiguous, unstructured, or unsystematic activities. Conventional types are often described as conscientious, precise, accurate, orderly, self-controlled, conforming, persevering, or dependable.

Based on a large number of empirical studies, Holland's theory of person–environment fit is summarized by an approximately hexagonal structure that represents predicted relationships among the six types (see Fig. 1). Types adjacent to one another share more in common than types at opposite points on the hexagon. For example, Social types are more similar to Artistic types (S and A are adjacent on the hexagon) than they are to Realistic types (S and R are at opposite points on the hexagon). Holland asserted that an individual's personality is a combination of types. Typically, the focus of assessment and intervention is on the individual's three highest letter scores (e.g., a three-letter code of SAE, or summary code, indicates the individual scored highest in S, next highest in A, then next highest in E among scores on all six types). Holland proposed four theoretical constructs to examine predicted relationships among the six types: congruence, consistency, differentiation, and identity.

Congruence refers to the degree of relatedness or match between an individual's personality type and his/her current or prospective work environment. For example, a Conventional individual is considered to



Vocational Psychology. Fig. 1 Holland's hexagonal model of relationships among vocational personality and environment types (From Gottfredson and Holland 1996. Copyright © 1982, 1989, 1996 by Psychological Assessment Resources, Inc.)

have a highly congruent match if working in a Conventional environment compared to a less-congruent match if working in an Artistic environment. Congruence is hypothesized to predict vocational choice, satisfaction, and performance. For example, individuals may be more satisfied and perform better in environments that match more congruently with their personality types.

Consistency refers to the degree of relatedness or match between the types within an individual's personality composite. For example, an individual with Realistic and Conventional interests would be considered more consistent than an individual with Realistic and Social interests. Individuals with more consistent types within their personality composite are hypothesized to more easily match with corresponding work environments. Whereas, it may be more challenging for individuals with less-consistent types within their personality composites to find work environments that allow them to express the diverse aspects of their personality.

Differentiation refers to the degree to which an individual's personality or environment is defined as clearly resembling some types and not others. For example, an individual with the most highly differentiated interests possible would resemble one type alone. Whereas, an individual with the least differentiated interests possible would have identical scores on all six types. Theoretically, individuals with more differentiated personality types would have more clarity to make vocational choices that match with corresponding work environments.

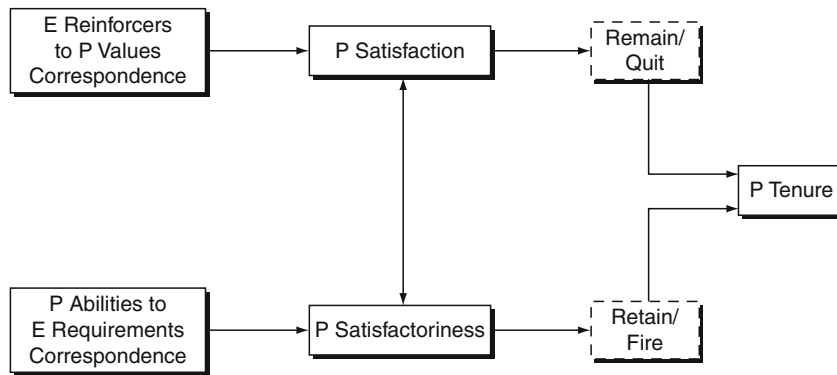
Identity in Holland's theory refers to a measure of the degree to which individuals or environments are clear and stable in their interests, talents, and goals. The constructs of consistency, differentiation, and identity are used to define the strength of personalities and environments. In sum, individuals with higher levels of identity, differentiation, consistency, and congruence with current or prospective work environments are predicted to be more satisfied, better adjusted, and stable over time.

Assessments and Interventions. Extensive research supports the practical applications of many of the theory's principles and related assessments and interventions for evidence-based career counseling practice. The strength of Holland's theory of person-environment fit is the relative ease with which it can be

understood and applied. Its strengths include the simple and intuitively meaningful premises on which the theory is based and its useful application with assessments to help individuals clarify how their interests may relate to vocational and avocational settings. Assessment instruments developed by Holland and others are commonly used to measure the theory's constructs, for example, the Self-Directed Search (Whitfield et al. 2009). The results from these assessments are used in career counseling and education to inform, explore, and promote vocational satisfaction and achievement. Other widely used vocational inventories include scales to assess Holland types. These include the Strong Interest Inventory, Armed Services Vocational Aptitude Battery, and O*Net governmental occupational system (Whitfield et al. 2009). The Dictionary of Holland Occupational Codes (Gottfredson and Holland 1996) is one example of a resource that links the Holland personality types with corresponding occupational classifications and information sources.

Research Evaluating the Theory. The body of research examining the validity of Holland's theory is the most extensive of any theory in vocational psychology. Overall, much of the research supports the six types, the underlying structure approximating hexagonal or circular relationships among the types, and the validity of instruments to measure vocational personality or interest types. On balance, research has found a modest relationship between person-environment congruence and job satisfaction. Limited research has supported the theoretical relationship between consistency and differentiation to vocational outcomes. Recent research that examines the validity and utility of Holland's theory with international cross-cultural groups is accumulating.

Some research has found that Holland's theory may apply across gender, ethnicity, and socioeconomic status in US samples of adolescents and adults (Spokane and Cruza-Guet 2005). However, employment data continue to show that women, members of racial/ethnic minority groups, and individuals of low-income status are disproportionately concentrated in lower-paying occupations within vocational types. Thus, caution is warranted in applications of Holland's theory if focused solely on personal preference without consideration of relevant sociopolitical and psychosocial barriers to career development.



Vocational Psychology. Fig. 2 Basic predictive model of the theory of work adjustment (Brown and Lent 2005. Copyright © 2005, by John Wiley & Sons, Inc.)

Theory of Work Adjustment

Explanatory Propositions. The theory of work adjustment (TWA; Dawis 2005; Dawis and Lofquist 1984), like Holland's (1997) theory, is based on the premise of person–environment fit and reciprocal interaction. Unlike Holland's and other career development theories that are primarily concerned with vocational choice, the TWA focuses on vocational adjustment. According to the TWA, individuals seek to achieve and maintain a sense of *correspondence* with their work environments, such that not only does the work meet the needs of the individual but also the individual meets the requirements of the work environment. Work adjustment outcomes include: the employee remains or quits, the employer retains or fires the employee, and tenure, which is the length of employment. These outcomes are predicted by both the individual's level of *satisfaction*, or how well his or her needs and values are fulfilled by the work, and the individual's level of *satisfactoriness*, or how well his or her abilities fulfill the requirements of the work environment.

The basic predictive model of the TWA is depicted in Fig. 2. The TWA proposes that people have needs, defined as values (e.g., safety, comfort, altruism, autonomy, status, and achievement), that may correspond with rewards of work environments or patterns of reinforcer factors (e.g., job security, compensation, working conditions, opportunities for advancement or to provide service). The level of correspondence or match between the person's values and the work environment's reinforcers are hypothesized to predict job satisfaction. In addition, the TWA proposes that

a person's satisfactoriness for a job can be predicted by the degree to which that person has a set of abilities that corresponds with the skill requirements of the work environment.

The TWA proposes that four personality style variables may influence how an individual interacts with the work environment: celerity, pace, rhythm, and endurance. Celerity refers to the speed with which workers initiate interaction with their work environments (e.g., quickly and impulsively or slowly and deliberately). Pace refers to the intensity or activity level of individuals' interactions with their work environments (e.g., with high energy or calmly). Rhythm refers to the pattern of interaction (e.g., steady, erratic, cyclical), and endurance refers to the degree of sustaining interaction. These four variables may help explain why individuals with similar values and abilities experience different levels of correspondence within a given work environment. These variables may be also used to characterize the structure of the work environment in terms of the nature of interactions reinforced with its workers.

From the perspective of TWA, correspondence and discordance (matching and mismatching) is a dynamic process because both the needs of the individual worker and the demands of the work environment change over time. Dissatisfaction on the part of either the person or work environment serves to motivate adjustment to restore equilibrium in the system. When there is a discordance between an individual's needs and values and the rewards provided by the job, there are ranges of tolerable and intolerable levels for maintenance or adjustment responses.

Individuals, for example, may remain within a range of tolerable discordance to the degree to which they can adapt with *flexibility* and *perseverance*. At the point at which the discordance becomes intolerable, the individual may attempt to adjust via an *active mode*, to make changes in the work environment (e.g., request a raise or promotion), or via a *reactive mode*, to make changes within oneself (e.g., learn more efficient time management skills). If the individual's strategies to adjust are unsuccessful and the level of discordance exceeds a tolerable and manageable level for adjustment, then he or she may change to another work environment or be fired. Over time, individuals develop a characteristic adjustment style, which can be useful information in career counseling.

Assessments and Interventions. The TWA can be used to help clients explore the sources of their job dissatisfaction and consider various options for work adjustment. Career counseling interventions grounded in the TWA commonly use assessments of abilities, values, and work requirements to facilitate matching individuals with corresponding work environments, diagnosing mismatches, and exploring strategies for work adjustment. Several assessment instruments have been empirically developed or used to test and apply the TWA, including the Minnesota Importance Questionnaire, Minnesota Job Description Questionnaire, Minnesota Satisfaction Questionnaire, and Minnesota Satisfactoriness Scales (archived and available through the website, Vocational Psychology Research, University of Minnesota).

Research Evaluating the Theory. A strength of the TWA is its empirical foundation and development in research. Strong support has been found for the theory's predictions of satisfaction, satisfactoriness, and tenure. There have been few studies and minimal support for the predicted relationships between the theory's personality style variables and work adjustment. While the research on the TWA has been predominantly with Caucasians, there has been some research to support applications of the theory with women and US racial/ethnic minority groups.

Super's Life-Span, Life-Space Theory of Career Development

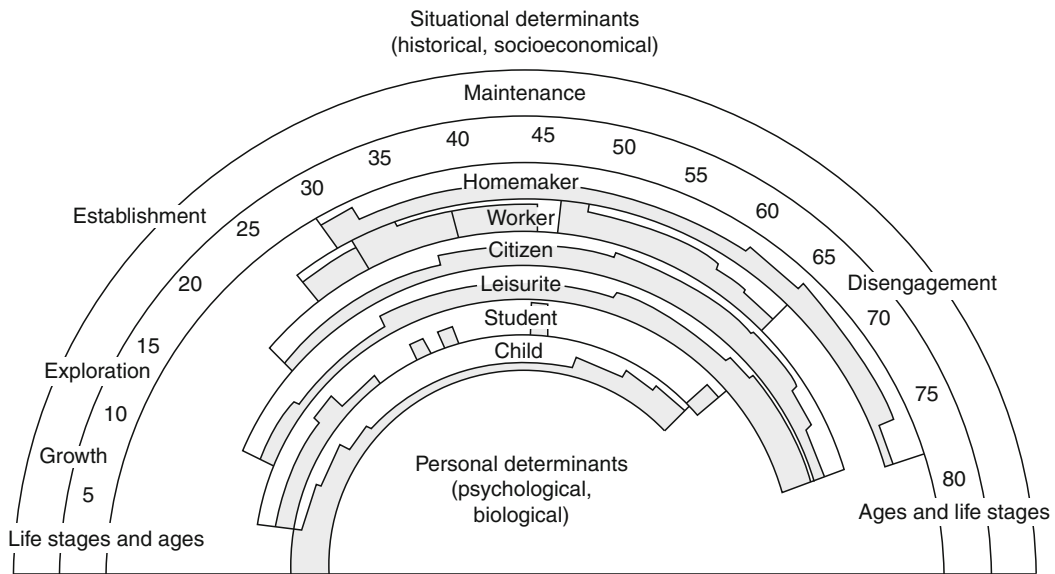
Explanatory Propositions. Super's Life-span, Life-space Theory of Career Development (Super 1957, 1990;

Super et al. 1996) evolved into 14 theoretical propositions, and his theory is depicted by a Life-Career Rainbow (see Fig. 3). Super viewed vocational development as a process of making career and life decisions, through developmental stages over the course of one's *life span* in relation to the importance of various life roles one holds in each stage, or one's *life space*. Career development is an adjustment process of many vocational choices that are expressions of one's evolving self-concepts made in the developmental course of one's life and changing roles. Various personal determinants (e.g., interests, abilities, values, needs) and situational determinants (e.g., family, community, economy, society) contribute to shaping the constellation of one's life roles over the course of one's life span, and these determinants interact to influence the development of one's self-concepts.

Super defined *self-concept* as one's image of oneself in a role, situation, or position engaged in performing a set of functions or in connection to one's relationships. One's self-concepts include both objective and subjective aspects. Objectively, individuals develop self-understanding by comparing themselves with others on given normative standards. Subjectively, individuals develop self-understanding through the meanings they construct from their personal life experiences and unique life stories.

According to Super, individuals differ in their personal characteristics and thus may be suited for several different occupations. Individuals also differ in the degree of importance or salience they attach to their work role relative to other life roles at any given stage of life. At various times, some life roles may expand and take priority over others (represented in the Life-Career Rainbow by the width of shading across life roles). Super noted nine common life roles that individuals hold, sometimes concurrently, over the course of a life span: child (son or daughter), student, leisurite, citizen, spouse (or partner), homemaker, parent, and pensioner (six life roles are shown in Fig. 3).

Super proposed that the career development process comprised an approximate sequence of five major life stages (or *maxicycles*): Growth (ages 4–13), Exploration (ages 14–24), Establishment (ages 25–44), Maintenance (ages 45–65), and Disengagement (over age 65). In response to various life events or transitions between stages, individuals may undergo smaller



Vocational Psychology. Fig. 3 Super's life-career rainbow (From Super 1990. Copyright © 1990, Jossey-Bass Inc.)

minicycles or recycling that involves new growth, re-exploration, and re-establishment. Within each stage, Super proposed characteristic developmental tasks for which successful mastery enables effective functioning and readiness to cope with the demands of the next stage. He proposed the construct of *career maturity* as a measure of one's readiness to master the developmental tasks of each stage effectively, particularly at earlier stages of development. For the developmental tasks of adults, the concept of *career adaptability* may better describe one's readiness to cope with changing work, working conditions, and career-life roles.

Assessments and Interventions. Super's theory culminated in an intervention model called the Career Development Assessment and Counseling (or C-DAC) model. This model applies three key aspects of Super's theory (life span, life space, and self-concept) to help individuals articulate their career concerns, examine the relative salience of their various life roles, and clarify their self-concepts. For clients seeking help in coping more effectively with changing demands or conflicting life roles, career interventions may focus on how they can make more satisfying adjustments in the process of career transitions. Super's developmental career theory has grounded career assessment and

interventions with elementary, middle, high school, and college students to help them develop competencies by learning more about themselves, exploring related careers and pathways, and planning and implementing strategies leading to future careers. Examples of assessment instruments developed or used to apply Super's theory include: the Career Development Inventory, Adult Career Concerns Inventory, Salience Inventory, Values Scale, and Career Maturity Inventory. Super's theoretical concepts have also been integrated in widely used comprehensive career assessment systems for educational and career planning.

Research Evaluating the Theory. Super's extensive body of writing on career development has significantly influenced the study of vocational psychology. A large body of research generally supports Super's theory and its foundational constructs. His theory has provided a useful framework for helping clients in developmental transitions to clarify their career-life role identities and the values they seek to express in their life roles. Yet, several of his theoretical propositions remain to be empirically tested. While there is some evidence of support for applications with women and racial/ethnic minority groups, group differences found in the relative importance of life roles and values suggest further research is needed within specific

developmental and cultural contexts. For example, research might examine the influence of current economic changes and the role of barriers for career development with women and various cultural minority members. Finally, research has provided useful examples of systematic applications of the C-DAC model.

Gottfredson's Theory of Circumscription and Compromise

Explanatory Propositions. L. Gottfredson's (1981, 2005) theory of circumscription and compromise offers a developmental and sociological perspective of career development. In common with Super's theory, Gottfredson's theory focuses on the process of career development as an expression of evolving self-concepts. Gottfredson's theory is distinguished by its focus on cognitive development from childhood to early adolescence to explain why individuals' vocational expectations become constrained by gender and social class stereotypes. She proposed that as children grow in their awareness of themselves and their social place in the world, they begin to eliminate vocational options that do not seem compatible with their evolving self-image on the basis of occupational stereotypes related to gender and prestige.

Gottfredson's theory emphasizes that individuals' understandings of the self and occupations develop early. The theory focuses on children's developing understandings of the social aspects of their self-concept (e.g., gender, social class, intelligence) more than personal aspects (e.g., interests, traits, values). With the growth in children's cognitive capacity to think abstractly, they form cognitive maps that categorize occupations based on dimensions of sex-type (masculinity–femininity), occupational prestige, and field of work. Over time, they may consider whether different occupations are compatible with their evolving self-concepts about gender (most important), prestige (next most important), and vocational preferences (relatively least important). By a process of *circumscription*, young people begin to progressively eliminate unacceptable occupational alternatives relative to their perceived self-concept and based on gender and prestige stereotypes. Through a process of *compromise*, they eliminate options and narrow their occupational choices to those that seem accessible. Thus, as children's self-concepts increase in

complexity and clarity regarding their perceived place in the social world of work, they progressively eliminate occupational options and develop vocational aspirations constrained by gender and prestige stereotypes. While the process of circumscription and compromise occurs gradually and, typically, without conscious awareness, individuals may be helped to reconsider vocational options they have ruled out as unacceptable in sex-type and prestige through formative new learning experiences or changes in their social environment.

Gottfredson proposed four stages of cognitive development to describe the circumscription process in career development. In Stage 1 (ages 3–5), Orientation to Size and Power, children classify people in simple concrete terms, such as big versus little. They recognize observable physical differences between women and men. In Stage 2 (ages 6–8), Orientation to Sex Roles, children become aware of gender role differences between women and men. They tend to think dichotomously and view their own sex as superior to the other sex. In this stage, children use their understanding of gender appropriateness to define the boundaries of their vocational aspirations. During Stage 3 (ages 9–13), Orientation to Social Valuation, children become aware of social status and prestige. They no longer consider occupations that do not meet with the approval of their social reference groups. They further narrow down the boundaries of their vocational aspirations to those they consider of high enough prestige and not too difficult to attain. During Stage 4 (ages 14 and older), Orientation to the Internal, Unique Self, adolescents become more introspective, self-aware, and conscious of the need to explore occupational options among those congruent with their emerging sense of self. They shift their focus from previous stages to identifying which of the acceptable vocational alternatives are most preferred, with greater attention to the psychological self. Stage 4 marks the beginning of the process of compromise.

Assessments and Interventions. Gottfredson's theory highlights the importance of providing career development and education interventions to young people in earlier stages of development than late adolescence. Incorporating Gottfredson's theoretical perspectives, developmentally targeted interventions with children, adolescents, and young adults have focused on

exploring a broader range of occupational options and constructively addressing occupational stereotypes related to gender and prestige that might unnecessarily restrict alternatives considered.

Research Evaluating the Theory. Research on Gottfredson's theory has not been extensive, and results have been equivocal. However, there has been some evidence from longitudinal research that found support for Gottfredson's theory of circumscription and compromise. Moreover, her theory addresses an important gap in the knowledge base of vocational psychology in its emphasis on career development in childhood and potential antecedents for constrained vocational achievement by gender and social status.

Social Learning Theory of Career Choice and Decision Making

Explanatory Propositions. Krumboltz (1979, 1996) proposed a social learning theory of career choice and decision making, based on behavioral and reinforcement theories, for which he further developed career counseling applications (labeled a *learning theory of career counseling*). Krumboltz's theory is based on the premise that it is through a multitude of learning experiences in social interactions with their environment that individuals form beliefs about their vocational preferences and aversions. Individuals' beliefs and other outcomes of individuals' learning experiences influence the vocational decisions they make and actions they take. The goal of career counseling is to help clients expand their learning experiences about potential vocational interests and values, skills they might develop further or acquire, and beliefs that might facilitate them in creating satisfying lives.

Krumboltz proposed that four factors influence career decision making:

1. *Genetic endowment and special abilities.* Innate aspects or inherited characteristics, rather than those that are learned, can be influences that restrict or enhance an individual's career development. Some examples are physical appearance; gender; race/ethnicity; musical, artistic, or athletic ability; intelligence; and predispositions to certain diseases.
2. *Environmental conditions and events.* Factors generally beyond one's control that may influence vocational options and opportunities include a range of cultural, social, political, economic, and natural forces. Some examples are government-sponsored employment and training opportunities; labor laws and union policies; technological developments; geographical location; cultural traditions; family, neighborhood, and community resources; educational systems; and natural disasters such as earthquakes and floods.
3. *Learning experiences.* *Instrumental learning experiences* occur when an individual gains knowledge or skills by acting on the environment to produce certain consequences. For example, a military veteran might use her education benefits to complete a degree program, learn new skills, and obtain a civilian job. *Associative learning experiences* occur when an individual gains knowledge or skills by observing real or fictitious models or by pairing events in time or location. For example, a student might learn about a new and interesting occupational option by attending a career fair and interacting with a representative.
4. *Task approach skills.* These are the competencies with which an individual approaches a task or a problem. Examples include work habits, performance standards, and values, perceptual and thought processes, decision-making skills, and problem-solving skills. Task approach skills not only influence outcomes but also in turn these skills themselves are modified by the outcomes.

From Krumboltz's theoretical perspective, the continuous interaction process with learning experiences and other factors produces four types of consequences: self-observation generalizations, worldview generalizations, task approach skills, and actions or steps taken to make progress in one's career. To address career decision-making concerns, Krumboltz suggests that career counselors can help clients to acquire more accurate self-observation generalizations and worldview generalizations (e.g., knowledge of oneself and the work world), learn new task approach skills, and take constructive actions to implement career choices and decisions. Furthermore, Krumboltz asserts that career counselors can help clients to: (a) expand their interests and capabilities and explore new career options; (b) prepare for an ever-changing work world by learning new skills and developing effective coping strategies;

(c) be empowered to take action to implement career decisions and be provided with ongoing assistance in the process of adjustment; and (d) address a range of career-related concerns beyond identifying a career choice, such as family members' reactions to career choices, job burnout, relationships with coworkers, and underemployment.

Assessments and Interventions. Krumboltz's theory has been used with individuals in early adolescence through adulthood in career counseling and educational interventions, using methods that are developmental, preventative, and remedial to address career concerns. One example of a social learning model of career counseling is the seven-step DECIDES model. Another example of an approach to career counseling advocated by Krumboltz is *planned happenstance*, or taking advantage of unexpected career opportunities (Krumboltz 2009). For interventions grounded in Krumboltz's theory, assessments are used to help clients identify suitable educational and occupational options as well as venues to investigate new learning possibilities. In addition to assessments commonly used in career development interventions (e.g., the Strong Interest Inventory, Myer's-Briggs Type Indicator, Values Scale), Krumboltz developed the Career Beliefs Inventory to help individuals identify beliefs that might hinder or facilitate them in achieving their career goals. He also developed various occupational simulation tools for career exploration.

Research Evaluating the Theory. Research on Krumboltz's social learning theory of career choice and decision making has been limited. Some evidence has supported certain hypotheses generated by the theory, particularly in the use of reinforcement and modeling with different media in group and individual settings.

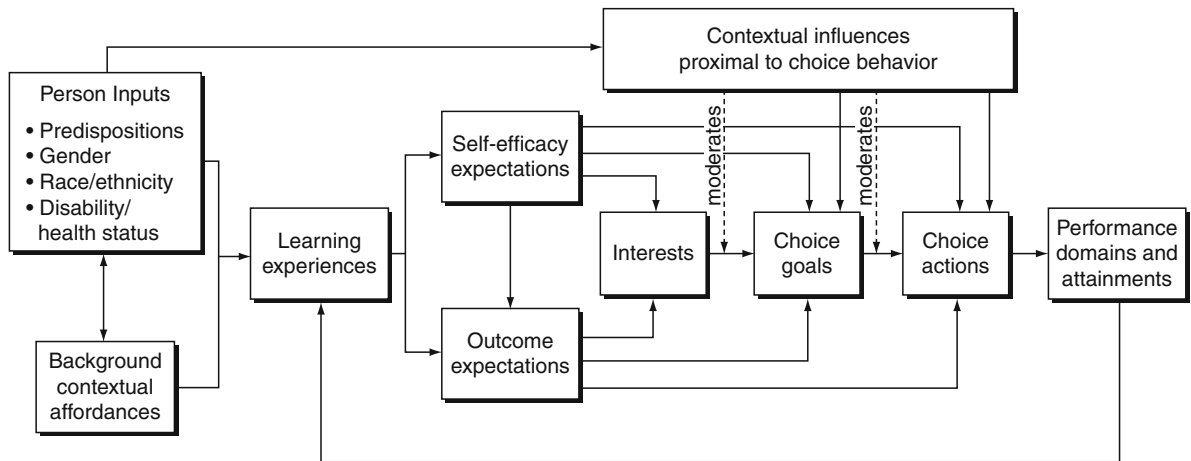
Social Cognitive Career Theory

Explanatory Propositions. The social cognitive career theory (SCCT; Lent et al. 1994, 2000; Lent 2005) provides a unifying conceptual framework for elements identified in previous career theories. SCCT is designed to help explain and predict how people: (1) develop vocational interests, (2) determine successive occupational choices, and (3) attain varying levels of career success and stability, or achieve performance outcomes. Applied to the domain of vocational psychology, SCCT

incorporates elements of Bandura's (1986) general social cognitive theory and its emphasis on a triadic reciprocal model of causality such that personal attributes, environmental factors, and overt behaviors mutually influence one another. Within this model, SCCT highlights self-efficacy beliefs, outcome expectations, and personal goals as the cognitive means by which individuals have personal agency to direct their own vocational behavior. Lent et al. propose that demographic and individual difference variables, or *person inputs* (e.g., predispositions, gender, race/ethnicity, disability/health status), interact with environmental variables, or *background contextual affordances*. These factors influence learning experiences that in turn lead to developing self-efficacy beliefs and outcome expectations (see Fig. 4).

Bandura (1986) defined *self-efficacy beliefs* as individuals' judgments or confidence about their ability to successfully perform a specific task or behavior (e.g., relevant to the question, Can I pass this math exam?). Individuals' *outcome expectations* are beliefs about the likely results (successful or unsuccessful) of performing a specific task or behavior (e.g., What job opportunities am I likely to have if I earn a degree in engineering?). From the view of SCCT, self-efficacy may override the influence of outcome expectations on career behavior (e.g., Even though I expect to have more job options with a degree in engineering, I am not likely to enroll in an engineering program if I have low confidence in my math ability). Extending Bandura's theory, SCCT notes that one's self-efficacy beliefs are subject to change and develop in response to four sources or types of learning experience: (1) personal performance accomplishments (e.g., a good or poor grade on a math exam), (2) vicarious learning (e.g., observing models of successful or unsuccessful math performance), (3) social persuasion (e.g., being encouraged or discouraged by a math teacher), and (4) physiological and affective states and reactions (e.g., an excessive level of anxiety while taking a math exam).

Individuals' *personal goals* may be defined as their intention to engage in certain activities to produce particular outcomes (Bandura 1986) (e.g., relevant to the question, How much do I want to earn a degree in engineering and how well do I want to do this?). In SCCT, *choice-content goals* comprise the type of activity or career one wants to pursue, and *performance goals*



Vocational Psychology. Fig. 4 Social cognitive career theory model of person, contextual, and experiential factors affecting career-related choice behavior (From Lent et al. 1994. Copyright © 1993, by R. W. Lent, S. D. Brown, and G. Hackett)

include the level or quality of performance one plans to achieve within a chosen activity or career. These goals provide an important means by which individuals exercise personal agency in their educational and occupational pursuits. Personal goals help to organize, guide, and sustain behavior over time (e.g., I will persist in learning math and earning good math grades because it is an important step toward completing my engineering degree and obtaining a job as an engineer). SCCT maintains that individuals' choice and performance goals not only are affected by but also, in turn, affect their self-efficacy and outcome expectations.

In addition to environmental realities, from the view of SCCT individuals play an active role in understanding contextual influences by cognitively interpreting, rather than passively observing, their surroundings. Environmental or contextual factors define the opportunity structures within which individuals formulate and implement career choices. These include: (a) distal influences or background affordances that shape learning experiences (e.g., childrearing environments and role models) and (b) proximal determinants (e.g., institutional barriers) that moderate vocational choice behaviors. Individuals' perceptions of contextual factors as barriers or supports may influence their vocational choice behaviors at certain points and through certain pathways in the SCCT model (see Fig. 4).

Assessments and Interventions. SCCT has been used as an organizational framework for developmental, preventative, and remedial career interventions with young children; students at elementary, middle, and high school levels; college students; and adults. The four types of learning experiences proposed to form self-efficacy beliefs have been used to guide psychoeducational interventions in specific skill domains to promote targeted development of vocational interests and aspirations. SCCT has also been applied in intervention approaches to help individuals expand the range of potentially satisfying career options by reexamining those on which they may have prematurely foreclosed. Career counselors administer standardized assessments that help clients to clarify their interests, skills, and values by focusing in particular on discrepancies in the results between the occupational options generated by the various measures. For example, results from the Strong Interest Inventory and Skills Confidence Inventory (Whitfield et al. 2009) are compared and options are considered for developing stronger self-efficacy in a vocational domain of high interest. In another approach, a card sort exercise is used to help individuals reconsider previously discarded career options by reexamining their reasons specific to self-efficacy and outcome expectations and then exploring alternative strategies. Finally, career interventions have been developed using an SCCT framework to help individuals

cope with barriers and build support to implement their career choices, promote work satisfaction, and facilitate work performance.

Research Evaluating the Theory. A large body of research on SCCT has accumulated in the past decades, and the predominant focus has been on self-efficacy. Substantial empirical support has been found for the theory's constructs, hypotheses, and model in understanding educational and career behavior during preparatory, transition, and adjustment phases of career development. Many studies have demonstrated positive outcomes for SCCT-based interventions with diverse client groups.

International Perspectives

Changes in the work world prompted by rapid technological growth, shifting economies, and globalization are concerns for international vocational psychology scholars and practitioners. Comparative or cross-national perspectives to address these concerns have been debated, for example, at the 2007 joint symposium of the International Association for Educational and Vocational Guidance, Society of Vocational Psychology, and National Career Development Association (Schultheiss and Van Esbroeck 2009). One theme addressed at this joint international symposium concerned the appropriateness of adapting vocational theories, assessments, and techniques constructed in one cultural context for use in another cultural context. Some maintained that traditional vocational psychology theories developed in the USA may be usefully revised for international applications. Whereas, many others offered a range of alternative recommendations for developing indigenous theories to inform vocational practice, research, and training that integrate local and global perspectives.

Future Directions

Theories in vocational psychology that inform what works best for whom and under what conditions can be used to expand access to educational and occupational attainment for all people, including marginalized and underserved groups. Models in vocational psychology theory and practice are evolving to attend to and more helpfully address influences of gender, age, race/ethnicity, culture, sexual orientation, socioeconomic status, and health/disability issues (Croteau

et al. 2000; Swanson and Fouad 2010). Other emerging theoretical perspectives in vocational psychology and career development are constructivist and narrative approaches to understanding the subjective experiences of clients and connecting their life themes to career goals (Savickas 2005).

Psychology-of-Working Framework

An emerging theory with implications for counseling practice and public policy is David Blustein's (2006) psychology-of-working framework. Blustein's framework was developed in response to critiques of the narrow applicability of prominent vocational theory, research, and practice that are focused on a relatively small proportion of people with the greatest access to, and choice in, educational and occupational opportunities. Blustein has proposed a broader conceptual framework that may be relevant for the majority of people worldwide who have more limited access to education and jobs that readily accommodate their interests, abilities, hopes, and values. As a constructive response to critiques by Richardson (1993) and others, Blustein's psychology-of-working perspective includes addressing the role of work in people's lives and considering the intersections of work with other life roles. Blustein's framework is intended to be used in conjunction with existing career development theories. Furthermore, because the role of work is central in people's psychological health and well-being, relevant research is needed to inform vocational psychology theory and practice (Blustein 2008).

See Also

- ▶ Bandura, Albert
- ▶ Industrial-Organizational Psychology
- ▶ Strong, E. K., Jr.

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Von Helmholtz, Hermann

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Basic Biographical Information

Helmholtz (1821–1894) was born in Potsdam, Germany, where his father taught languages and philosophy at the *Gymnasium* (secondary school) where Hermann attended. His mother was a descendant of William Penn, after whom the colony, later, the state of Pennsylvania (USA) was named. After completing studies at the *Gymnasium*, Helmholtz wanted to study physics, but financial considerations led him to study



medicine in Berlin, free of charge, in return for an 8-year service commitment to the Army. He studied under the great Johannes Müller, and among his friends and fellow students were Emil Du Bois-Reymond, Ernst Brücke, and Karl Ludwig. Despite Müller's acceptance of *vitalism* (the belief that life is based on a supernatural "force"), these students had in common opposition to it, and Helmholtz's research would serve well the rejection of vitalism.

Helmholtz's medical dissertation (1843) and his early work on conservation of energy (*Über die Erhaltung der Kraft*, 1847) gained him an offer to become Associate Professor of Physiology at the University of Königsberg which resulted in early release from his military commitment. He stayed at Königsberg from 1848 to 1855 when, among other accomplishments, he invented the first operational ophthalmoscope. In 1855, Helmholtz moved to the University of Bonn as Professor of Anatomy and Physiology, and in 1858, he became Professor of Physiology at the University of Heidelberg where he remained until 1871. Based largely on his extensive work in the physics of light and sound, in 1871, he was offered and accepted the Chair in Physics at the University of Berlin, the most prestigious chair in physics in Germany. He remained in Berlin until his death. While in Heidelberg, Wilhelm Wundt, a founder of experimental psychology, worked under Helmholtz as an assistant. In Berlin, Helmholtz's student, Heinrich Hertz, conducted investigations suggested initially by Helmholtz of James Clerk Maxwell's electromagnetic theory of light. Hertz was the first to demonstrate the existence of electromagnetic waves, the basis for wireless telegraphy among other things; it was in Hertz's honor that Hz became the unit for measuring wavelength. A significant American post-doctoral student in Helmholtz's laboratory was Christine Ladd-Franklin who became internationally famous for improving Helmholtz's theory of color vision.

Major Accomplishments/Contributions

Had Nobel Prizes existed during Helmholtz's lifetime, reasonable arguments can be made that he might have received a minimum of four, one for formalizing the principle of the Conservation of Energy, one for being the first to measure the speed of a nerve conduction,

one for his research and theories in vision, and one for his research and theories in audition. Disputes arose regarding priority for the Conservation of Energy principle, but Helmholtz freely acknowledged prior work and stayed above the fray. Upon his death, his classic paper was deemed by *Physical Review* to be "chief of the early attempts to give expression to the principle" (Gruber and Gruber 1956). Ironically, the paper had been rejected as too theoretical in 1847 and was published as a private pamphlet. Formalization of the principle of Conservation of Energy together with measuring the speed of nerve conduction (1850), previously deemed to be in a supernatural realm, helped to destroy vitalism, thereby, enabling biology to begin making great advances.

Helmholtz's accomplishments in the field of vision were too many to mention here, but they included the three-volume *Handbuch der Physiologischen Optik* (1856–1866), a thorough compendium of knowledge concerning vision, including much research conducted by Helmholtz himself. Other than the ophthalmoscope mentioned earlier, he is perhaps best remembered for his trichromatic theory of color vision and for his anatomical explanation of how the lens of the eye accommodates for near and far vision. Aply anticipated by Helmholtz's vision research and trichromatic theory was the subsequent Nobel Prize winning research associated with identification of retinal chemicals and processes that enable color vision (e.g., research by Ragnar Granit, H. K. Hartline, and George Wald).

In audition, Helmholtz's book, *Die Lehre von dem Tonempfindungen* (*The Sensation of Tone*), similarly to the *Optik* handbook, summarized existing knowledge about audition including Helmholtz's extensive research findings and theories. His research in the physics of sound as well as his place theory of hearing led to refinements by Georg von Békésy that gained him the Nobel Prize in 1961.

Apparently, Helmholtz opposed the idea of the necessity for an experimental psychology believing that physiology was sufficient, and E. G. Boring (1950), the eminent historian, wrote that Helmholtz would have opposed "mentalism" as much as he had opposed vitalism. Nevertheless, Boring identified Helmholtz as a significant founder of experimental psychology for his work in vision and audition. Some have written (e.g., Gruber and Gruber 1956;

Warren 1984) that among Helmholtz's most important psychological theories was his theory of "unconscious inference" to explain, for example, how humans acquire the concept of space; later, Helmholtz acknowledged difficulties with the term and changed it to "inductive inference." As noted, Helmholtz applied unconscious inference to explain how humans acquire the concept of space through empirical experience. Opposing the "intuitionists" who argued that knowledge of spatial relations is innate and intuitive, Helmholtz argued that concepts of spatial relations are acquired through an accumulation of experiences, many of which we are unaware (unconscious) when they occur. His empiricism and material reductionism were so thorough that, again opposing the intuitionists, Helmholtz argued that inductive inference explained how humans acquired the fundamental axioms of geometry. This author is unaware of any detailed arguments that Helmholtz presented, but a reasonable extension of his views would be that all mental processes result from how accumulated experiences modify the chemical and physical properties of the brain at molecular levels.

See Also

- ▶ [Boring, E. G.](#)
- ▶ [Perception](#)

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Von Restorff, Hedwig

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Basic Biographical Information

Hedwig von Restorff was born in Berlin on December 14, 1906. After an education focused on classical

languages, she entered the University of Berlin at the age of 20 and studied philosophy, psychology, and the natural sciences; she obtained her Ph.D. under the supervision of Gestalt psychologist Wolfgang Köhler (1887–1967) in the year 1933, the year of her first publication, announcing her discovery of what is known to this day as the "von Restorff effect" or "isolation effect" (von Restorff 1933). In the words of one reviewer: "In 1933 von Restorff reported a series of studies the results of which may be summarized in the following statement: Isolating an item against a crowded or homogenous background facilitates the learning of that isolated item" (Wallace 1965, p. 410).

By the time the article appeared in the prestigious Gestalt journal *Psychologische Forschung*, Köhler had left Germany for the USA; he had unabashedly expressed his disapproval of the newly elected Nazi régime (Crannell 1970; Henle 1978), and, like other Gestalt psychologists, had felt it necessary to emigrate. After staying on at Berlin, working as a research assistant, von Restorff decided to study for a medical degree and was licensed to practice medicine in 1939. In 1942, her marriage to another doctor, Helmut Trendelenburg, was disrupted when he went missing in action not far from Königsberg, where the Germans were fighting the Russians. At the end of World War II, von Restorff moved to Freiburg in the Black Forest region of Germany, where she became a family physician. She passed away on July 6, 1962.

Major Contributions

With respect to her contributions to experimental psychology, it should be noted that her 1933 findings were not serendipitous. It had been felt by Köhler that the ease with which verbal (and even nonverbal) material could be memorized was a function of how well sequences of adjacent to-be-remembered targets could be mentally grouped and visualized as self-contained mental representations. Expressed in a different way, whatever sequences were difficult to memorize would be sequences contained in a set of mental representations that were highly similar to each other in terms of meaning, visual, or aural quality, providing few self-contained and well-grouped memory representations. In other words, mental representations that stood out from the "crowd" of other memory representations concurrently in consciousness would be easier to

memorize and would, presumably, also be retained longer than would memory representations that were camouflaged or “lost” in that crowd. von Restorff’s doctoral research was aimed at confirming Köhler’s speculations, which had been clearly stated in his semipopular book *Gestalt Psychology* (Köhler 1929, pp. 156–157). To the second printing of this book, Köhler (1947) added the following footnote (p. 161):

- ▶ The outcome of these studies (those of von Restorff and others) is perfectly clear: series of nonsense syllables constitute a difficult material to learn, not so much because the items have no meaning as because in such monotonous series sub-groups do not spontaneously form. (Köhler 1947, p. 161)

The role played by the von Restorff effect in the history of memory theory has been twofold. First, as was hinted at by the mention of nonsense syllables in the above quotation, the effect should not be treated as just another of the many “grouping” effects associated with Gestalt psychology, particularly in experiments on human perception. From the time of its first being reported, attempts have been made to integrate it into the ongoing literature on “verbal learning.” The paired-associates learning task breaks down easily into an analysis in terms of “stimuli” and “responses.” As an example, we can list the following pairs of nonsense syllables used by Ranschburg (1905): ber-tof, kid-sem, bel-fam. The participant has to learn to reply “tof” if “ber” is presented, “sem” if “kid” is presented, and so on. “Ber” can be designated as a stimulus term to which “tof” is required as a response. This technique was believed to be useful in psychology because it was thought to facilitate the comparison of verbal learning in humans with classical conditioning in animals, where a stimulus that is normally emotionally neutral (e.g., the sound of a metronome) can come to elicit a new and uncustomary response (e.g., salivation) if the sound is paired repeatedly with another stimulus that is not emotionally neutral (e.g., food). The literature on paired-associates learning had actually started when Mary Calkins (1894), in the USA, had demonstrated that a pair of words that stood out from other pairs in the same list because of their vividness of meaning were more quickly learned, and better retained, than were other pairs in the same list. That is, something

like a von Restorff effect had already been demonstrated in the pioneering days of the verbal learning literature.

By the late 1930s, the literature on verbal learning was focused intensively on demonstrations of how interference in learning and in retrieval could be succinctly demonstrated in human paired-associates learning tasks. The German pioneers, Müller and Pilzecker (1900), had used a variant of these tasks (the so-called “method of hits”) to distinguish between what are now called retroactive and proactive inhibition, and the upshot of the Köhler/von Restorff program of research was to show that both kinds of interference could actually be ascribed to the “crowding together” of the memory representations of the stimulus terms and the response terms when two paired-associates lists, L_1 and L_2 , had been acquired one after the other. If L_1 had been learned first and had been followed by the learning of L_2 , it had been assumed that memory representations from L_2 caused interference with the recall of memory representations from L_1 (retroactive inhibition exerted by L_2 on the retrieval of L_1). Alternatively, L_2 might be more difficult to learn if preceded by L_1 than if it had not been preceded by L_1 (proactive inhibition exerted by L_1 on the acquisition of L_2). But this S–R competition model would eventually come to be contrasted with an isolation/crowding model according to which participants forget whether a stimulus term like “ber” or a response term like “tof” had come from L_1 or from L_2 .

During World War II, theories about the paired-associates task had been bolstered by the evidence of Melton and von Lackum (1941) that erroneous intrusions of learned responses from L_2 into attempted recalls of the learned responses of L_1 were fewer than what might have been expected. Melton and von Lackum therefore devised a two-factor theory of retroactive inhibition, the two factors being (a) response competition between memory representations from L_1 and L_2 and (b) a postulated process according to which L_1 representations had been “unlearned” in the course of acquiring the L_2 representations. A boost to studies of paired-associates learning was later provided by Martin’s (1965) evidence that stimulus-term learning, response-term learning, and stimulus–response associations could be experimentally dissociated. And it was propitious for Köhler’s cause that the first issue of

a new journal named *Memory and Cognition* opened with a major article by Postman and Underwood (1973) that reviewed the evidence then available on what they called a “failure of list differentiation,” that is, evidence that participants not only forget stimulus terms, response terms, and stimulus–response associations, but also forget whether a given word or syllable that had come to mind belonged to L_1 or L_2 . Moreover, John Ceraso (1967), who had worked as a research associate in Köhler’s laboratory at Swarthmore College, formulated, via a series of elegant experiments, a rigorous account of how the results of experiments on retroactive inhibition that had used paired associates could be accounted for in terms of “crowding” and “isolation” just as efficiently as they could be accounted for in terms of response interference. Murray (1995, pp. 119–123) has argued that there is a strong degree of consistency between the model put forward by Ceraso (1967) and a later model of retroactive inhibition put forward by Mensink and Raaijmakers (1988).

Second, the discovery of the von Restorff effect also had a major impact on theories of human memory, because it forced researchers to consider that an important variable determining how easily particular items in a list could be memorized might be how “distinctive” those items were relative to other items in the list. Murdock (1960) initiated attempts to quantify the relative distinctiveness of individual members of a list vis-à-vis other members of the list, attempts which have yielded fruit particularly in a distinctiveness model of serial learning put forward by Johnson (1991). It has generally been agreed that primacy and recency effects in serial learning, memory span tasks, and paired-associates learning can be associated with the extra distinctiveness associated with items at the start and end of a list (Crowder and Neath 1991).

With respect to the von Restorff effect in general, three review articles are particularly recommended. Wallace (1965) reviewed early research on the effect; his article is replete with good advice on methodological matters that are easily overlooked in experimentation on the effect. Schmidt (1991) reviewed the various pitfalls that can be associated with the indiscriminate use of the word “distinctiveness” in memory theory. Hunt (1995) summarized and interpreted research on the von Restorff effect, and he made available online a translation of von Restorff’s (1933) paper. Because

von Restorff had acknowledged Köhler’s help alongside her naming of her own authorship, the translator listed this translation as if its original authorship had been joint (Köhler and Restorff 1995).

However, that article was not the only one von Restorff wrote in collaboration with Köhler. Naming themselves as joint coauthors, Köhler and von Restorff (1937) also described an extended series of experiments designed to demonstrate how the nature of any memorizing activity carried out during a retention interval could determine the efficiency of recognition and/or recall of to-be-remembered material that had been presented prior to the onset of that retention interval. They drew the analogy between the temporal “in-between field” (the time interval elapsing between the presentation of to-be-remembered material and a repetition of the identical material) and the spatial “in-between field” (the physical distance between two visually identical objects displayed simultaneously). The shorter and “emptier” the spatial “in-between field,” the more likely would it be that the two objects would be perceptually grouped; the shorter and less activity-filled the temporal “in-between field,” the more likely would it be that the repetition of the original material would be mentally grouped with the memory representation of the original material itself, that is, the repeated material would be judged to be “identical” to the original material. The experiments reported in this underknown article were quite elaborate and have been summarized by Murray (1995, pp. 76–85).

See Also

- ▶ Bartlett, F. C.
- ▶ Behaviorism
- ▶ Bühler, Karl
- ▶ Ebbinghaus, Herman
- ▶ Gestalt Psychology
- ▶ Helson, Harry
- ▶ Höffding, H.
- ▶ Koffka, Kurt
- ▶ Köhler, W.
- ▶ Perception
- ▶ Robinson, E. S.

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Basic Biographical Information

Although Lev Vygotsky lived in a much earlier era, he is sometimes referred to as the most modern of developmental theorists. His writings have been rediscovered and found to have a great deal of resonance with contemporary thinking about development. Consistent with his position as a Marxist, much of his theory of development has emphasized the power of the historical and socio/cultural environment in shaping behavior. This is in contrast to the typical Western view that development occurs primarily from within the individual. At the same time, he was able to incorporate intrinsic factors into his theory. He is sometimes seen as the link combining these two different approaches to understanding development.

Lev Vygotsky was born in Orsha (now Belarus) Russia on November 17, 1896. His family was Jewish and middle class, and both of these factors played an important role in his education and development. His early interests were broad and were not exclusively in psychology. His first intellectual endeavors focused on the interaction between art, literature, and later psychology. While at Moscow State, he also studied social sciences at Shaniavsky University. He graduated from Moscow State University with a degree in law in 1917. He taught for several years before completing his dissertation. It was titled “Psychology of Art” and employed William Shakespeare’s *Hamlet* as its main focus. His dissertation was published in 1925 and was his first publication.

He was invited to join the Institute of Psychology in Moscow in 1924 and remained there until 1934. While at the institute, he worked extensively on ideas about cognitive development, and became instrumental in the development of the educational program of the newly formed Soviet Union. He suggested that children with disabilities should be educated alongside children without disabilities because the social and cultural development of both parties would be likely facilitated

by the integrative environment. He reasoned that social isolation might be more harmful to the disabled children than their disability. At the Institute, Vygotsky was joined by two of his most famous students, A.N. Leont'ev and A.R. Luria. It became their mission to rework psychology into a new Marxist psychology. Vygotsky died at the age of 37 in 1934 from tuberculosis. Many of his works were published after his death. They were however relatively unknown to the West until 1958 because they were banned by Joseph Stalin for political reasons.

Basic Accomplishments/ Contributions

Vygotsky's theory of development was based primarily on his perception that psychological functioning is composed of both "natural" and "cultural" factors. He stated that the natural factors consisted of physical and cognitive biological growth, and the cultural factors consisted of learning to use psychological and cultural tools such as signs, symbols, and language. He viewed development and learning as acting in conjunction to create higher psychological functioning. In his view, an understanding of individual mental development begins by examining the social and cultural forces from which it derives. He also postulated that learning and development are facilitated in a hypothetical region which he termed "the zone of proximal development." The zone represents the distance between the child's independent cognitive ability and the child's potential with the help of an adult or a more competent peer. The child's natural ability is expanded upon through instruction and learning. Among other things, his view suggests that the most

effective intellectual assessment should place a greater emphasis on the potential for growth than does the more traditional "actual" assessment.

Vygotsky's most eminent work and contribution to the field of developmental psychology was his book "Thought and Language" (1986), published shortly after his death. In this highly influential work, Vygotsky developed the first ever theory of language development, which depicted the profound connection between both inner and oral language and the development of mental concepts and cognitive awareness. He theorized that language and logical thinking develop in young children during their interactions with adults and the world around them. These ideas laid the groundwork for future theories on the development of mental concepts and cognitive awareness.

Overall, Vygotsky's published works in the field of psychology were written over a 10 year period and consisted of six volumes. These volumes covered topics such as human development, learning, cultural mediation, internalization, the psychology of play, learning disabilities, higher mental functions, philosophy of science, and methodology of psychological research.

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W

Wallin, J. E. W.

DAVID C. DEVONIS

Graceland University, Lamoni, IA, USA

Basic Biographical Information

Born: January 21, 1876; Died: August 5, 1969.

J. E. Wallace Wallin, as he is usually known, was born to Swedish immigrants in Page County, Iowa, spent his early years in the Swedish town of Stanton, Iowa, and graduated in 1897 from Augustana College in Rock Island, Illinois. He then went to Yale for graduate work with Edward Scripture, obtaining the Ph.D. in 1901 for work on speech rhythms which was cited with some frequency thereafter. He spent a year with Hall at Clark and, with G. Stanley Hall, published on children's fantasy imagination connected with clouds (Hall and Wallin 1902). He next went briefly to Michigan and then to Princeton until 1906, and then took a post at a state college in East Stroudsburg, Pennsylvania, where he first became engaged with the profession of education. In 1910, he went to Vineland, NJ where he replaced H. H. Goddard at the Vineland Training School for a year. There he made contact with Lightner Witmer and firmly reoriented his career toward clinical psychology, mental hygiene, and especially the education of children with disabilities and special educational needs.

Major Accomplishments/Contributions

He moved to Pittsburgh in 1912 as a professor of clinical psychology and director of the psychological clinic at the University of Pittsburgh. While there he assisted in the smoke abatement studies carried out under the aegis of the Mellon Institute, and published on the psychological effects of atmospheric pollution, one of the earliest

environmental psychological studies (Wallin 1913). After this he embarked on a remarkable career distinguished by its itinerancy – he served on the faculties of at least 20 different colleges and universities – and its underlying constant message of the need to educate rather than segregate children with disabilities. By 1930, Wallin had served in a dozen different capacities related to the developing field of special education, not only as a professor of clinical psychology and psycho-educational clinic director, which he was at Harris Teachers College at St. Louis through 1921 and at Miami University in Ohio until 1928, but as a director of educational surveys connected with the delivery of psychoeducational services in Missouri, Ohio, and Maryland and as chair of several commissions and departments of special education in those states. This activity culminated in his membership on the Commission of Special Education for the White House Conference on Child Health and Protection in 1929. Overall, during his career, he opened eight psychoeducational clinics and six special education departments (Duchan 2009). Wallin dogged bureaucracies both psychological and educational, insisting on better quality control in educational testing and on more democratic, inclusive educational practices in a deluge of books and articles from the 1920s through the 1950s (see e.g., among many others, Wallin 1924; Wallin 1927; Wallin 1934; Wallin 1936). For this he may have been perceived as somewhat contentious, but there is ample proof of his success, first in the successful integration of special education into the process of primary and secondary education in the USA, and next in his many commemorations as the chief progenitor of special education, for example, the J. E. Wallace Wallin Special Education Lifetime Achievement award instituted in 1963 by the Council on Exceptional Children. Wallin remained active well into his 80s and published, along with specialist articles in education, several historical reminiscences.

His self-published *Odyssey of a Psychologist* (Wallin 1955) recounts in detail, from his perspective, his migration from early experimental to modern applied educational psychology, an account which mirrors developments in psychology as a whole.

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Wallon, Henry

MOHAMED ELHAMMOUMI

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Basic Biographical Information/ Major Accomplishments

French Marxist psychologist Henri Wallon was the first to apply the dialectical materialist conception of history to psychology. The history of Wallon's family is filled with revolutionary ideas. His father was a freedom fighter (abolition of slavery, social injustice, repression, anti-colonization, etc.). Henri Wallon was introduced by his father to a major figure in politics known Emile Zola. Henri Wallon as a child still had a good recall of that meeting.

Henri Wallon, like Jean Piaget and Lev Vygotsky, focused on the creative nature of the psychological processes relating act, action, activity, and representation. He examined these processes as they develop in the course of the child's acquiring, understanding, and control of the physical and social environment. Wallon was among the first psychologists to systematically study the development of representational systems, beginning at the sensory motor stage and extending through all other forms of human activity to the stage of complex symbolic systems, including scientific thought.

The views of Wallon, who was a Marxist developmental psychologist, are considered to be complementary to those of Piaget, and both are considered to be among the greatest figures of twentieth-century psychology.

Marxist dialectics supplies psychology with a tool for explaining, understanding, and studying human higher mental functions. The dialectical materialism provides the normal base and guiding principles for the science of psychology and has made it a natural and human science, enabling it to comprehend human activity (instead of behavior) as a single, unified whole in constant interaction.

According to Wallon, humans are already social beings in the mother's womb, where they live in symbiosis with her. West European and North American psychologists, who withhold recognition of Wallon's theory, recognize and use his concept of bonding. Developmental psychologists might today find ways to capitalize on Wallon's theoretical framework. The uniqueness of Wallon's approach is his willingness to connect children's cognitive development to not only the rational, the logical, the educational, and the scientific, but also the collective social history, material tools, signs, symbols, culture, collective history, fictions, myths, and philosophies of societies, as well as the individual's personal history.

Although Wallon's work paralleled Piaget's in certain respects, the two men engaged in controversy on various theoretical issues. Piaget viewed Wallon as one of the greatest psychologists of the twentieth century. Wallon's theory converges with L. S. Vygotsky's formulations on thought and language; Vygotsky's ideas were shaped by Wallon's theoretical framework.

He published over 270 articles, books, chapters, monographs, and manuscripts. His oeuvre is inestimable. The power of his intellectual insight and the force of his political intervention in and for third world liberation are almost unsurpassed.

Psychologists and educators in the Soviet Union, Eastern Europe, Africa, and Latin America have found in Wallon's theoretical framework guiding inspiration. Wallon was politically active in various leftist organizations and became a member of the Communist Party. He maintained active contacts with Soviet psychologists such as Alexis N. Leontiev and Alexander Luria among others. He was appointed professor at the prestigious Collège de France. He founded the first *laboratory for the child development* (1927), *Circle of the friends of Russian revolution* in the beginning of the 1930s, and journal *Enfance* (1948). His approach to psychology has inspired psychologists such as Georges Politzer, Lev Vygotsky, Alexis N. Leontiev, René Zazzo, and Lucien Sève among others.

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Warren, Howard Crosby

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Basic Biographical Information

Born: June 12, 1867; Died: January 4, 1934.

Warren had a lifelong association with Princeton University in New Jersey, attaining the B.A. in 1889 and the M.A. in 1891. He studied at Leipzig and Munich until 1893 when, recalled by ► [Baldwin, J. M.](#) to head the psychology laboratory, he returned to Princeton where he spent the rest of his career.

Major Accomplishments/Contributions

A member of the inner circle of the second generation of American psychologists who created modern scientific psychology, he was elected president of the American Psychological Association in 1913 and had an insider's influence on all aspects of the development of experimental psychology in the USA. Warren was associated with the *Psychological Review* since its founding in 1894 by Baldwin and Cattell, eventually becoming its editor after Baldwin, who himself had gained ownership of the *Review* by a coin toss with Cattell, lost his academic position at Johns Hopkins in 1909. Soon afterward, Warren became the owner of the *Review* as well and was instrumental in guiding its development and that of its cognate publications through the next 2 decades. In 1925, he sold the *Review* to the American Psychological Association on generous terms of credit which he terminated early. Meanwhile, Warren, after Baldwin's departure to Johns Hopkins, had full responsibility for the building of psychology at Princeton, where his task, similar to that faced by most psychologists of his era, was to separate psychology from philosophy, which he accomplished in 1920. His extensive activities on behalf of psychology kept Warren from obtaining the Ph.D., which he decided to obtain after his installation in the Stuart Professorship at Princeton in 1914, reasoning that a psychologist passing on doctoral examinations should also hold the doctorate. He managed this by teaching coursework

related to his Ph.D. at Princeton while arranging with the faculty of Johns Hopkins to supervise his dissertation, which he defended successfully in 1917 with the philosopher A. O. Lovejoy as chair. Ultimately this work, in gestation since 1903, emerged as Warren's most well-known book, *A History of the Association Psychology* (Warren 1921b). Warren, a consummate liberal academic, also became involved in issues concerned with academic freedom during his career and was a member, along with Lovejoy, of the committee of the American Association of University Professors which drafted the AAUP's 1915 *Declaration of Principles on Academic Freedom and Academic Tenure*. Throughout his career, Warren attempted to make psychology orderly through definition. He played a leading role in the creation and production of Baldwin's *Dictionary of Philosophy and Psychology* (Baldwin 1901) and was actively engaged in the American Psychological Association's efforts to define basic psychological terminology during and after the First World War. Ultimately he took on the task of the production of his own *Dictionary of Psychology*, which consumed over a dozen years and which appeared posthumously (Warren 1934). Warren himself produced little in the way of laboratory research but wrote many theoretical articles on purpose, consciousness, and general psychological outlook for both philosophical and psychological journals. He also had interests in evolution and genetics, explicitly advocated inclusion of a neural level in psychological explanation (Warren 1921a, 1927), and supported Leonard Carmichael's early work on innate behavior during Carmichael's time at Princeton. Warren also wrote an introductory textbook (Warren 1919) which he revised and reissued with Carmichael (Warren and Carmichael 1930). Toward the end of the 1920s, his vision began to fail and he wrote, in keeping with his early precise perceptual writings, on some of the effects. In 1931, Warren became interested in nudism, which was then a popular craze, and in 1932, returning from the International Congress of Psychology in Copenhagen, he spent several days at a famous nudist establishment in Germany. In his subsequent *Psychological Review* article, "Social Nudism and the Body Taboo" (Warren 1933), he described the conditions under which nudism was practiced and also his personal observations on the changes in attitude toward self-consciousness

which resulted from the nudist experience. This article has had a persistent presence in nudist literature since that time. Warren was very wealthy and gave generously of his riches to psychology: a bequest administered by his wife established the Howard Crosby Warren medal of the Society of Experimental Psychologists, first presented in 1936. The list of its recipients is a concise summary of the best contributions to an expanding experimental psychology, the realization of Warren's life work.

See Also

- ▶ Baldwin, J. M.
- ▶ Carmichael, Leonard

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Washburn, Margaret

SHOSHANA GROSS, ROBIN FREYBERG
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Basic Biography

Margaret Floy Washburn was born on July 25, 1871, in Harlem, New York, and raised as an only child. She was very close with her parents, Rev. Francis and Elizabeth Floy Washburn, who took a keen interest in her academic accomplishments. Throughout her life, she

sought academic positions that would enable her to remain close to her parents' home in New York.

It would seem that Dr. Washburn was erudite and scholarly minded from the start. Though she only entered school at age 7, she learned how to read and write well before then and spent most of her time as a child reading books and in the company of adults (Campbell and Ross 2002). For her undergraduate education, she attended Vassar College from 1886 to 1891 where she studied chemistry and French; however, her interests ultimately led her to the field of psychology.

For her graduate education, she attempted to study at Columbia University under the renowned psychologist James Cattell; however, Columbia at the time did not accept female graduate students to its University. Dr. Washburn eventually chose to pursue her studies under Edward Titchener at Cornell University. She earned her Ph.D. from Cornell in 1894 and became the first woman in America to receive a Ph.D. in psychology.

There were not many academic teaching opportunities in psychology granted to women at the time; however, Dr. Washburn was ultimately offered a position as Chair of Psychology, Philosophy, and Ethics at Wells College, which she accepted. She remained there for 6 years after which she returned to Cornell for 2 years as the Warden of Sage College, the women's dormitory, and Lecturer in Psychology. She was then offered an Assistant Professorship with complete charge of the Psychology department at the University of Cincinnati. Though she enjoyed her time there, Washburn preferred to live closer to her parents and so she accepted the position of Associate Professor of Philosophy at her Alma mater Vassar College in 1903, where she remained for the rest of her life (Dallenbach 1940). In 1908, she became the Professor of Psychology and the head of the Psychology department at Vassar College. She eventually retired from Vassar College in 1937 as Emeritus Professor of Psychology. She never married. On October 29, 1939 after a long struggle with illness, she died from cerebral hemorrhaging at the age of 69 in Poughkeepsie, New York.

Accomplishments

Through her intense academic drive, Margaret Floy Washburn was able to leave a profound mark in the

field of psychology. In addition for being known as the first woman to receive her Ph.D. in psychology, Margaret Floy Washburn is best known for her work entitled *The Animal Mind*, which she published in 1908. This text was the first of its kind to exist in comparative psychology, which addressed animal behavior and cognition. Here she collected and critically analyzed all the previous existing literature on comparative psychology, as well as attempted to answer how similar the animal mind was to human cognitive processes. Dr. Washburn expressed her opinion that animals most certainly have consciousness, though she understood how hard it would be to study (Martin 1940). She therefore focused on which methods were best to use in comparative psychological research, and how one should analyze data on the animal mind. She most adamantly advised that the ideal study of animals would be in longitudinal studies within naturalistic environments.

Dr. Washburn was a prolific writer and besides for her work *The Animal Mind* (1908) was also recognized for her other writings such as her *Movement and Mental Imagery* (1916) where she first presented her own motor theory based on the notion that thoughts require movement, and her *Psychologies of 1930* (1930) where she related the different psychological perspectives in 1930 to motor theory.

Dr. Washburn's academic achievements and contributions to psychology extend well beyond her written works. She functioned as a member of the American Psychological Association (APA) Council from 1912 to 1914, was the vice-president of the American Association for the Advancement of Science (1927), a member of the International Committee on Psychology (1929), and chair of the Society of Experimental Psychologists. Furthermore, in 1921, Dr. Washburn served as president of the APA, the second woman to ever serve in this prominent position.

Dr. Washburn also served as an editor for various publications such as the American Journal of Psychology, Psychological Bulletin, Journal of Animal Behavior, Psychological Review, and Journal of Comparative Psychology.

Among the various awards that Dr. Washburn received, such as being selected as one of the top fifty American psychologists in 1903, one specifically exceptional professional honor she received was becoming

the first female psychologist to be elected to the National Academy of Sciences in 1932.

Finally, Dr. Washburn's accomplishments not only extended to the field of psychology, but she also had a groundbreaking impact on women's educational opportunities at a time when there were few. Throughout her teaching career, Dr. Washburn passionately encouraged her students at Vassar College to focus on furthering their education. Toward the end of her life, she also gave large donations to be used for young women's educational scholarships (Martin 1940).

See Also

- ▶ [Comparative Psychology](#)
- ▶ [Titchener, Edward Bradford](#)

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Watson, John Broadus

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Basic Biographical Information

The American psychologist, John Broadus Watson, was born on January 9, 1878, in Travelers Rest, South Carolina, and died on September 25, 1958, in New York City. He is recognized as the founder of behaviorism and among the most eminent psychologists of the twentieth century (Buckley 1989).

After graduating from Furman University (1894–1899) with a master's degree in philosophy, Watson enrolled at the University of Chicago (1900–1903), where he earned a doctoral degree in psychology for research on the developmental psychobiology of the rat (Watson 1903). He also earned minors in neurology and philosophy. As an instructor at Chicago

(1903–1908), he extended his research to the sensory systems involved in animal learning and investigated the evolutionary basis of behavior in ethological studies of terns. Moving to Johns Hopkins University (1908–1920), he became the department chairperson, continued his ethological studies, conducted research on animal psychophysics, and founded behaviorism as a system of psychology in his 1913 article, "Psychology from the Standpoint of a Behaviorist" (Watson 1913).

Following that, Watson became a systematist (e.g., describing the nature and scope of comparative psychology), was elected president of the American Psychological Association, edited its most prestigious journals (e.g., the *Psychological Bulletin*), and established a research program on the biological and behavioral basis of human emotion. After service in World War I (1917–1918), he continued this research and advanced psychology as a science (Watson, 1919). In 1920, a personal scandal forced his resignation from Johns Hopkins, but he was soon a successful advertising executive with J. Walter Thompson in New York City (1921–1935). During this time, he promoted behaviorism in magazine articles and books (Watson 1924, 1930) and became the first "pop" psychologist (e.g., Watson and Watson 1928). In 1945, he retired from William Esty and Company and lived reclusively in rural Connecticut until his death (Watson 1936).

Major Accomplishments/Contributions

Among Watson's major accomplishments and contributions were founding behaviorism, accounting for mind, and analyzing emotional development, all of them contributions to psychological theory. First, Watson made behavior, not mind, what psychology studied, but he held two views on the matter. In a metaphysical view, he denied the reality of mind; it was a prescientific construct and illogically used (e.g., in circular reasoning, affirming the consequent). In a methodological view, he accepted the reality of mind, but set it aside from science because it was not intersubjectively verifiable. This form of behaviorism was predominant in psychology for several decades, while a weaker form dominates psychology today: behavior is what psychology studies, but is no longer psychology's subject matter. Psychology's subject matter is the mind, whose structures and functions are inferred from behavior.

Second, although Watson rejected mind as a construct, he had to account for the activities identified by the concept of mind. Initially, he identified them with thinking, which he located in the larynx as subvocal speech – a motor theory of mind. Later, he identified mind with the covert activity of the sensory systems (i.e., awareness) and private and public responding to them (i.e., consciousness), which sometimes mediated other behavior. However, he never developed a comprehensive account of how consciousness and its mediational functions developed. B. F. Skinner (1904–1990) did that.

Third, Watson analyzed the emotional development of infants and children. He observed conditions that elicited their biologically based love, anger, and fear reactions (e.g., response restriction). He demonstrated the behaviorally based extension of these reactions to other objects and events through classical conditioning and stimulus generalization (see I. P. Pavlov, 1849–1936). And he eliminated conditioned emotional reactions through extinction and counterconditioning, methods still used today in behavior therapy.

These accomplishments and contributions made Watson the founder of behaviorism, both metaphysical, like Skinner's, and methodological, like cognitivism's.

See Also

- ▶ [Angell, James Rowland](#)
- ▶ [Dunlap, Knight](#)
- ▶ [Lashley, Carl](#)
- ▶ [Skinner, B. F.](#)

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Wechsler, David

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David Wechsler was a clinical psychologist and researcher who authored more than 60 books and articles on the structure and assessment of intelligence and created the Wechsler scales, a series of assessment instruments popular throughout the world.

Basic Biographical Information

Dr. David Wechsler was born in Lespezi, Romania in 1896, the youngest of seven children. At age 6, he moved with his family to New York City, where he attended school, graduating with his bachelor's degree from City College in 1916, then his master's degree the following year from Columbia University under the tutelage of Robert Woodworth. Wechsler's career in intelligence testing began in an unlikely location when he joined the army as a psychologist in 1918. He was stationed briefly at Camp Yaphank on Long Island before transferring to Camp Logan, Texas. Wechsler worked extensively on screening draftees alongside a number of prominent figures, including Army Alpha developer Robert M. Yerkes, statistician Karl Pearson, and prominent cognitive researchers Charles Spearman and Edward Thorndike. He went on to study with Spearman and Pearson at the University of London as an army student, then conducted extensive research in experimental psychology at the University of Paris until 1922. After a brief summer at the Boston Psychopathic Hospital, he returned to New York City and took a job as a psychologist with the Bureau of Child Guidance.

Wechsler completed his doctoral dissertation, titled "The Measurement of Emotional Reactions: Researches on the Psychogalvanic Reflex," in 1925, once again under Woodworth at Columbia University. The following year he began his private clinical practice. In 1932, Wechsler became chief psychologist at Bellevue Psychiatric Hospital, a position he would hold with distinction for 35 years. He also joined the faculty at New York University College of Medicine in 1933, serving as clinical professor in psychiatry. This marked the third and most productive phase of Wechsler's career.

In 1934, Wechsler married his first wife, Florence Felske, who died shortly after in a tragic auto accident. He later married Ruth Halpern in 1939, with whom he had two sons, Adam and Leonard. Wechsler continued to work developing numerous cognitive assessment instruments over the next three decades through his long affiliation with the Psychological Corporation. He retired from his positions at Bellevue and New York University in 1967, the same year he became Beber Visiting Professor of Clinical Psychology at Hebrew University in Jerusalem, whose psychology department he founded. He also held a number of eminent positions, including Trustee of the American Board of Examiners of Professional Psychology and President of the American Psychopathology Association.

Wechsler died in 1981 at his home in New York City.

Major Accomplishments

David Wechsler published more than 60 books and articles on the structure and assessment of intelligence. His series of books on assessment, including “The Range of Human Capacities” (1935) and “The Measurement of Adult Intelligence” (1939a), depicted his evolving view of intelligence as a multifaceted construct representing “the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment” (1939, p. 3). In “Non-intellective Factors in General Intelligence” (1940), Wechsler argued that the technical, compartmentalized structure of contemporary cognitive assessment ignored important noncognitive factors such as emotion, temperament, and impulse.

Wechsler incorporated these concepts into his renowned cognitive assessment instrument, the Wechsler Intelligence Scales for Children (1949), an adaptation of the Wechsler-Bellevue Intelligence Scale published 10 years earlier. The Wechsler Adult Intelligence Scale (1955) and Wechsler Preschool and Primary Scale of Intelligence (1967) followed, along with several other instruments assessing memory and other cognitive aspects. Wechsler’s scales featured a number of innovations, such as restructuring intelligence following Cattell’s Gf-Gc dichotomy and replacing Binet’s mental age with his own Deviation IQ, the preeminent scale for IQ today. Since their first publication, these instruments have been revised and re-normed numerous times, collectively forming one of the most widely

used assessment systems in the world for cognitive ability and academic achievement.

Wechsler’s immense contributions to both the theory and practice of intelligence testing earned him several prestigious honors, most notably the American Psychological Association’s Distinguished Professional Contribution Award in 1973. His work has become a cornerstone of intelligence testing, influencing the fields of psychology, neuroscience, industry, and education, and solidifying his legacy as a pioneer and central figure in modern assessment.

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Wegener, Philipp

CLEMENS KNOBLOCH

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Basic Biographical Information

Philipp Wegener was born on July 20, 1848, the son of a protestant minister in Neuhaldensleben near Magdeburg (Germany). He was educated in Magdeburg’s *Gymnasium zum Kloster unserer Lieben Frauen* where later on he was to teach for a decade (1876–1886). In 1876, Wegener took up his university studies in Marburg, from where he soon moved to Berlin. He studied Classical and German Philology, comparative linguistics, and philosophy. After his doctoral dissertation on the history of the Greek and Latin case systems (1872), Wegener entered upon a career of high-school teaching. His academic teachers had been Moritz Haupt and Ernst Curtius in the field of philology, Friedrich Adolf Trendelenburg in philosophy, and the general linguist

and psychologist Heyman Steinthal. Wegener worked as a high-school teacher in Treptow (Pommern), Zeitz, Magdeburg, and Neuahaldensleben before he was appointed headmaster of the Greifswald Gymnasium. There he remained for the rest of his career. Wegener died in Greifswald on March 15, 1916, aged 67.

Major Accomplishments/ Contributions

In the history of linguistics, Wegener is considered a minor figure in the Neogrammarian movement – with considerable influence on the Neogrammarian view of syntax and dialect though. In psychology, Wegener's accomplishments lie in the field of language processing and communication. The Leitmotiv-questions of Wegener's main work are: "What is the function of language?" and "How do we understand language in our everyday life?" His answers can be considered proto-pragmatic in that they elaborate on utterances as social and communicative actions. Communicative function is thought to be the main motive of linguistic structure as well as the *movens* of linguistic change. The principle aim of speaking is to influence the state of mind, will, or action of the person(s) addressed. From the very beginning, speaking is purposeful action and not just expression of thought or sensation (as most of Wegener's contemporaries assumed). The relative ease of adult speaking (in accordance with the rules of grammar as well as the norms of social action) results from the continuous mechanization of means in language acquisition. According to Wegener, children first use words in the manner adults use sentences (a view which has become common knowledge since). In addition, children's one-word-utterances are shown to be "imperative" in character. They direct the addressee's actions in the field of joint attention. Being "imperative" is a quality that words retain to a degree, even if they become mechanized means of speaking in due course of time.

Any utterance relies on the assumption that the hearer can link its action value to the situation at hand. When speaking becomes more elaborated, it has to establish means to organize situational links verbally. This results in a functional bipartition of utterances. There are segments clarifying situational links and securing the preconditions of understanding (called "exposition" by Wegener), and there is the main point the speaker wishes

to make (awkwardly called "logical predicate" by Wegener). The logical predicate always contains what is new and important in the speaker's utterance. This bipartition roughly corresponds to the theme/rheme – architecture in linguistic functionalism of the twentieth century. But it surpasses the wisdom of modern linguistic psychology in its insistence on active contextualization of linguistic means by speaker and hearer. Just like modern functionalism in syntax, Wegener thought that most of the structural features of natural languages are the result of mechanized and grammaticalized discourse function. He traces the origins of grammatical constructions to their prototypical discourse function. All linguistic signs are considered to have been originally predicates that assume a wide range of secondary functions by combination and interplay with other signs.

Considerable attention has been paid to Wegener's analysis of situation and context. Three types of situational context are introduced: perceptual situation includes the ongoing activities and orientations of speaker and hearer. The second layer of situational context is provided by memory and links directive values of the utterance to past (common) experience. The third layer is called cultural situation and holds common knowledge and belief, shared by all competent members of a culture. Everything that can be uttered in or predicated upon a given situation, serves at the same time to recall that situation in its absence. Wegener's analysis of situational factors in understanding was later continued in Karl Bühler's theory of language and in British contextualism (Alan Gardiner, John Rupert Firth, Michael Halliday).

Wegener was very critical of the linguistic psychology of his contemporaries who relied solely on the expressive values of the linguistic sign. He termed their view "monological" and insisted on the dialogical character of all language. Consciously taking the stand of the sober everyday language user, Wegener held that (pragmatic and semantic) meaning of utterances consists mainly in learning to expect what their actual use in communication results in. This is why some historiographers put him in line with early behaviorism, which is not quite correct.

Wegener's *Untersuchungen* (Wegener 1991 [1885]) are his only book size publication and contain the bulk of his communication theory. Most of his other publications are school programs, treating subjects from the

history and methodology of education. Detailed accounts of Wegener's minor publications can be gathered from Grimm-Vogel (1998). In the (posthumously published) *Wortsatz* (Wegener 1921), Wegener aims at classifying the numerous variants of one-word utterances, claiming their priority over syntactic structure and arguing that a great many communication problems can be solved (and actually are solved) by means of monorhematic speech.

In the tradition of German *Sprachpsychology*, it was mainly Karl Bühler who later on advanced the understanding of Wegener's accomplishments. That understanding language sets out from the actional embedding of utterances in multiple contexts, is crucial for Bühler's approach to linguistic psychology.

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Weiss, A. P.

DAVID C. DEVONIS

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Basic Biographical Information

Born: September 15, 1879; Died: April 3, 1931.

Albert Paul Weiss was born in Germany. His family moved to the USA when he was very young and he grew

up in the transplanted German community of St. Louis, Missouri. After beginning a career as an engraver, he matriculated at the University of Missouri at age 27, obtaining the B.A. in 1910 and the M.A. in 1912. By chance, he encountered the iconoclastic German-American psychologist ► Meyer, Max F. in 1909: He became Meyer's student and attained the Ph.D. degree – the only one sponsored by Meyer – from Missouri in 1916 (Weiss 1916). In 1912, Weiss had begun teaching at The Ohio State University, a colleague of ► Pintner, Rudolf and others who created the strong applied psychology emphasis there. He remained there for the rest of his relatively short professional life, from 1918 onward as Professor of Experimental Psychology.

Major Accomplishments/Contributions

At the time Meyer and Weiss met, Meyer was ready to publish his major theoretical contribution, *The Fundamental Laws of Human Behavior*. In this view, human movements – the basic datum of psychology – result from biologically and chemically determined antecedents mediated by a nervous system. By this monistic and reductionistic formulation, Meyer intended to exclude mentalistic discourse from psychology: Several commentators concur in calling Meyer's approach the first viable consistently behavioristic psychology in the USA. Weiss adopted Meyer's point of view and in 1925 published his own theoretic synthesis, *A Theoretical Basis of Human Behavior* (Weiss 1925b): A second revised edition followed four years later. Weiss placed special emphasis on observable social effects as the best measure of behavioral consequences, on the principle that behavioristic analysis is more concerned with the actions of others rather than self. He proposed a sociocultural metric expressed as a combination of absolute social status and relative position among others of the same status. He connected this social dimension of behaviorism explicitly to social evolution, and extended it as well to developmental psychology through programmatic research at Ohio State on the biosocial aspects of infant behavior (Weiss 1929, 1930). He also adopted and extended Meyer's account – based on the ideas of Lazarus Geiger – of thought as inner speech, related to humans' shared social activity.

Language, in Weiss's system, is key to bridging the gap between biophysical antecedents of behavior and socially significant consequences. If language is often ambiguous, disambiguation of utterances is straightforwardly achieved by reference to their social context, and unambiguous language is an indicator of underlying sensory and neural regularity. Weiss's mature behaviorism was expressed as a set of postulates describing synchronous, equivalently real though formally incommensurate levels of analysis (Weiss 1925a). Rather than an attack on introspection, Weiss saw his work as a positive statement of principles which could incorporate even introspective data if such data revealed a new measureable quantity of sensory activity. Indeed, much of his published work deals in some way with the problem of consciousness (e.g., Weiss 1919), though for the most part he saw consciousness as superfluous or unnecessary to psychological explanation, and took those psychologists most strongly identified with the study of consciousness, for instance Leonard Troland, to task (Weiss 1926). By 1930, Weiss's theory had lost ground against competing behaviorist systems grounded in comparative psychology: that and his early death diminished his influence in the field, although his system was included in several subsequent accounts of behaviorism. Also, he was not committed to perpetuating his theoretical system through his students: He was a significant influence and support for an eclectic group of mostly applied psychologists including the psychometric specialist ► [Paterson, Donald G.](#), the artist and art educator Bertha Couch Cox, the developmental psychologists O. C. Irwin and Wayne Dennis, and Alvah Lauer, best known for his work at Iowa State University but begun with Weiss and others at Ohio State, on factors related to driving safety (Weiss et al. 1930). The most explicit effect of Weiss's theoretical behaviorism was on a linguist, specifically on the behavioristic account of linguistics by Leonard Bloomfield, Weiss's colleague at Ohio State between 1921 and 1927.

See Also

- [Meyer, Max F.](#)
- [Paterson, Donald G.](#)
- [Pintner, Rudolf](#)

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Weld, H. P.

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Basic Biographical Information

Born: September 22, 1877; Died: October, 1970.

Harry Porter Weld was born in LaGrange, Arkansas and later moved to Ohio, where he graduated from The Ohio State University with the Ph.B. in 1900. There he collaborated in compiling a collection of Ohio State college songs, *Songs of the Scarlet and Gray* (Gayman et al. 1900). After some further musical training at Shepardson College in Granville, Ohio, he taught as Professor of Music at Peabody College for Teachers in Nashville, Tennessee until 1910. He entered Clark University as a fellow in psychology (1909–1910), publishing an article on the mechanism of the voice and its hygiene (Weld 1910) and then serving as a research assistant to John Wallace Baird and as an instructor through 1912. His 1911 Ph.D. work was a plethysmographic and pneumographic study of the emotional response to music which included an analysis of the sensory dimensions of musical pleasure

(Weld 1912). From 1912 onward he was associated with Cornell University, full professor from 1919 and chair of the Department for nine years after Madison Bentley's retirement in 1939.

Major Accomplishments/ Contributions

Weld sponsored and published research with Cornell students on several perceptual subjects including the Bourdon rotation illusion and on changes in perceived meaning under various conditions of sensory fatigue or delay. One of his most prominent students was Forrest L. Dimmick, the eminent sensory and color scientist. Toward the end of his career, Weld developed an interest in the psychology of testimony, especially in the process involved in forming a jury verdict, and contributed articles and a textbook chapter in this area (Weld and Roff 1938; Weld and Danzig 1940; Weld 1954). These are still cited in the psychology-law literature. However, experimentation was not Weld's forte: His strength lay in his theoretical bent, his editorial abilities, and his general erudition. Just before the end of the Titchener period, he prepared a mimeographed set of notes for a course he offered on the relation of psychology and science. These notes were elaborated into a book in 1927, *Psychology as Science: Its Problems and Points of View* (Weld 1928), which was followed a year later by literally the last word of Titchener's psychology, the posthumous *Systematic Psychology: Prolegomena*, which Weld edited and for which he provided a preface (Titchener 1929). Both works restate the Titchenerian distinction, grown less common in psychological thinking by this time, between "empirical" psychology, with roots in Brentano evolving into various forms of functionalism, and "existential" psychology, with roots in both Wundt and Avenarius, evolving into the experimental analysis of conscious sensory experience. Contemporary critics observed that Weld's view in *Psychology as Science*, conciliatory toward applied psychology and technology, appeared more similar to the more inclusive systematization of Bentley, who returned to Cornell after Titchener's death.

After 1929, Weld teamed with ► [Langfeld, Herbert Sidney](#) and ► [Boring, E. G.](#) to edit a series of introductory textbooks intended to provide a comprehensive

structure for the discipline. These books which appeared in three versions over 13 years – *Psychology: A Factual Textbook* (1935), *Introduction to Psychology* (1939), and *Foundations of Psychology* (1948) – contained chapters by experts and presaged the scope of content of current comprehensive psychology textbooks. These "BLW" books, as they were called at the time, are a sensitive barometer of the shifts in interest and knowledge in the field, a tribute to the accuracy and relative neutrality of this editorial group (Webb 1991). Weld contributed coauthored chapters to the 1939 version including Perception, with Shammai Feldman, and Spatial Perception, with Robert MacLeod. The BLW team also edited a companion *Manual of Psychological Experiments* in 1937. Weld, steeped in the historical literature of experimental psychology, was an uncompromising critic: His generally positive review of the first edition of E. G. Boring's *History of Experimental Psychology* (Weld 1931) concluded with a list of 50 corrigenda, which depressed Boring as much as it must have impressed him. Apparently, it was no bar to productive collaboration.

See Also

- [Boring, E. G.](#)
- [Langfeld, Herbert Sidney](#)
- [Titchener, Edward Bradford](#)

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Wells, Frederic Lyman

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Basic Biographical Information

Born April 22, 1884; Died June 2, 1964.

Frederic Lyman Wells was the son of Benjamin Wells (Ph.D. Harvard, 1880), professor of languages and comparative literature at the University of the South at Sewanee, Tennessee, where Frederic grew up. He moved with his father in 1899 to New York and entered Columbia University. Graduating in 1903, he entered directly into the Columbia graduate program, where he studied the psychology of language, completing a doctoral thesis on linguistic lapses and also conducting a statistical survey of literary merit. After the doctorate, he took over the position in clinical psychology at McLean Hospital in Waverly, Massachusetts, a vacancy created by Franz's move to St. Elizabeth's in Washington, D. C. in 1907.

Major Accomplishments/Contributions

Wells was among that group of psychologists who pioneered clinical psychology in hospital settings. His early professional activity ranged over several areas: in his first 5 years at the McLean laboratory, he completed monographs on the therapeutic use of electricity (Wells and Forbes 1911), on Freudian interpretation, and on laboratory equipment and procedure in an abnormal psychology setting, and also authored, with R. S. Woodworth, a major part of the report of the committee composed of C. H. Judd, W. B. Pillsbury, C. E. Seashore, R. S. Woodworth, and J. R. Angell of the American Psychological Association on test

standardization (Woodworth and Wells 1911). Woodworth and Wells offered, along with their meticulous review of association testing, a test they devised, the Substitution Test, which, because it was a nonverbal test both in content and direction, soon made its way into Pintner and Paterson's 1917 performance test scale, influential for several years among testers and test developers. In 1910, Wells spent a year with August Hoch and George Amsden at the New York State Psychiatric Institute at Wards Island, NY, learning their system of personality analysis, in which a composite picture of personality emerged from the combination of the results of multiple tests and self-reports. Wells's 1914 article (Wells 1914) synthesizing this method was an early bridge between psychiatric and psychological personality theory. Wells's career from this point on consisted mainly in teaching psychometrics and writing extensively on clinical psychology and, often, on other general psychological subjects. Like Franz, Wells was sensitive to the precarious position of the clinical psychologist in the medical establishment and contributed several articles describing inherent tensions between medicine and psychology in education and in practice. Wells moved to the Boston Psychopathic Hospital as chief clinical psychologist in 1921 and from then onward was affiliated with Harvard University. In the 1920s, he conducted several empirical studies of sensation and attention (and, in connection with these, mentoring Gardner Murphy at an early stage of his career) and wrote two books, *Pleasure and Behavior* (Wells 1924), an overview of the concept of pleasure as it had then developed in psychology, and, in 1927, *Mental Tests in Clinical Practice*, (Wells 1927) which was used for many years as a standard text in clinical psychology graduate programs. However, although Wells's extensive contacts among personality theorists and psychometrists in the Boston area placed him at the nexus of a large network of practitioners, theorists, and teachers developing the intellectual basis of personality theory, he played only a supporting role: for example, he was only peripherally represented in the comprehensive edited volume on personality dedicated to Morton Prince (Campbell et al. 1925). Wells the teacher kept abreast of changing technologies of testing and was one of the early proponents of the Rorschach, mentoring Sam Beck and

writing on the relation of the Rorschach and association tests (Wells 1935). By the mid-1930s, in association with Johnson O'Connor, Wells had turned from pathological psychology to the study of normal individuals and, in 1938, joined the Harvard Grant Study as a psychometric specialist and remained affiliated with it through the early 1950s. In this capacity, he authored numerous reports on the Study's findings. Wells retired to McLean hospital, where he performed everyday jobs and wrote on the stresses inherent in the role of caregivers in mental hospital settings. Wells, along with his brother Henry W. Wells, professor of comparative literature at Columbia, and Henry A. Murray, became an intimate of the poet-psychiatrist Merrill Moore, whom he trained in psychometrics and Rorschach testing in the early 1930s, and contributed a psychometric analysis of Moore's personality to the British literary journal *Life and Letters Today* (Wells 1939). Wells's friendship with Moore underscores Wells's conviction that, beneath the technical apparatus of testing and psychiatric procedure lay a fundamental layer of art, a point of view that emerged rarely but clearly in his writings (e.g., Wells 1946).

See Also

- ▶ Franz, Shepherd Ivory
- ▶ Murray, Henry A.

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Werner, Heinz

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Every field can be characterized as having enduring analytical problems which must be deeply addressed, and issues which become topics of heated contemporary/temporary discourse. This entry is written in the spirit that both the enduring analytical problems and the issues of contemporary discourse have an important place in considering the contribution of theorists.

Entering a theorist into an encyclopedia is inevitably relegating his or her ideas to the past – to be consulted as “what was” instead of “what could or should be.” In dealing with theorists such as Heinz Werner, this is particularly misleading since many of the issues he addressed remain pertinent, important, and substantially unaddressed to this day.

This entry is written in the spirit that much of what Werner had to say is particularly relevant today. Many of the interests in the field have changed, many of its core methodologies have been redefined, but in a major sense, and for historical reasons, much of the story to be told is still untold.

Excellent chronologies of Werner's career, broken into four major phases: his discovery as a rising talent in Austria and Germany, his displacement by the Nazi takeover, his long search for an academic position in the USA, and his construction of a unique school of Developmental Psychology at Clark University have been well described and documented by Wapner and Kaplan (1964), Witkin (1965), and Valsiner (2005).

Heinz Werner was born 6 years before Jean Piaget and L. S. Vygotsky whose centennials have been celebrated and whose theories are still cited by many as contemporary references. Werner died in 1964, 30 years after Vygotsky's death in 1934, and 16 years before Piaget's death in 1980. Jaan Valsiner, in his masterful

book on Werner, *Heinz Werner and Developmental Science* (2005) raises the issue of why Wernerian Psychology seemed not to have outlived Werner, while followers of Piaget and Vygotsky still abound. These theorists and those related to them are often “reference-points” for contemporary discourse while Werner seems to have disappeared. This is particularly puzzling in light of the massive historical displacements (between authorship and acceptance) involved.

Werner’s life was profoundly influenced by the turbulences of the twentieth century both personally and theoretically. It is misleading to speak of the development of developmental psychology without taking into account the historical factors that deeply influenced not only the formation of theories, but also the conditions of their acceptance. Developmental theory has often been “consumed” in the context of pressing national concerns.

Born in Vienna in 1890 and receiving his degree from the University of Vienna where he worked in Exner’s lab, Werner made many of his early contributions in Hamburg, Germany, where he was hired as the principal member of William Stern’s laboratory (Kreppner 2005). Hamburg was an intellectual center, with Ernst Cassirer, Martin Scheerer, and Jakob von Uexküll as other major figures. It was home to a major ethnological museum where many ethnographic descriptions and artifacts were collected. Much of this material found its way into Cassirer’s magnum opus, *The Philosophy of Symbolic Forms* (1970). Some of that material also found its way into Werner’s theorizing.

While Werner was thriving in this environment, the newly elected Nazi government closed the Stern laboratory in 1933, leading, in one case, to the suicide of a major contributor (Martha Muchow) and to the exodus of those who could get away. Werner left Germany, and after a brief stay in Holland struggled to find a secure academic position in the USA. His travels were far and wide, with visiting positions at the University of Michigan, Harvard, and Brooklyn College, and a long stint at the Wayne Training School (for the developmentally challenged, in modern parlance). He finally found an academic home from 1947 to 1960 where he was named G. Stanley Hall professor in 1949 while he directed and formed the Psychology department at Clark University, with Seymour Wapner and Bernard Kaplan as close colleagues.

Throughout his career, Werner remained an experimentalist, seeking to synthesize emerging experimental and ethnographic data into a comprehensive description of developmental process. He saw all phenomena as essentially developmental ranging micro-genetically from the time processes involved in perception of contours or the understanding of words to macro-genetically looking at developmental aspects of cultural differences. This led to his publishing a masterful book describing and analyzing development which became known in English as *The Comparative Psychology of Mental Development* (first published in German in 1926 with a second edition in German in 1933 and then in English editions starting in 1940, with a second edition in 1948, third and fourth German editions in 1953 and 1959, and a third English edition in 1957) e.g., Werner (1957). He officially retired in 1960 and continued working until his death in 1964. A year prior to his death he published *Symbol Formation: An Organismic-Developmental Approach to Language and the Expression of Thought* with Bernard Kaplan.

At one time, Werner’s voice was among those of Piaget’s and Vygotsky’s in articulating a view of development that significantly differed from the behaviorism that had been rampant in American Psychology until the late 1950s.

Werner’s death in 1964 came roughly 2 years after the recognition of Piaget by important institutional representatives of developmental psychology in an SRCD monograph, published in 1962, edited by Kessen and Kuhlman (1962) representing the results of the Dedham conference held earlier about the nature of and future of Developmental Psychology. Vygotsky’s work was also made available to a large audience in the English Speaking world with the publication of *Thought and Speech* also in 1962 (Vygotsky 1962).

I have shown elsewhere (e.g., Glick 2004) that the initial recognition (in the USA) of Piaget was fueled by the aftermath of a major “shock” in the cold war relation of the USA and the USSR precipitated by the launch of Sputnik in the late 1950s and the consequent belief that the USA was losing a technological war. Piaget’s theory largely was identified in the popular and theoretical imagination with the development of logic, and with that the Science, Technology, Engineering, Mathematics (STEM) disciplines that became

a dominant focus in the context of a cold war mentality where technological advance was equated with national threat or success. Ironically, Vygotsky, who died well before the beginning of World War II, was “rediscovered” in the late 1970s, virtually as an “answer” to the structural conservatism of Piagetian theory. New social needs had arisen as a result of the Civil Rights Movement and the continuing Cold War. The structural limitations inherent in Piaget’s theory were supplanted by a notion which became identified with Vygotsky – that development could be accelerated in the Zone of Proximal Development. This “answer” to Piaget became amplified by a steady stream of “newly discovered” Vygotsky manuscripts that began to appear from Russian archives and put into visiting American scholars’ hands.

Somewhere in the process of the introduction of Piaget and the later rediscovery of Vygotsky, Heinz Werner’s psychological contributions became dwarfed and, to a great extent, muted. Werner’s death in 1964, after a long illness, effectively kept Wernerian psychology out of this particular “mainstream” argument (Glick 1983).

Ironically, though effectively out of the cold war/civil rights dialog between Piagetian and Vygotskian schools, Werner’s ideas are becoming increasingly relevant to contemporary issues facing educational policy.

During his brief stay, as a visitor at Harvard University, Werner wrote an important paper in 1937, distinguishing between an analysis in terms of “process” and analysis in terms of “achievement” (Werner 1937). The fundamental idea of that paper was that an “achievement,” for example, brightness constancy (in the particular case that Werner analyzed in that paper), could be achieved by a number of very different processes ranging from a sensorimotor reaction at the pupillary level (the pupil widens or contracts in relation to ambient light conditions) to a linguistic and conceptual level where what is known dominates whatever the perceptual conditions (“we know that coal is black even though under this intense light it might look white”).

The distinction between “process” and “achievement” is in principle different from either the notion that there are structural limitations, or that there are not. It basically says that what looks like the same (correct or incorrect) response can be based on very

different underlying processes, and it is these that must be understood (Glick 1994). In the remainder of this entry I will focus on the contemporary significance of the Wernerian project, as it relates to the idea of “development” on the one hand, and the distinction between “process” and “achievement” on the other. Both of these issues can be seen to be at the core of current concerns with educational policy and the “metrics” that may be applied to judge whether educational goals have been achieved.

What is Development?

Werner’s career interests had several important touch points that resulted in a form of developmental psychology that is distinctly different from many contemporary concerns. The key to this difference is in treating development as “organismic” – deeply rooted in the person, both culturally and physically. As an example, Werner and Wapner developed a theory of perception called Sensori-Tonic Field Theory that stood in opposition to the cognitivist “new look” psychology. Their essential point was that perceptual phenomena were not simple outcomes of cognitive processes (e.g., seeing a red spade card stimulus as black) but were as much the result of the relation of bodily states to stimuli: that things were not “only” cognitive, they were also “organismic.” This approach was extended by Werner and Kaplan (1964) into a distinct approach to symbolic activities in general.

Throughout his career, Werner was interested in developmental issues particularly related to “meaning” (Werner 1983). His earliest work was on the “origins” of such meaning forms as metaphors, and lyric beyond the search for cultural “origins” of such forms Werner sought to understand their developmental trajectory, starting with the study of the development of “micro-scales and micromelodies” and continuing through his last work on Symbol Formation.

Werner, throughout his career, kept in touch with the experimental literature on developing children, ethnography, and linguistics. He developed a unique principle – The Orthogenetic Principle – which looked at developmental phenomena in terms of their “form” and not their temporal placement in a life trajectory. Not all that occurs “later” is more developed. The Orthogenetic Principle states that wherever there is development, it is characterized by increasing

differentiation and hierarchic integration. This principle, in effect, means that developmental analysis can be applied broadly to a wide range of phenomena, and not just to those phenomena involving changes that occur from infant to adult. Successive drafts of a dissertation, for example, could be looked at as developmental phenomena. A life's work could be looked at in the same way. This broad application is signaled by the "ortho" in the Orthogenetic Principle.

Developmental Theory and Education

In the years surrounding Werner's death, the topics addressed by developmental psychology and developmental psychologists subtly changed, at first, and then changed radically. With the fascination with Piaget's theory as an "answer" to technological advance, interest shifted to whether, and how, development could be advanced or accelerated. Many "training" studies were conducted to see if there could be an acceleration of the development of logical forms. While, in Piaget there is still concern for the "form" of a developmental achievement, the concern was whether a given phenomenon was "truly" an operational achievement or a simulacrum of it (see, e.g., Piaget's distinctions between "reversability" or "renversibility" (Piaget, *passim*)).

However, these distinctions between "true" and "simulacrum" pointed out that there were structural limitations on the degree to which development could be accelerated. While simulacra could be created within training studies, the desired structural advances could not be easily produced.

Throughout the 1960s and 1970s, Piagetian concerns, and the concerns with overcoming the essential structural conservatism of the Piagetian position, were of central importance to many developmental psychologists with many attempts at "acceleration" of development ultimately frustrated by research findings.

An "answer" to the structural limitations of Piagetian theory was presumably supplied by the work of Vygotsky, reintroduced into contemporary discourse in 1978 with the synthesized and edited publication of "Mind in Society" (edited and pieced together from several different manuscripts) by Cole, John-Steiner, Scribner and Soubermann, which focused on the idea that structural limitations could be overcome since development occurred within a "Zone of Proximal

Development" where a child's unaided performance could be improved with the help of a more knowledgeable other (Vygotsky 1978). The ZPD came to be seen as emblematic of the work and position of Vygotsky, although Vygotsky himself mentioned the ZPD in only limited contexts.

Notions of "scaffolding" and acceleration by collaborative action began to dominate discourse as if, finally, an answer to Piaget had been found in the ZPD. These notions had profound implications for the relation between developmental theory and educational practice.

In an increasingly global economy, and with the competition between nations shifting out of a "Cold War" context, the educational system of the USA came under increasing scrutiny. Were schools merely an instrument of maintaining social inequality (in terms of manifest differences between rich and poor, black and white)? Were American schools failing American children in a global competitive context? Demands for "accountability" of the educational system increased, culminating eventually in the "No Child Left Behind" act, passed in 2001 and signed into law in 2002, which tied school funding to scores on achievement tests.

NCLB was a logical outcome of theoretical developments that began with the space race, and was accelerated by the Civil Rights movement, and which found political form in funding decisions based on achievement test outcomes.

It is precisely at this point where the fundamental insights of the Wernerian approach are most sorely missed. The focus on achievement (as represented in test scores) seems to ignore the fundamental distinction between Process and Achievement that was deeply routed in Werner's sense of what is involved in developmental process. It similarly ignores the theoretically critical distinction between developmental process and measured achievement. If achievement can be accomplished by a number of homologous processes which are of different developmental status, then what is being measured, and being taken as "accountable" is virtually unconnected to any sense of development. An achievement test score is not the same as a developmental advance.

Many of the critiques of the NCLB legislation are that large parts of the school curriculum are taken in anticipation of standardized achievement tests, and

that much school time is taken up with test preparation, with little attention being paid to development taken in larger and wider context. Process is thereby subordinated to achievement.

Forms and Factors

Much of the importance of Werner's theorizing hinges on a critical feature of developmental theorizing. Development may be seen in terms of factors that accelerate, or retard developmental progress. Much contemporary research addresses issues related to this problem. But what remains unaddressed is the more fundamental issue of what development is. Is it higher scores on tests of achievement? Or, is it something that may be identified in terms of its fundamental form and meaning within a developing life. These are different questions. In Aristotelian terms, the search for accelerative factors refers to material and efficient causes while the later question hinges on the equally important final and formal causes.

The task facing developmental analysis is similar to the task that Aristotle set centuries ago. How can we find a level of analysis that takes all of these causes – material, efficient, formal, and final – into a unifying approach that sees developmental progress as something that has definite defining characteristics, and is influenced by definite and accountable factors? This task still remains before us. Developmentalists have focused on one or the other of these sets of causes. Werner's unique contribution was to develop a theory that had (the, as yet unfulfilled) promise, of providing a full picture of developmental processes, recognizing their complexity, their form, and the levels of organization that underlie what seem to be similar outcomes. The task of unraveling that knot is one that Werner set. It is a task that is increasingly needed as matters have shifted to thinking of development only in terms of its external manifestations.

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Wheeler, Raymond H.

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Basic Biographical Information

Born March 9, 1892 Died August 24, 1961

Wheeler was a late product of Clark University, taking his MA there in 1913 and the PhD in 1915. He had broad interests, which were in evidence early: his masters' work was on vocational guidance while his doctoral thesis, completed under J. H. Baird, was a thoroughgoing account, drawing deeply on French sources, of the process of choosing.

Major Accomplishments/ Contributions

Wheeler moved west and joined the University of Oregon faculty. There he met Thomas Cutsforth, a student who had become blind several years earlier, with whom Wheeler conducted several extensive studies of synesthesia, again showing vast command of the earlier Continental literature on the subject (e.g., Wheeler and Cutsforth 1922, 1925). This research figures in current investigations of synesthesia (Dann 1998). In 1925, Wheeler moved to the University of Kansas, where, with Beulah Morrison (1896–1949), the third PhD graduate of the University of California at Berkeley, he established the modern psychology department and was chair for the next 22 years. Wheeler handled the theoretical coursework while Morrison was responsible for psychometrics and other applied areas: this arrangement duplicated in miniature the successful plan of other Midwestern departments such as Iowa and Minnesota. Between 1929 and 1932 Wheeler completed several books including an introductory text, a reader, and his main theoretical work *The Laws of Human Nature: A General View of Gestalt Psychology* (Wheeler 1932). Wheeler advanced an eclectic framework that transmuted Gestalt and other psychological theories into a series of universal laws, for example, the Law of Individuation (wholes precede parts, which result from differentiation from the whole) and the Law of Configuration (interactions occur only between complex systems). Within this general framework, Wheeler advanced more focal theories, for instance his view of learning as successive stages of insight. Wheeler's work caught the popular tide of Gestalt and was, for a time at least, influential. Wheeler played another important role in promoting Gestalt psychological theory by providing an academic home at Kansas for influential Gestalt-inspired psychologists: Harry Helson was there briefly before moving to Bryn Mawr, and J. F. Brown, who combined Lewinian field theory with Marxism in his social psychology, was a regular member of the Kansas faculty from 1931 onward. Wheeler was also ready to provide asylum for Adhemar Gelb in 1935, but unfortunately Gelb died before this could happen.

During the mid-1930s Wheeler, a self-styled non-conformist (Lapan and Houghton 1995), took a path that diverged from the mainstream, starting with his

early contribution to the General Semantics movement (Wheeler 1938). Wheeler was among the most extreme environmentalists among contemporary psychologists and espoused a radical environmental and situational determinism. This led him to fixate on a project which he began around 1937 and which occupied him for the rest of his career, an extensive investigation of the influence of climate on behavior. Briefly stated, Wheeler's theory of climate classified historical periods – based on trace data such as historical weather records or dendrochronological evidence (which was Wheeler's original impetus for this research) – as either hot or cold, and wet or dry. Wheeler asserted that certain types of sociohistorical events were determined by weather and could be predicted based on the prevailing climatic conditions. Wheeler accumulated enough hand-drawn graphic data on various historical events and climatic variations to fill what became known as the “Big Book,” which was mounted on wheels because of its size, a collection which migrated to his student S. Howard Bartley's laboratory at the University of Memphis and which has since been lost. Some more portable versions exist to give a flavor of its contents (e.g., Wheeler 1951). Eventually Wheeler's iconoclasm, especially his Lamarckian views on the influence of current behavior on heredity, had a detrimental effect on his Kansas career: a personal indiscretion coupled with collegial dissatisfaction with his views resulted in his sudden removal from Kansas in January 1947. Irrepressible, he surfaced again soon at Babson College in Massachusetts. There he found a congenial environment in the company of Roger Babson (1875–1967), whose lifelong quest to find anti-gravity resonated with Wheeler's visionary style. Wheeler continued to work on his climatic theory and also contributed a short article on psychology and gravity to Babson's cause (Wheeler 1954). At Kansas, Wheeler was succeeded by Roger Barker who continued, along with Fritz Heider and others, Wheeler's holistic environmentalism in a soberer manner. Wheeler quickly dropped from view, but his ideas about cycles of climate and history continued to find an audience well after his death: his work on climate and behavior was assembled and republished in the 1980s (Zahorchak 1983) and it still has some currency, though no more validity, among those in business and other fields interested in cyclic theories.

See Also

- ▶ [Gestalt Psychology](#)
- ▶ [Helson, Harry](#)

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Willis, Thomas

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Basic Biographical Information

Thomas Willis, a seventeenth century English physician, is recognized as the founder of neurology. He lived from 1621 to 1675, during the trying times of the English Civil War, the Restoration, and London's great plague and fire. As a royalist, he was appointed by King Charles II to displace the Puritans at Oxford University, and he received the *imprimatur* of the Archbishop of Canterbury for his anatomical studies. He spent most of his adult life at Oxford, earning his

bachelor's, master's, and medical degrees, and then becoming professor of natural philosophy. Following his election as Fellow of the Royal Society, he moved to London for the final 9 years of his life. All of his lectures and books were in Latin, still customary at that time. They were translated into English shortly after his death.

Major Accomplishments/Contributions

Willis is best known for the arterial ring in the brain (the circle of Willis) that he discovered. His most famous contribution, from 1664 (in Latin), is *The Anatomy of the Brain, to Which is Added The Description and Use of the Nerves* (Willis 1681/1971). This book summarized his dissections of the brain and nervous system and provided evidence for brain localization of many psychological functions. His research team's innovations included preserving the brain and dissecting from the base up. Previous brain dissections at Italian universities, most notably by Vesalius, sliced from the top down as the brain rapidly collapsed. The book, including drawings by Christopher Wren, provided detailed coverage of the entire nervous system, showing side-by-side comparisons of human and animal brains and of normal and abnormal human brains. For the first time, it mapped out the autonomic nervous system. It reported neurophysiological experiments, such as organ failure after severing autonomic nerves and separable supplies of blood to brain regions revealed by dye inserted into cerebral arteries. The first half of this work is available as Willis (1681/1971).

Three of Willis's other books are of special interest to psychology and neuroscience: *An Essay of the Pathology of the Brain and Nervous Stock, Of Mental Conditions Called Hysteria and Hypochondriasis*, and *Two Discourses Concerning the Soul of Brutes, Which is that of the Vital and Sensitive of Man*. His neuropathology combined clinical reports of symptoms and disease progress with findings from autopsies. His psychopathology included his case-supported view of hysteria as a brain disease afflicting men as well as women. Informed by his laboratory and clinical knowledge, he discussed many psychological processes in *Soul of Brutes* in 1672, an advance over Descartes' posthumously published *Treatise on Man* in 1662. Sample

topics include interconnectivity of brain regions, voluntary vs. involuntary action, automaticity of skills, developmental disability, learning and memory, imitation, and reflexive thinking.

Much of what Willis wrote in *Souls of Brutes*, a term going back to Aristotle and including many psychological functions, developed from his lectures at Oxford. John Locke had attended them, and he heard the empiricist dictum that also goes back to Aristotle in a Willis lecture: Nothing is in imagination which has not been in the senses first. However, Willis inserted that he would rather say *brain* than *imagination* and proceeded to lay out how sensory perturbations move through parts of the brain that he had dissected. Locke reported that Willis referred to the cerebrum in infants as a *tabula rasa*, a term often attributed to Locke although he did not use it. Willis was positing a thoroughly neural account of mind while Descartes reasserted traditional dualism with reason separate from the brain. Locke rarely referred to neural bases of behavior, but when he did, it was a direct borrowing from Willis, as in associations as established neural pathways and ideas so established as not to be subject to reason but to their own natures.

Willis has been neglected and criticized by historians of psychology, who relied on earlier critics rather than their own first-hand knowledge of his work. Edwin Boring dismissed Willis's work as pre-scientific because Willis used the traditional term, *animal spirits*. But electricity had not been discovered; it was 100 years later that Galvani provided the updated term, *animal electricity*. Boring claimed that work on brain localization began in the nineteenth century, although Max Neuberger, a German historian of medicine, had dated it back to Willis's work. Gregory Zilboorg attributed medical psychology's nonpsychological orientation to Willis, although Willis was replacing soul with brain without reducing or simplifying psychological functions to the little that was known about the brain. There has been a resurgence of interest in Willis's work, including an excellent biography (Isler 1968), a popular science book (Zimmer 2004), and scholarly works (Martensen 2004; Molnar 2004).

See Also

► Boring, E. G.

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Winitz, Harris

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Harris Winitz received his Ph.D. in 1959 from the University of Iowa with emphasis in speech language pathology, child language, and psychology. His primary research emphasis was the investigation of learning principles in articulatory and child language development and disorders. He later turned his attention to the study of foreign language acquisition as a method for understanding normal and delayed language development. This endeavor motivated him to apply learning principles to the development of language learning programs for a number of foreign languages. Winitz concluded that foreign language learning should contain an extensive period of listening using picture sequences to provide the meaning of auditory-presented words and sentences. He called this teaching and learning procedure “The Comprehension Approach to Foreign Language Instruction.” In the beginning stages of language instruction, it was observed that short sentences containing common objects were quickly understood by students and that they enjoyed this approach and were eager to continue taking lessons according to this format. To introduce concepts that are not directly presented as static objects, Winitz determined that language scripts or sequences of events were critical components of the language learning process. For example, to introduce the concept of “pick up,” a sequence of dropping

followed by the action of picking up was essential in establishing the meaning of “pick up.” More complex and abstract concepts required several sequential links to establish their meaning. It was also determined that semantic fields were extraordinarily useful in establishing the meaning of abstract concepts. For example, the semantic field of “walk” was taught by teaching “walk” as the anchor word and words related to walk, such as ambulate, dash off, promenade, and hike as styles of walking. These procedures and others, Winitz concluded, enable the language student to internalize the mentalistic concepts of the second language in much the same way that first language children acquire their native language. Winitz further concluded that speaking, unlike instruction in the articulation of speech sounds, cannot be taught, but is the outcome of intensive comprehension language learning.

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Witkin, Herman A.

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Basic Biographical Information

Herman A. Witkin was an internationally renowned American psychologist, a pioneer in the study of cognitive styles, and an authoritative and respected figure working with colleagues across different areas of specialization within psychology, including comparative, Gestalt, personality, social, and cross-cultural psychology. Born on August 2, 1916, Dr. Witkin was educated at New York University, where he obtained an A.B. in Biology in 1935, followed by an M.A. and a Ph.D. in Psychology in 1936 and 1939 respectively.

While at New York University, Herman Witkin worked closely with T.C. Schneirla on studies of animal behavior. As Research Associate, he spent a year

working with Gestalt theorist Wolfgang Koehler at Swarthmore College. It was here that he met and began an extended collaboration with Solomon Asch who was conducting studies on social conformity under pressure and other related issues in social psychology. In 1940, Herman Witkin joined the faculty of Brooklyn College in New York, continuing his work on perception under the sponsorship of Wolfgang Koehler and Max Wertheimer. He taught at Brooklyn College for 12 years, between 1940 and 1952. During this period, in 1943, he married geneticist Evelyn Maisel; their two sons Joseph and Andrew were born in 1949 and 1952 respectively.

In 1952, Herman Witkin left Brooklyn College to join the Department of Psychiatry at State University of New York (SUNY) Downstate Medical Center College of Medicine in Brooklyn, NY. It was here that he conducted most of his research on cognitive and learning styles. In 1971, he joined Educational Testing Service in Princeton, NJ, where he worked as a senior research scientist until his death on July 8, 1979, following a brief illness. His wife Evelyn Maisel Witkin continued her long and successful career as a geneticist, earning numerous honors and awards, including the National Medal of Science in 2002, and over the years, their larger family grew to include several grandchildren.

Major Accomplishments/Contributions

Herman A. Witkin's main contribution to the field of psychology was the notion of cognitive style (the “how” of what we do, rather than “how much”), based on the widespread observation that individuals tend to deal with their physical and social contexts in “self-consistent” ways. He became interested in studying the role of cognitive styles vis-à-vis self-organizing and integrative processes involved in the development of personality.

Herman Witkin conducted numerous studies, many interdisciplinary and cross-cultural, on perceptual differentiation and individual differences in how individuals process information. His findings and insights occupy a central space within both cognitive and cross-cultural psychology. At the time of his death, Herman Witkin was in the midst of conducting a longitudinal interdisciplinary study of differences in

the psychological development of different groups inhabiting the Central African rain forest.

Herman Witkin's construct of "field independence-dependence" is the most widely recognized cognitive style. A field-dependent person uses external rather than internal referents, and relies more on cues and people embedded in the situation. In contrast, field-independent persons rely more on themselves, seek cues that are not context-bound, and are, in general, less influenced by peer pressure or the presence of others. In a colloquial sense, field-independent persons tend to see the "trees" and not the forest while field-dependent persons may notice the "forest" rather than the "trees."

Herman Witkin developed the Rod and Frame Test (RFT), which consisted of a glowing rod surrounded by a glowing square frame presented to participants in a darkened room. The participant's chair and the frame are tilted at different angles during the experiment and he/she is instructed to adjust the rod so that it is perfectly upright. If the participant adjusts the rod to conform to the frame, it indicates field dependence. If the participant ignores the contextual cues and uses the information from their body to adjust the rod, it indicates a tendency toward field independence. Finding the RFT cumbersome, he developed a less elaborate measure, the Embedded Figures Test (EFT) and its group version (GEFT), which measure dis-embedding, a cognitive restructuring skill that develops from one's cognitive style. Each complex pattern or picture contains an embedded simple figure or geometric shape, and the participant's task is to identify or discern the embedded shape as soon as possible. Both sets of measures were successfully validated.

His research collaborators and contemporaries included Max Wertheimer, Wolfgang Koehler, Heinz Werner, Solomon Asch, John W. Berry, and Donald R. Goodenough. After his death, new interdisciplinary research has continued to emerge on field independence-dependence in relation to a wide range of variables which include perceptual abilities (L. Zhang), reflection/impulsivity (J. Jamieson), cognitive learning processes (B. M. Frank; F. P. McKenna), language learning and acquisition as well as ESL/ELL and second language learning (C. Chapelle; A. R. Elliott), and moral reasoning (M. Bloomberg).

Herman A. Witkin was listed among 100 most eminent psychologists of the twentieth century in an article that appeared in the *Review of General Psychology* in 2002. The Institute for Scientific Information listed him among 100 most cited authors by the social sciences citation index, in the same category as John Dewey, Sigmund Freud, and Margaret Mead. In 1976, Herman Witkin was made an Honorary Fellow of the International Association for Cross-Cultural Psychology and a year later, in 1977, he received an honorary doctorate of social sciences from Tilburg University awarded by Queen Juliana of the Netherlands.

Herman A. Witkin was an author and coauthor of several prominent books and articles, including a monograph published in 1950. His first book was *Personality Through Perception* published in 1954, with two subsequent editions, followed by *Psychological Differentiation* in 1962, *Field Dependence and Interpersonal Behavior* in 1976, and *Cognitive Styles in Personal and Cultural Adaptation* in 1978. Two other books, *Cognitive Style* and *Cognitive Style, Essence and Origins* coauthored with Donald R. Goodenough were published posthumously in 1981.

See Also

- ▶ Asch, Solomon E.
- ▶ Cronbach, Lee J.
- ▶ Cultural Psychology (General)

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Wolpe, Joseph

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Basic Biography

Joseph Wolpe was born on April 20, 1915, in Johannesburg, South Africa, to Michael Salmon and Sarah Millner Wolpe (Milite 2001). He studied in Johannesburg where he obtained an M.D. from the University of Witwatersrand. At the onset of World War II, he enlisted as a medical officer in the South African army and was stationed in a military psychiatric hospital. During this time, he married Stella Ettman (1948) and had two children. When the war ended, Wolpe and his family moved to the United States where he accepted a teaching appointment at the University of Virginia (1960) but spent most of his career at Temple University Medical School (1965–1988), where he served as a professor of psychiatry. Concurrently, he directed the behavior therapy unit at the Eastern Pennsylvania Psychiatric Institute. He was the founder and served as the second president of the Association for the Advancement of Behavior Therapy, and earned a lifetime achievement award in 1995 (Milite 2001). Wolpe relocated to California after retiring from Temple University in 1988. Despite his retirement he continued to teach at Pepperdine University until a month before his death. His first wife, Stella, died of cancer in 1990, and he remarried in 1996 to Eva Gyarmati who strongly supported her husband's commitment to empirical treatment methods. Joseph Wolpe was 82 years old when he died of lung cancer at his home in Los Angeles on December 4, 1997 (Milite 2001).

Accomplishments

Joseph Wolpe was a pioneer in behavior therapy in that he considered it to be an applied science and had considerable influence in the direction of psychotherapy techniques. He is best known for his development of desensitization technique and assertiveness training. While he was a medical officer in the South African army he encountered soldiers who

experienced adverse behavioral reactions as a result of trauma. This condition was then known as “war neurosis” (Milite 2001). Today, the Diagnostic Manual of Mental Disorders-TR (DSM-IV-TR) refers to this as a diagnosis called Post-traumatic Stress Disorder (PTSD) (American Psychiatric Association [DSM-IV-TR] 2000). After Wolpe experienced marginal results by treating the condition with drug therapy he developed a psychotherapeutic technique called systematic desensitization. Although Wolpe was initially interested in Freudian theory, he was inspired by Ivan Pavlov and Clark Hull's animal experiments and subsequently led to his research with cats. Wolpe concluded that much of human behavior, both positive and negative, is learned. In cases where irrational fear is present, he proposed that individuals can “unlearn” their fear by exposing them to the stimulus gradually and systematically. Based upon his research, modern desensitization techniques pair systematic relaxation with rehearsal of graded levels of stressful situations, until the fear-triggered stimulus is made less sensitive (Poppen 1996). Simply put, he revealed that anxiety is incompatible with physical relaxation.

Assertiveness training also emerged from Wolpe's research. Not unlike individuals who irrationally fear because of trauma, people who do not effectively assert themselves fear conflict, confrontation, and subsequent rejection. Assertiveness training builds confidence by gradually introducing healthy, empowering behaviors.

In 1958, Wolpe first published his ideas in *Psychotherapy by Reciprocal Inhibition* (Wolpe 1958). Since most psychiatrists at that time were trained in the psychoanalytic tradition, many believed that Wolpe's theories did not adequately address the cause of anxieties and believed that his technique would eventually lead to “symptom substitution.” Despite criticism, Wolpe initiated the *Journal of Behavior Therapy and Experimental Psychiatry* and published five other books (Reyna Leo 1998). He also developed the Subjective Units of Disturbance Scale (SUDS) for assessing individual level of subjective psychological distress (Milite 2001). The scales have been successfully used in numerous psychotherapeutic techniques, including Eye Movement Desensitization and Reprocessing (EMDR), Trauma-Focused Therapy (TFT), and Emotional Freedom Techniques (EFT).

Perhaps more than any other, Wolpe's work has successfully reconciled divergent approaches to psychotherapy (Poppen 1996). While some clinicians favored approaches that were empirically based, others favored approaches that were humanistic in nature. Joseph Wolpe demonstrated that psychological techniques can be distinctly empathetic while rooted in the objectiveness of science.

See Also

► [Hull, Clark L.](#)

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Women and Feminism, History of

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Definitions

Feminism: Womanism; valuing women. Feminism favors the social and legal changes that are necessary to achieve equality between women and men.

Feminist Psychology of Women: Recognition of the inequality of social and institutional power between women and men; making values of the researcher central to scientific study; studying women's behavior and experiences within social contexts across the life cycle; advocating for change.

Introduction: The Need to Engender the Discipline of Psychology

In 1994 Florence L. Denmark called for “engendering psychology,” that is, for the field of psychology to cultivate a discipline that is sensitive to issues of gender and diversity; a discipline that makes women and women's experiences central, not marginal to research and theories. Specifically, Denmark brought attention to the fact that psychology had ignored, trivialized, and distorted women's (especially women in poverty, women of color, and lesbian women) realities and issues. Denmark (1994) argued that researchers had permitted their personal opinions about women and men to bias their research. Denmark's call for an engendered discipline was in direct response to psychology having the following dominant themes in the conception of human behavior: androcentrism, gendercentrism, ethnocentrism, and heterosexism (Worell 1990). *Androcentrism* refers to the assumption that men's experiences were normative and women's experiences were the deviation from the norm. *Gendercentrism* is evident when separate paths of development are suggested for women and men as a result of the biological differences between them. *Ethnocentrism* refers to theories assuming that development is identical for all individuals across all racial, ethnic, and socioeconomic class groups. *Heterosexism* refers to theories and research that assume that a heterosexual orientation is normative, while gay, lesbian, bisexual, transsexual, transgendered, or questioning individuals are deviations from the heterosexual norm.

In this chapter, psychology's value-laden science is reviewed with respect to androcentrism, gendercentrism, ethnocentrism, and heterosexism. The history of the psychology of women is addressed from the perspective of research methods and theories used to study women's realities. This discussion will note that sex, race, sexual orientation, ethnicity, and socioeconomic class were used as the explanation rather than the starting point for scientific inquiry. Psychologists rarely considered these variables; when they did, they were considered to be “nuisance variables” that must be controlled (Crawford and Unger 2004). Consequently, for example, women were rarely involved as participants in research so as to control for potential differences due to sex.

Feminist correctives to the biases in psychology will be discussed, illustrating ways the discipline has become engendered. Following this discussion of ways women's experiences in psychology were kept hidden for many years, an overview of how the first generation of American women psychologists were themselves kept hidden from the history of psychology will be presented. Thus, this chapter reviews the feminist psychology of women (Part One) and the feminist women of psychology (Part Two).

Part One: Biases in Psychology's Discussion of Women

Androcentrism

- Psychology has nothing to say about what women are really like, what they need and what they want, essentially, because psychology does not know.

Naomi Weisstein

In the formative years of psychology as a discipline, the majority of researchers as well as research participants were men. Therefore, it should not be surprising that these researchers relied on their own experiences and interests to set goals for the discipline. Theories and research on men's experiences perpetuated the male as normative theme in psychology. Sechzer and Rabinowitz (2008) reported that most researchers in the behavioral and biomedical sciences failed to report the sex of their participants or women were not even invited to participate in the research. For example, the classic theory and research on achievement motivation (McClelland et al. 1953) was based on boys and men only. When women were studied initially, researchers learned their responses differed from men's. Consequently, researchers stopped studying women all together rather than reformulate their theories and methodologies to explain women's responses. In fact, McClelland et al. (1953) chose to ignore data suggesting women strive for achievement in a variety of domains (Paludi and Fankell-Hauser 1986). Their theory was preserved; women participants were labeled as being different, that is, "deficient" vis-a-vis men.

Similar experiences occurred with testing the theory of moral reasoning (Kohlberg 1976). Furthermore,

nearly half of the research on aggression was conducted on boys and men as well, 10% with girls or women and 40% with both sexes. This 50% is higher than the percentage of male-only research in psychology in general (Sechzer and Rabinowitz 2008), supporting androcentrism in psychology: when researchers investigated a stereotyped "masculine" behavior they were less likely to include girls and women.

Gendercentrism

Psychology treated women as a "special group" and a "problem" since the mid-nineteenth century (Maracek et al. 2003; Shields 1975). For example, theorists and researchers used physical evidence to justify women's subordinate status. As Shields noted: "...science sought explanations for female inferiority that were more in keeping with contemporary scientific philosophy" (p. 740). In 1800, Franz Joseph Gall hypothesized that mental and moral faculties were located in areas of the brain, and thus deficiencies as well as excesses could be observed by an examination of an individual's cranium (Wikipedia 2009). Researchers subsequently noted they could distinguish between men's and women's brains in terms of differences in gross structure. Malebranche (see Hamerton 2008) hypothesized that women's "cerebral fiber" was softer than that of the men's in addition to it being "slender and long rather than thick" (cited in Walker 1850, p. 318). Malebranche believed that these differences made women's senses "finer" and their sentiment more "delicate" (Hamerton 2008). According to Hamerton (2008), Malebranche's beliefs about women's "natural disposition" "...makes them prefer perceptible objects to metaphysical realities, amiable qualities to essential qualities, the brilliant to the solid, luxury and ostentation to cleanliness and commodity . . . it's also what makes them sensitive to piety, inconstant and light, and often capricious" (p. 533).

When Hughlings Jackson (see Meares 1999) claimed mental capacities were located in the frontal lobe, researchers found that men's frontal lobes were larger than women's. A larger brain was equated with more brain and therefore more intelligence. However, at the turn of the century when it became popular to view the parietal lobe as the repository of intelligence, researchers claimed there was no difference between

women and men in the size of their frontal lobes but men's parietal lobes were identified as being larger than women's.

In the 1800s Havelock Ellis (see Hyde and Linn 2006; Shields 1975) noted the variability hypothesis could explain the wider range of intelligence for men than for women and the greater frequency of men on lists of distinction. The variability hypothesis was the assertion that "women as a species are less variable among themselves than are men; all women are pretty much alike but men range enormously in their talents and defects" (Hollingworth 1943, p. 114). The variability hypothesis was used against women in education and in social policy. As Shields (1975) noted: "If this tendency to mediocrity was natural to the 'fair' sex, as the variability hypothesis would hold true, then it would be wasteful of public and private resources to train or encourage women to high levels of achievement" (p. 6).

The variability hypothesis would have been supported if the distribution of women's and men's behavior is on a Gaussian distribution. It is not, however. Furthermore, greater male intellectual variability had never been proven. If it had, support would not have been given to an innate greater intelligence in men. According to Hyde and Linn (2006), this variability hypothesis is only a description of the data; it does not explain the data. Leta Stetter Hollingworth (Lowie and Hollingworth 1916) found no objective data to support innate female inferiority, but rather noted that "every sex difference that has been discovered or alleged has been interpreted to show the superiority of males" (p. 284). Hollingworth (1943) noted it would be more profitable to examine the interaction of social constraints and cultural barriers to women's achievement rather than continue to study the variability hypothesis. Therefore, the problem was not differences between the sexes, but how the differences were interpreted by researchers in an androcentric and gendercentric culture (Riger 2002).

Ethnocentrism

Sigmund Freud's (1968) theory certainly illustrated gendercentricism since personality development was posited separately for women and men as

a consequence of the biological differences between them. According to Freud, as a consequence of girls' identification process not being as strong as that of boys', girls have stunted superegos, that is, less well-developed consciences. Women were perceived as passive, emotional, masochistic, and narcissistic. As Freud (1968) stated:

- ▶ I cannot escape the notion . . . that for women the level of what is ethically normal is different from what it is in men. Their superego is never so inexorable, so impersonal, so independent of its emotional origins as we require it to be in men. (p. 193)

Freud viewed women as less ethical than men, as having a lesser sense of morality and being more influenced by emotions than by logic. A woman who was in a "masculine" occupation or exhibited "masculine" personality characteristics was interpreted by Freud to be maladjusted to her anatomy.

His theory of personality is also ethnocentric. Many women of color view themselves not as the passive and submissive woman Freud described but rather as strong, self-reliant, and independent. These characteristics have been misnamed as deviant in African American women, that the "matriarchal structure" responsible for the alienation of African American men. There are well documented factors that contribute to the greater rates of female headed households among African American families, for example, lower marriage and higher divorce rates and discrimination African American men have faced when gaining access to and maintaining employment to support their families. Furthermore, there is an increase in the number of female-headed households among white and Latina families (Paludi et al. 2007; Population Reference Bureau 2009).

Heterosexism

Psychological theories, for example, Erikson's theory of personality across the life span (Erikson 1963, 1968) illustrates heterosexism. His theory posits that children develop "normally" when in the care of a nurturing, biological mother and father. However, research does not support Erikson's view that heterosexual parents are the only ones essential to ensure normal child development. There is empirical evidence that suggests

children socialized in LGBT (lesbian, gay, bisexual, and transsexual) families are well adjusted, resilient, and value social justice, diversity, and tolerance (Carter 2006; Gartrell et al. 2005; Golombok et al. 2003; Peplau and Beals 2004).

Androcentrism Revisited: The Psychology of Women as “Difference”

Maracek et al. (2003) noted that much of the psychological research about women in the decades preceding the second wave of feminism concerned finding differences between women and men. An overemphasis on differences illustrated by the review of the biases in the history of psychology provides confirmation of stereotype that women and men are “opposite,” that men are the norm and women are a deviation from the norm. Research that found no differences between the sexes were not published and instead placed in the researcher’s file drawer (Rosenthal 1979), contributing to a publication bias in psychology. Studies that reported gender differences were published; those that found no differences were not since they challenged existing, stereotypic beliefs about women and men (Sechzer and Rabinowitz 2008).

In 1974, Maccoby and Jacklin used a voting method of analysis of approximately 1,600 published studies in determining whether statistically significant differences between the sexes were reported (Maccoby and Jacklin 1974). Their goal for this research was “to sift the evidence to determine which of the many beliefs about sex differences have a solid basis in fact and which do not” (p. viii). This analysis indicated many of the presumed differences were more myth than fact, for example:

1. Girls are more responsive to auditory stimuli; boys to visual stimuli.
2. Girls are more social than boys.
3. Boys are more analytic than girls.
4. Girls excel at low-level cognitive tasks, boys at higher-level cognitive tasks.
5. Boys are more influenced by their environment; girls by heredity.
6. Girls have lower self-esteem than boys.
7. Girls are more conforming than boys.
8. Girls have less achievement motivation than boys.

Only four differences were supported by their analysis:

1. Girls have greater verbal ability than boys.
2. Boys excel in visual-spatial ability.
3. Boys excel in mathematical ability.
4. Males are more aggressive than females.

Maccoby and Jacklin (1974) reported these differences occurred during adolescence and beyond, giving support for cultural, not biological bases for differences between the sexes. For example, girls’ and boys’ verbal abilities are similar during the early school years. In high school and beyond however, girls are better in spelling, creative writing, comprehension of analogies and have a better understanding of and fluency in the complexities of language. Beginning in adolescence, boys exhibit a greater facility with math than do girls. However, in exams that use verbal processes in mathematical questions, girls perform better than boys.

Maccoby and Jacklin’s (1974) conclusions have been challenged (e.g., Block 1976; Hyde and Grabe 2008) since they simply counted the studies that found a gender difference and compared them to those that did not. Furthermore, most of the studies reviewed contained relatively few research participants, ensuring little or no statistically significant gender differences (see Hyde 1986). Most importantly for many feminist psychologists, Maccoby and Jacklin’s research continued to emphasize girls and women in relation to boys and men, in other words, to perpetuate differences.

Magnitude of Differences Between Women and Men: Meta-analysis and the Psychology of Women

Sherman (1978) and Hyde (1981) rereviewed many of the studies initially used in Maccoby and Jacklin’s study and found that while statistically significant, the magnitude of the differences between the sexes was small. According to Hyde (1981), when obtained, differences between the sexes only accounted for approximately 1–5% of the population variance. Hyde used meta-analysis to derive her conclusions, a statistical method that assists researchers in synthesizing results from several studies in order to measure the magnitude of a difference (see Hyde and Grabe 2008 for a review of

meta-analysis in the psychology of women). Meta-analytic studies have been conducted in several areas, including self-esteem (Kling et al. 1999), displaced aggression (Marcus et al. 2000), role conflict and job performance (Tubre and Collins 2000), sexuality (Hyde and Oliver 2000), malleability of automatic gender stereotypes (Lenton et al. 2009), and aggression (Eagly and Johnson 1990). Meta-analytic studies have offered revised interpretations of the data reviewed by Maccoby and Jacklin (1974). For example, Hyde et al.'s (1990) meta-analysis indicated that the conclusion Maccoby and Jacklin (1974) drew about boys excelling in mathematical ability was oversimplified. They observed that when mathematical ability is operationally defined as performance in school (as opposed to performance on standardized math tests), girls did better than boys in all grade levels.

In their review of meta-analytic studies, Hyde and Grabe (2008) concluded that meta-analyses can advance the study of the psychology of women because they can (1) indicate not only whether there is a significant gender difference but also the magnitude of the difference; (2) accept the null hypothesis; (3) investigate gender x situation interactions; (4) be used to analyze other issues, for example, race, ethnicity; (5) test theories of gender; and (6) test the Gender Similarities Hypothesis, that is, males and females are similar on most psychological variables.

One criticism of meta-analysis, however, concerns the studies that are selected to be used in the analysis. Studies that contain methodological biases are sometimes included in the analysis, sometimes they are omitted. For example, Makosky and Paludi (1990) noted that researchers may be creating the gender differences they report. This is especially true when research is done with students in introductory psychology courses. Women who take introductory psychology are majoring in the social and behavioral sciences; men typically are majoring in the natural and physical sciences. Therefore, one part of the distribution in interests, personality characteristics, and abilities are sampled for women; another for men.

In addition, meta-analysis has been criticized because of the continued emphasis on gender differences and gender similarities, which encourages researchers to exaggerate those differences they do

observe (Sechzer and Rabinowitz 2008). Similar to the early research that focused on brain size differences, the tendency persists to use research data about women to formulate social policies that would be harmful to women. Psychologists must be vigilant in their analyses as well as methodologies for this very reason.

Exaggerating Differences Between the Sexes: The Example of Moral Reasoning

"Difference" is a problematic way to construe the psychology of women. If differences are exaggerated, the findings may serve as a basis for discrimination against women, who are "different." If actual differences (e.g., in wages) are ignored or minimized, women may also be discriminated against (e.g., through inadequate child support). In both the "gender as difference" model and the "minimizing difference" model, white, middle class, heterosexual men are still the standards of comparison, the norm against which women and femininity are judged.

Proponents of the psychology of women from a gender as difference perspective view differences between the sexes as universal, essential, and enduring. This is illustrated with research on stages of moral development. We previously mentioned that Kohlberg's (1976) theory of moral reasoning was criticized because it was predicated only on boys' and men's responses. Kohlberg concluded however that his theory adequately described moral reasoning of both women and men. He also argued that women's moral reasoning is less well developed than men's.

Carol Gilligan (1982) countered Kohlberg's theory by stating that women's morality can be viewed as an "ethic of care." She argued that women view "life as dependent on connection, as sustained by activities of care, as based on a bond of attachment rather than a contract of agreement" (p. 57). Gilligan also challenged Kohlberg's theory that moral reasoning based on an ethic of justice represents the highest level of morality. However, Gilligan's theory has been criticized because it is not possible, as she theorized, to identify a universal moral reasoning that applies to all women (Cosgrove and McHugh 2000). Gilligan's theory thus has not addressed the distinctions among women but rather the moral reasoning of white, middle-class girls,

and women (Tronto 1987). There is a great deal of variability among women because of race, ethnicity, stage of family formation, socioeconomic class, sexual orientation, stage in their career development, and so on. Within group, variability is thus ignored when the focus is on “difference.”

Minimizing Differences Between the Sexes: The Example of Psychological Androgyny

Focusing on similarities between the sexes underlies the construct of psychological androgyny, introduced by Sandra Bem (1977) as a way to minimize the differences between women and men, which had previously been the focus of the psychology of women. Androgyny was defined as a personality pattern wherein an individual combined the socially valued stereotypic characteristics associated with femininity and masculinity in their behavioral repertoire. Thus individuals were not longer expected or encouraged to restrict their behaviors to traditional gender role-specific characteristics.

Lott (1981) argued however that although psychological androgyny was an improvement over the view that masculinity and femininity were opposite and mutually exclusive ends of a personality dimension, the androgynous perspective still held that personality comprises feminine and masculine elements. While the androgynous perspective implies the equivalence of femininity and masculinity, in fact the masculine traits are more highly valued in North American culture. As Hare-Mustin and Marecek (1988) noted:

- ▶ When the idea of counterparts implies symmetry and equivalence, it obscures differences in power and social value Arguing for no differences between women and men, however, draws attention away from women’s special needs and from differences in power and resources between women and men. (pp. 458, 460)

Feminist psychologists (e.g., Burger and Solano 1994; Doyle and Paludi 1997) have argued that rather than socializing individuals to express behaviors considered feminine and masculine, it would be to society’s advantage to value all positive behaviors, regardless of their appropriateness for one sex or the other. Thus, gender role transcendence is the goal, that is, the

abandoning of gender categories so that personality characteristics, social and occupational roles become independent from gender categories.

Psychology of Women as Redefining Constructs and Methodologies: Feminist Research

Several feminist researchers have recommended that psychologists redefine the constructs typically used in studies on the psychology of women so as to place value on women and women’s realities. For example, “work” needs to be redefined to include volunteer services and housekeeping; “power” needs to be changed from having power over to empowerment. In addition, feminist psychologists differ from nonfeminist psychologists in the theories used, the ways theories are applied to research problems, and the ways knowledge is constructed. For example, some feminist psychologists use qualitative research methods as one way to correct the biases inherent in quantitative methods (Sechzer and Rabinowitz 2008), to what Maracek et al. (2003) refer to as “methodological pluralism.” These methods share the following underlying values (Chrisler and Smith 2004). They:

1. Challenge dichotomous portrayals of women and men
2. Consider women’s experience within their social contexts
3. Improve women’s well-being
4. Empower women
5. Advocate for women
6. Identify sexism women experience
7. Consider reflexivity

Examples of these alternative approaches to studying the psychology of women are life narratives, content analysis, observational techniques, focus groups, field research and case studies (e.g., Hoshmand and O’Byrne 1996; Rosenwald and Ochberg 1992; Wilkinson 1999). These methods also recognize the role of values in scholarship and recommend researchers state their biases openly in the study of human behavior (Parlee 1979). According to Parlee (1979): “feminist psychologists thus have as a priority finding the best possible version of the truth about the subject matter rather than adhering strictly to a particular method” (p. 130).

McHugh et al. (1986) and Denmark et al. (1988) offered guidelines for nonsexist research, including interpreting without bias, avoiding excessive confidence in traditional methods, and examining explanatory models. These recommendations provide the beginnings for an alternative approach to the study of all of human behavior. Research is viewed as taking place within a well-defined cultural and social context, never totally free from the concerns and values of the larger society. Feminist researchers are also mindful of policy considerations of their research. The recommendations avoid androcentrism, gendercentrism, ethnocentrism, and heterosexism in all stages of the research process.

Research on Psychology of Women: International Perspectives and Values

In 2004, the American Psychological Association's Council of Representatives adopted a Resolution on Cultural and Gender Awareness that included (American Psychological Association 2004):

1. Advocate for more research on the role that cultural ideologies have in the experience of women and men across and within countries on the basis of sex, gender identity, gender expression, ethnicity, social class, age, disabilities, and religion.
2. Advocate for more collaborative research partnerships with colleagues from diverse cultures and countries leading to mutually beneficial dialogues and learning opportunities.
3. Advocate for critical research that analyzes how cultural, economic, and geopolitical perspectives may be embedded within US psychological research and practice.
4. Encourage more attention to a critical examination of international cultural, gender, gender identity, age, and disability perspectives in psychological theory, practice, and research at all levels of psychological education and training curricula.
5. Encourage psychologists to gain an understanding of the experiences of individuals in diverse cultures and their points of view, and to value pluralistic world views, ways of knowing, organizing, functioning, and standpoints.
6. Encourage psychologists to become aware of and understand how systems of power hierarchies may

influence the privileges, advantages, and rewards that usually accrue by virtue of placement and power.

7. Encourage psychologists to understand how power hierarchies may influence the production and dissemination of knowledge in psychology internationally and to alter their practices according to the ethical insights that emerge from this understanding.
8. Encourage psychologists to appreciate the multiple dilemmas and contradictions inherent in valuing culture and actual cultural practices when they are oppressive to women, but congruent with the practices of diverse ethnic groups.
9. Advocate for cross-national research that analyzes and supports the elimination of cultural, gender, gender identity, age, and disability discrimination in all arenas – economic, social, educational, and political.
10. Support public policy that supports global change toward egalitarian relationships and the elimination of practices and conditions oppressive to women.

These recommendations place women's experiences in their cultural contexts (Riger 2002). As Denmark et al. (2008) noted with respect to these recommendations, contextualizing women's experiences "encourages feminist psychologists to view women as whole beings or people who exist in a bidirectional relationship with the environment in which they live" (p. 34).

Review of Part One

While women and psychology had been independent from each other due to the androcentrism that has existed in the discipline, the field now has women as research participants and researchers, engaged in collaborative processes in a nonhierarchical relationship between researcher and participant (Sechzer and Rabinowitz 2008). Women have their voices expressed and respected in research. This has given rise to the study of topics that could not come to light in the androcentric treatment of women, for example, sexual violence against women, pregnancy, lesbian parenting, breast feeding, women's reproductive rights, feminist psychotherapy, women's friendships and romantic relationships, discrimination against women in the

workplace and women and leadership. This research is used to inform public policy, legislation and advocacy for girls and women in the courts, women's shelters, rape crisis centers, K-12, and college/university campuses. As Walsh (1985) noted, the psychology of women serves as a "catalyst for change."

In addition to topics worthy of study for and by women that were essentially omitted in the history of psychology, women psychologists themselves were omitted from discussion; their work was distorted or credited to male coresearchers.

Part Two: The Heritage of the First and Second Generations of American Women in Psychology – The Personal Is Political

The experiences of the first generation of American women psychologists have been reconstructed by several researchers, for example, Furumoto and Scarborough (1986) and Russo and Denmark (1987). In the process of restructuring their lives, issues with which the first generation of American women psychologists were dealing also have been brought to light. When compared to their male peers, women psychologists were similar in age and training. However, they were less likely to achieve equivalent professional status.

Rossiter (1982) argued that the first generation of American women psychologists were in the middle of two conflicting stereotypes. On one hand, they were stereotyped as "soft, delicate, emotional, noncompetitive, and nurturing kinds of feelings and behavior" (p. xv). On the other hand, they were scientists, who were portrayed as "tough, rigorous, rational, impersonal, masculine, competitive, and unemotional" (p. xv). Furthermore, according to the American Psychological Association (2009), with respect to the first generation of American women psychologists, "the mantle of scientific psychology was used to justify discrimination against them" (p. 1).

According to Furumoto and Scarborough (1986):

- ▶ Certain gender-specific factors profoundly affected the women's experience: exclusion from important educational and employment opportunities, the responsibility of daughters to their families, and the marriage-versus-career dilemma. (p. 39)

These issues are those in which many women in the second generation of American psychologists and modern day women psychologists face, supporting Hanisch's (1969) conclusion: "the personal is political." The personal problems faced by early women psychologists just as today are political problems, the result of systematic oppression. We discuss these issues raised by Furumoto and Scarborough (1986) in the next section, highlighting current research with experiences of the first and second generations of American women psychologists. We cite these women's firsthand accounts in order to give them their voice, thereby not perpetuating them being hidden from the history of psychology.

Gatekeepers: Exclusion of the First Generation of American Women Psychologists from Graduate Study and Academic Careers

Each of the first generation of American women psychologists experienced discrimination in her attempts to earn a Ph.D. in psychology. Margaret Washburn, Christine Ladd-Franklin, and Mary Calkins began their graduate studies as "special students" or "guests" at Columbia University, Johns Hopkins University, and Harvard University, respectively. The "special student" or "guest" status reflected the universities' exclusionary policies toward women earning graduate degrees. Gatekeepers kept women out of graduate programs in psychology; graduate school administrators and faculty who believed that women have no place in their particular profession were especially powerful gatekeepers (Betz and Schifano 2000). Gatekeepers, for example, G. Stanley Hall, the founder of the American Psychological Association, did not see themselves as discriminatory; they rationalized that their resistance to women in the profession was based on "facts."

Margaret Floy Washburn (1871–1939) had to audit graduate courses in psychology at Columbia and eventually studied at Cornell University. She stated (1930):

- ▶ Columbia had never admitted a woman graduate student: the most I could hope for was to be tolerated at a "hearer." (Floy Washburn, p. 4)

Floy Washburn is credited with being the first woman to earn the doctorate in psychology (in 1894). In addition, Washburn was the second woman

president of the American Psychological Association in 1894. She authored two texts: *The Animal Mind: A Text-Book of Comparative Psychology* (1908) and *Movement and Mental Imagery* (1916). Her research focused mainly on the relationship between motor development and mental activity.

She was denied membership in the “Experimentalists” and was denied an academic position at a research university. Floy Washburn wrote (1930):

- ▶ ...a telegram asked me to come to Wells College ... they could offer me little money, but I gladly accepted ... at a salary of three hundred dollars and home. The salary ... had by the last two years reached the maximum for women professors, seven hundred dollars and home; the men were paid fifteen hundred. (pp. 6–7)

Mary Calkins (1863–1929), a “special student” at Harvard University, was initially refused by Harvard’s administration to attend lectures by William James. However, with the intervention of both her father and the President of Wellesley College, her request was approved in 1890. Furumoto (1980) noted that Calkins’ acceptance was addressed in Harvard’s records as follows: “by accepting this privilege Miss Calkins does not become a student of the University entitled to registration.” Calkins completed the requirements for her Ph.D. from Harvard in 1895. However, she was refused the degree because she is a woman. William James had noted the following regarding Calkins’ performance at Harvard:

- ▶ It was much the most brilliant examination for the Ph.D. that we have had at Harvard. It is a pity, in spite of this, that she still lacks the degree. Your downtrodden but unconquerable sex is fairly entitled to whatever glory and credit may accrue to it from Miss Calkins’ prowess. (Reported in Scarborough and Furumoto 1987, p. 46)

Calkins was offered the Ph.D. in 1902 with one stipulation: that the degree would be under the auspices of Radcliffe College, not Harvard University. Calkins declined the degree so as to highlight the university’s refusal to recognize women and women’s accomplishments. According to Calkins:

- ▶ I ... think it highly probable that the Radcliffe degree will be regarded generally as the practical equivalent of

the Harvard degree and finally, I should be glad to hold the Ph.D. degree for I occasionally find the lack of it an inconvenience, and now that the Radcliffe degree is offered, I doubt whether the Harvard degree will ever be open to women. ... I cannot rightly take the easier course of accepting the degree.

Calkins invented the paired associate technique, created a theoretical perspective of self-psychology and founded the psychological laboratory at Wellesley College in 1981 and remained at Wellesley until her retirement 40 years later. She was the first woman president of the American Psychological Association in 1905. In 1918 Calkins was elected president of the American Philosophical Society. Calkins authored *The Persistent Problems in Philosophy* and *The Good Man and the Good*. Stevens and Gardner (1982) noted that Calkins was treated poorly in the history of psychology:

- ▶ Her major contribution to her science ... her invention of the experimental procedure she called the method of right associates, is now credited to someone else and even appears in textbooks under a different name than the one she had bestowed upon it. (p. 88)

As another example of the exclusionary practices the first generation of American women psychologists faced, *Christine Ladd-Franklin (1847–1930)* was only able to attend graduate courses at Johns Hopkins University through the intervention of mathematician James J. Sylvester. According to Jacob (1976):

- ▶ The university first announced its fellowship program in 1876, and one of the first applications to arrive was one signed “C. Ladd.” The credentials accompanying the application indicated such outstanding ability that a fellowship in mathematics was awarded to the applicant, site unseen, and was accepted. When it was discovered that the “C.” stood for Christine, several embarrassed trustees argued that she had used trickery to gain admission, and the board immediately moved to revoke the offer.

Ladd-Franklin eventually was accepted to take courses in the fall of 1878. Jacob (1976) pointed out however, that:

- ▶ Though she had a fellowship for three years, the trustees forbade that her name be printed in circulars

with those of other fellows, for fear of setting a precedent. Dissension over her continued presence forced one of the original trustees to resign.

She received the Ph.D. from Johns Hopkins 44 years after satisfying the requirements for the degree. She lectured on logic and psychology for 5 years at Johns Hopkins and was the only woman on the faculty. She also taught for 15 years at Columbia University. Ladd-Franklin published *Colour and Colour Theories*, a collection of her research on color vision.

In 1912, Ladd-Franklin wrote to E.B. Titchener concerning his exclusion of women from the “Experimentalists:”

- ▶ I am particularly anxious to bring my views up, once in a while, for hand-to-hand discussion before experts, and just now I have especially a paper which I should like very much to read before your meeting of experimental psychologists. I hope you will not say nay! (Scarborough and Furumoto 1987, p. 125)

Titchener argued that women were not allowed to attend these meetings because they could not tolerate “masculine” activities such as smoking. Ladd-Franklin responded as follows:

- ▶ Have your smokers separated if you like (tho I for one always smoke when I am in fashionable society), but a scientific meeting is a public affair, and it is not open to you to leave out a class of fellow workers without extreme discourtesy. (Scarborough and Furumoto 1987, p. 125)

Ladd-Franklin and other women were always denied membership in this association during Titchener’s lifetime. Furumoto (1994) identified this “collegial exclusion” as a major force against Ladd-Franklin and her female contemporaries. Titchener noted, regarding this association: “the select group of newcomers to the field were the men who had arrived” (cited in Furumoto 1994, p. 97). Membership in the Experimentalists provided graduate students and junior faculty with mentoring, social contexts and thus connections that are necessary for success in academia. Jandeska and Kraimer (2005) have referred to this condition as the “opportunity gap,” the factors that bar women from advancing in their careers at the same rate as men.

As Ladd-Franklin stated:

- ▶ It is evident that it is high time for us to consider seriously what steps can be taken to start these doctors of philosophy on the career which they long for and which is indeed their due. The proportion of these, who, after their brilliant preparation for the highest work, find that there is nothing in the world for them to do save the drudgery of teaching in the public schools is large, and is constantly becoming larger. . . . But, by are the most important of all, to create a few first-class women college professors who would not otherwise exist would be to make a distinct contribution toward the furthering of the rights and privileges of the sex in general. (pp. 3, 5)

The masculine bias inherent in the definition of career advancement for the first generation of American women psychologists explains why the contributions of these women to research were distorted, omitted, or trivialized. For example, Calkins spent her entire academic career at Wellesley College. Palmieri (1983) noted that Calkins and other women faculty at Wellesley had advantages since it was an all-women’s educational community. However, women faculty experienced career disadvantages as well, including: (1) heavy teaching loads, (2) inadequate resources for conducting their research, and (3) not teaching graduate students who would become the next generation of American psychologists. Thus, the definition of success used during the first generation of American psychology precluded women who were on the faculty at women’s colleges, where no graduate programs existed.

Second Generation of American Women Psychologists’ Exclusion from Graduate Study and Academic Careers

Johnston and Johnson recently (Johnston and Johnson 2008) identified the second generation of American women psychologists, those who received doctoral training before the end of World War II, who earned their doctorates between 1906 and 1945. Johnston and Johnson noted that the second generation of American women psychologists:

- ▶ . . . entered a much transformed and expanding discipline with more emphasis on applied work. They also

began their psychological careers at a time when women's status in US society was undergoing rapid change in response to the women's rights activism that had its most visible impact on women's suffrage. (p. 40)

Compared to the first generation of American women psychologists, these women had little difficulty in obtaining acceptance into graduate programs; several universities admitted many women so that the second generation of American women psychologists were not tokens in the graduate departments. However, while these women did not experience the exclusionary practice toward them entering graduate schools, they did experience discrimination after they completed their Ph.D.s. For example, many of these women were employed outside of academia in child welfare clinics, courts, and schools. In addition, those women who did enter academia did so as research fellows on short term contracts. Of the 117 second generation women who obtained academic positions, 67% held associate or full professorships. Johnston and Johnson (2008) also noted that approximately half of the women in the second generation of American psychologists taught at all women's colleges or teachers' colleges. Those in research universities found themselves to be the sole woman faculty member.

For example, *Eleanor Gibson (1910–2002)* described her experiences with being the sole woman academician in her department. According to Gibson (1976):

- ▶ I was a token woman . . . when I look around and see, yes, here I am, the only woman on a committee, again, you think: Why didn't they have some more? Sometimes there are two. There is another woman who I know quite well. She is president of the Social Sciences Research Council. We serve as the two women on many committees frequently . . . because somebody says: "Well, we have to have a woman," and her name is Eleanor too, so they say, "We should have the two Eleanors. (pp. 8–9)

Furthermore, as Johnston and Johnson (2008) noted, many of the many second-generation women who were married to psychologists were adversely affected by antinepotism laws of universities. The antinepotism rules implemented by academia impacted several

second generation women psychologists, for example, Mary Cover Jones, Eleanor Gibson, Tracy Kendler, Helen Nowlis, Anne Roe, Pauline Sears, and Thelma Thurstone (Johnston and Johnson 2008). For many women they maintained an association with academia as a part-time instructor or research assistant. They also worked in these positions for little or no salary. They attained a full time tenured position later in their lives vis-a-vis their husbands since they had to wait until academia accepted women married to male professors (Johnston and Johnson 2008).

Gatekeepers and Exclusionary Practices Toward Women Psychologists Today

Strickland (1987) noted that the field of psychology was going to become the first science to be "feminized," having more women than men. However, Hogan and Sexton (1991) identified that in the American Psychological Association, women have not attained high-level office, editorships, and significant committee posts at the same level as male colleagues. They described one 51-year-period where no women were elected to the American Psychological Association presidency. The first woman president following this period was Anne Anastasi, who was elected in 1972. Following Anastasi's election, the following women were elected president:

- 1973: Leona E. Tyler
- 1980: Florence L. Denmark
- 1984: Janet T. Spence
- 1987: Bonnie R. Strickland
- 1996: Dorothy W. Cantor
- 2001: Norine G. Johnson
- 2004: Diane F. Halpern
- 2007: Sharon S. Brehm
- 2010: Carol D. Goodheart

In its 117-year-history, 13 women have served as president of the American Psychological Association. Melba Vasquez has recently been elected to be president, with her term beginning in 2011. She is the first Latina to be elected president of the American Psychological Association.

Results from surveys by the Center for Workforce Studies of the American Psychological Association (2007) and the 2008–2009 American Psychological

Association Faculty Salaries in Graduate Departments of Psychology Survey indicated:

1. As Strickland (1987) predicted, women entering the field of psychology has increased over the past several decades. Concurrently, the percentage of men pursuing a career in psychology has slightly decreased over the same span of years.
2. In 2005, 72% of new Ph.D.s in psychology were women, an increase of 6% in the last 10 years, and 20% in the last 20 years. In 1976, the percentage of women Ph.D.s was 33.
3. The median starting salary in 2005 was \$55,206. Women reported earning a median salary approximately \$4,000 less than earned by men.
4. The majority of women Ph.D.s were on the faculty at 2-year-colleges or in hospital settings; the majority of men Ph.D.s were on the faculty of universities with graduate programs.
5. More women than men were lecturers, assistant or associate professors in academic institutions; more men were full professors.
6. More men than women achieved tenure in psychology graduate departments each selected year studied (from 1985 to the present).

Certainly great strides have been made by women and for women psychologists since the first and second generation of American women psychologists' experiences. While current statistics reflect women's individual choices concerning career/family integration, the data also reflects sexism on the part of organizations (Bernstein and Russo 2007). Handelsman et al. (2005) identified the following barriers to women in the academy: pipeline losses, chilly campus climates, lack of mentors, hidden bias among senior faculty and administrators evaluating tenure and promotion materials and glass ceiling biases.

The academy is structured by a traditional and stereotypical masculine culture which, in turn, values and rewards men who exhibit these stereotypical traits more so than women (Bailyn 2003). Women often struggle to find their place within such an organization. As Jandeska and Kraimer (2005) argued:

- This "code of conduct" in masculine cultures, while recognizable to males, can be completely alien to females and thus would be considered less hospitable

towards women's careers. For example, an "old-boy network" excludes women from centers of influence and valuable sources of information, often trivializing or ignoring their contributions. (p. 465)

Cheal et al. (2009) noted that 28% of the Fellows of the American Psychological Association are women. These statistics underscore the barriers that still exist for women psychologists.

Gatekeepers of Women of Color

Historical information about ethnic and racial minority women in psychology is relatively scarce. The first African American woman to earn a doctoral degree was Inez Prosser, who received the Ed.D. in educational psychology from the University of Cincinnati. Ruth Howard was the first African American woman to earn the Ph.D. in psychology. Martha Bernal is credited with being the first Chicana to earn the Ph.D. in psychology.

Inez Prosser (1895–1934) had taught at the secondary and college levels for nearly half of her life. Her dissertation was central to school desegregation debates leading up to *Brown v. Board of Education* decision of the United States Supreme Court in 1954. Benjamin et al. (2005) noted that when Dr. Prosser went for the fitting of her cap and gown for her doctoral graduation ceremony she was told by other degree candidates that she was in the wrong room; that the room was only for students graduating with their doctorates. Beverly (1974) indicated that Prosser's response was "Yes, I know. That's why I am here" (p. 3). Benjamin et al. (2005) also noted that Prosser's being awarded the doctorate was of such importance to the African American community that she was featured in her cap and gown on the cover of the magazine *The Crisis: A Record of the Darker Races*, the official magazine of the NAACP, in 1933.

Similar to other women faculty members in her cohort, Prosser served simultaneously as registrar, professor of education, and dean at Tillotson College for her first position. Dr. Prosser met an untimely death a year following completing her doctoral work at the University of Cincinnati.

Ruth Howard (1900–1997) earned her Ph.D. in psychology in 1934 from the University of Minnesota, where, for her dissertation, she studied the developmental history of 229 sets of triplets, ranging in age from infancy to 79 years of age. Howard completed her

internship at the Illinois Institute of Juvenile Research as well as worked at a state school for delinquent girls. Howard subsequently began a private clinical practice with her husband, Albert Sidney Beckham.

Martha Bernal (1931–2001) earned her Ph.D. in clinical psychology from Indiana University, Bloomington, in 1962. Vasquez (2003) noted that Bernal “. . . contributed to an increase in the use of empirically validated interventions in child treatment . . . she helped to advance a multicultural psychology – one that recognizes the importance of diversity in training, recruitment, and research” (p. 1). Furthermore, Dr. Bernal worked toward increasing the number of ethnic minority psychologists in the discipline and toward making the psychology curricula more inclusive. Dr. Bernal served as president of the National Hispanic Psychological Association (National Latina/o Psychological Association).

Mamie Phipps Clark (1917–1983) reported difficulty in obtaining employment following her completion of the Ph.D. in 1943 from Columbia University. Her research on identity in Negro children was instrumental in the 1954 Supreme Court ruling in *Brown v. Board of Education* that concerned desegregation of schools in the United States. She subsequently took work administering psychological tests in an agency helping homeless African American girls. In collaboration with her husband, Kenneth Clark, she founded and operated the Northside Center for Child Development in 1946. This center provided psychological services to the Harlem community. She described her experiences with the intersectionality of race and sex, and the oppressions faced by people who are simultaneous members of more than one disenfranchised group (Hill Collins 2004/1986; Hooks 2004/1990):

- ▶ Although my husband had earlier secured a teaching position at the City College of New York, following my graduation it soon became apparent to me that a Black female with a Ph.D. in psychology was an unwanted anomaly in New York City in the early 1940s. (Clark 1983, p. 271)

Gatekeepers of Women of Color Today

Results from surveys by the Center for Workforce Studies of the American Psychological Association

(2007) and the 2008–2009 American Psychological Association Faculty Salaries in Graduate Departments of Psychology Survey indicated that 80% of new Ph.D.s in 2005 are white. Latinos and Asians each comprised 6% of the new Ph.D.s. African Americans comprised 4%. De la Luz Reyes and Halcon (1988) argued that women of color have been more disadvantaged in psychology than white women as a consequence of their participation in a culture that has valued neither women nor nonwhite individuals. Beale (1970) referred to this as “double jeopardy.” De la Luz Reyes and Halcon (1988) noted that many gatekeepers operate under the “one-minority-per-pot” syndrome in academia:

- ▶ We believe that implicit in this practice is a deep-seated belief that minorities are not as qualified as nonminorities. This conviction stems from an unspoken fear that the presence of more than one minority . . . in a mainstream, traditional department might reduce the department’s . . . reputation. . . . (pp. 305–315)

Cheal et al. (2009) noted that only 7% of the Fellows of the American Psychological Association are minority individuals.

Organizations to Promote Women in Psychology

In 1968, the *Association of Black Psychologists* was established in order to eradicate the myths regarding the psychology of African American women and men and to increase their representation in the discipline of psychology.

The National Latina/o Psychological Association includes a subdivision that is: “designed to recruit, retain, and ultimately assist with the graduation and professional advancement of Latina/o students, faculty, and staff in higher education pursuing the field of psychology” (National Latina/o Psychological Association 2009).

The Asian American Psychological Association began in 1972 in order to “advance the psychological well-being of Asian American communities through affecting professional practice, research, and teaching. For our members, we offer mentoring and networking opportunities, forums to disseminate research and scholarship, structures to share information and receive support, and awards and initiatives to recognize

contributions to Asian American psychology” (Asian American Psychological Association 2009).

Division 35 of the American Psychological Association

The Division of the Psychology of Women within the American Psychological Association began in 1973 “to promote the research and study of women . . . to encourage the integration of this information about women with current psychological knowledge and beliefs in order to apply the gained knowledge to the society and its institutions” (Russo 1984). Division 35 began to be formed at the 1969 meeting of the American Psychological Association, during which members of the Association for Women in Psychology brought to the forefront discriminatory hiring practices of the organization’s employment center at the conference. According to Denmark et al. (2008):

- ▶ At that time women, but not men, were routinely asked about their marital status, spousal employment status, and intention to have children. (p. 26)

Division 35 has grown to be one of the largest divisions of the American Psychological Association. Following the formation of Division 35, three of its Fellows were elected president of the American Psychological Association: Florence L. Denmark, Janet T. Spence and Bonnie R. Strickland. As Denmark et al. (2008) concluded:

- ▶ The psychology of women . . . had a recognized voice in the formal and informal decision making of APA . . . As Division 35 grew, it functioned to provide a forum for the development of an in-depth focus on understanding both the psychological and social realities of women. (p. 27)

The Committee on Women in Psychology was formed in 1973. The goal of this committee was to “function as a catalyst, by means of interacting with and making recommendations to the various part of the Association’s governing structure . . .” (Russo 1984). All of these associations have encouraged attention to the reconstruction history of women in psychology.

Career/Family Conflict for the First and Second Generation of American Women Psychologists: Marriage, Childrearing and Elder Care

G. Stanley Hall stated that “mental women” who competed with men “in the world, would cause “race suicide” when their maternal urges were neglected by them (Shields 1975). James McKeen Cattell (1906), the fourth president of the American Psychological Association, also warned women about getting an education:

- ▶ Girls are injured more than boys by school life; they take it more seriously, and at certain times and at a certain age are far more subject to harm. It is probably not an exaggeration to say that to the average cost of each girl’s education through high school must be added one unborn child. (p. 91)

Margaret Floy Washburn taught at Wells College and then at Vassar College for 34 years. During her career as a professor and writing her first book she spent time with her parents, as she stated:

- ▶ During all those years most of my vacation time was spent with my parents. The family fortunes having declined, they were living at Newburgh, enjoying a super view of the Hudson but little variety, and I was disinclined to leave them for long . . . In December 1914, my father died and my mother came to live with me at Vassar until her death in 1924. (1930, p. 10)

Floy Washburn chose to resign from her position as review editor of the *Journal of Animal Behavior* in 1913. In her letter to the journal’s editor, Robert Yerkes, she wrote:

- ▶ I doubt if anyone else on the board is teaching eighteen hours a week, as I am. I simply must cut down my work somewhere. If I am ever to accomplish anything in psychology it must be done in the next five years, for as my parents get older, I shall have less and less command of my time. (Cited in Scarborough and Furumoto 1987)

Ethel Puffer Howes (1872–1950) taught at Simmons College, Radcliffe College, and Wellesley College concurrently. When she became engaged, she received the following letter from the President of Smith College in

1908, illustrating the negative impact marriage was believed to have on a woman's academic career:

- ▶ Dear Miss Puffer: If you really are disposed to think seriously of the position at Barnard I am sure it would be well for your friends in Cambridge to recommend you to President Butler, although I fear the rumor which reached me concerning your engagement may have also affected the recommendation which I myself sent, and that a candidate has already been selected to present to the trustees of Columbia at their next commencement. (Quoted in Seelye 1908)

Puffer Howes wrote two articles in the *Atlantic Monthly* in 1922 concerning how women can combine career and marriage. In 1929, she authored “*The Meaning of Progress in the Women Movement*,” which also dealt with the marriage versus career dilemma.

With respect to the second generation of American women psychologists, Johnston and Johnson's (2008) data also revealed that 26 of 107 of the second generation of American women psychologists remained single throughout their career life span, similar to the first generation of women psychologists. Of the women psychologists who married, 64% gave birth to children. Three of the single women had children; two adopted children and one became the guardian of her fiancée's children. As Johnston and Johnson conclude: “A significant number of second-generation women combined careers and family life, but they were not in the majority” (p. 49).

For example, *Erika Fromm (1909–2003)* retired as Professor Emeritus in psychology at the University of Chicago. She is noted as one of the nation's leading scholars of hypnosis. Fromm coauthored “*Dream Interpretation – A New Approach*” in 1964. She and her co-author, Thomas French, maintained that conflicts individuals have that are represented by their dreams are the attempts to resolve current situations. Fromm once told younger women:

- ▶ Let me say to those of you who have or contemplate having children: Don't rob yourself of the joy of having children and of being with your children. It is not an either-or: children or a career. They can be combined.

It takes some juggling, but it is possible, and why settle for the joys of one when it is possible to have both. (Fromm 1988, p. 92)

Career/Family Conflict Today

Maternal employment has increased in the past 25 years dramatically (Hill et al. 2005). Women with infants have had the fastest growth in labor-force participation of all groups in the United States (Han et al. 2001). Today, women are as likely to be employed when they have infants as they are when they have a preschool-aged child. In addition, of women who put in overtime work, 40% have children under 6 years of age (Strassel et al. 2006).

Furthermore, current research has indicated that in addition to caring for young children, many employed women in the United States are simultaneously caring for their elderly parents (Paludi et al. 2007). Lockwood (2003) and (Moen et al. 1994) noted that between 40% and 60% of women caring for elders also have child care responsibilities in addition to their careers. Lockwood (2003) further noted that women spend approximately 17 years of their lives caring for children and 18 years caring for one or both parents. The primary caregiver is the family, most likely the elderly parent's daughter or daughter-in-law (Hammer et al. 2005).

Results from surveys by the Center for Workforce Studies of the American Psychological Association (2007) and the 2008–2009 American Psychological Association Faculty Salaries in Graduate Departments of Psychology Survey also indicated:

1. Men were more likely than women to be employed full time (67% vs. 58%). Women were more likely than men to be employed part-time (9.5% vs. 58%). Ninety-two percent of women who worked part-time cited family responsibilities as the main reason for this choice.
2. Ninety-seven percent of unemployed doctorates not seeking employment were women, who cited family responsibilities for their decision.

Maternal employment has been found to benefit the woman herself; the employment is a boost to her morale and a buffer against anxieties (Hoffman and

Youngblade 1999). However, research has also identified noted costs to women who integrate careers and families, including stress-related illnesses as a consequence of the importance women place on relationships (Bainbridge et al. 2006; Karsten 2006). Furthermore, Gonzales-Morales et al. (2006) reported that employed women who experience career/family conflict are as much as 30 times more likely to experience a significant mental health problem, for example, depression, anxiety, than women who report no career/family conflicts. Karsten (2006) further noted that women integrating elder (and/or child care) with careers work longer hours than men, impacting their physical as well as emotional well-being. Mason et al. (2005), Paludi et al. (2007), and Bernstein and Russo (2007) pointed out that time demands are not the primary cause of career/family conflict, but rather it is the psychological inclusion of family life into the career and career into the family domain that causes the conflict.

Change must occur at the institutional or organizational level, not personal level if women are to ease this conflict. Such goals include reducing women's isolation in male-dominated departments or institutions, addressing women's experience as outsiders or being marginalized (Gibson 2006), and providing support for challenges particular to women's career development and advancement (Quinlan 1999). In addition, there must be a substantial number of women, especially minority women, among the faculty in psychology departments. This has been achieved in certain subfields of psychology; however, not in others, including neuropsychology, psychopharmacology, and learning (Storm and Gurevich 2001). Certainly the number of women in administrative positions in psychology and in the academy in general must be increased so as to make the psychology of women and feminist psychology central, not marginal to academia. Research by DeFour (1991) and Moses (1988) provided compelling evidence of the importance of African American faculty in the retention of African American undergraduate and graduate students. Contact with African American faculty was associated with better academic performance and psychological well-being.

Bernstein and Russo (2007) noted that "the attrition of talented women from the academy begins early on and continues at each successive step, even after

professional goals emerge and women consider graduate programs" (p. 91). One avenue of support is the provision and respect of flexible job arrangements for women graduate students and faculty who are integrating life and work roles, including career break/time off and compressed work week policies (Bernstein and Russo 2007; Paludi et al. 2007). The American Council on Education, Office of Women in Higher Education (2005) has provided several recommendations for campuses, including:

1. Creating policies for faculty to take multiple-year leaves for professional and/or personal reasons.
2. Providing tenure-track or tenured faculty to opt to take part-time positions to be used for a certain period of time as personal needs arise.
3. Providing flexible time frames for probationary periods.
4. Establishing tenure-track reentry programs for Ph.D.s who left academia full time to care for family members.

MIT and Stanford implemented an accommodation for their women graduate students (Jaschik 2005): the option of taking a 12-week-period to take care of third trimester pregnancies, delivery, and care for newborns. Women remain matriculated during this time off period and thereby receive financial support. They also are provided a one-term extension to complete their graduation requirements. Similar programs have been implemented by the National Science Foundation ADVANCE program (see Bernstein and Russo 2007), including extending tenure decisions for women wanting to start their families.

Universities, similar to businesses who implement such policies report positive ramifications for the students and faculty, including: lower absenteeism, less stress, higher morale, improved work satisfaction, lower turnover rate, staffing over a wide range of hours, child care hours that conform to work hours, and access to quality infant and child care (Frone and Yardley 1996; Paludi et al. 2007). This may be difficult to implement in some universities, considering continued biases toward women in academia and the reluctance of changing tenure and promotion decisions. Bronstein, et al. (cited in Bernstein and Russo 2007) noted that "the tenure system in the United States was set up for male faculty, whose wives provided

all the homemaking so that their husbands could devote their energies solely to academic career advancement” (cited in Bernstein and Russo 2007, p. 92).

These programs are necessary in order to deal with the incompatibility between family and work roles in the United States as is reflected in the following research findings (Heymann 2000; Paludi et al. in press; Peeters et al. 2005; Strassel et al. 2006):

Women carry more of the workload at home.
Salary inequities exist, especially for women of color.
Employed women do substantially more caregiving to children and elder parents than do men.

Conclusion: Resilience Is the Women of Psychology

What has been considered “successful” in psychology has typically had a masculine bias. Success may be represented by achievement at a prestigious university, number of peer reviewed journal articles published, academic excellence, and other accomplishments associated with masculine values. Women who manage a household and raise children and/or care for elderly relatives while in graduate school or employed as a psychologist have not typically been seen as “successful.” Women Ph.D.s who are employed in nonacademic institutions are not viewed as “successful.” Psychology must redefine achievement and achievement-related issues in a way that does not keep women’s realities and choices invisible.

Several of the first and second generation of American women psychologists faced incredible barriers to their careers. Women, especially women of color and ethnicity, were viewed as “others,” as “outsiders.” Because women were expected to conform to the gender-role stereotypes, their lack of conformity was negatively evaluated by powerful gatekeepers in the field of psychology. In addition, when women combined career and family roles they were frequently viewed negatively in at least one but usually both spheres. These experiences are shared with many modern day women psychologists. As the American Psychological Association (2009) concluded:

- ▶ Each generation must confront new challenges while protecting its gains. Inequities persist, and lessons that are not passed down must be painfully relearned. We pay a price for equity, and that price is vigilance. (p. 3, 4)

Women have all exhibited remarkable strength and resilience in their commitment to their careers and thereby served as powerful role models for subsequent generations of women psychologists. The history of women in psychology has taught us that history is not “occurring exclusively in the past; that it is an ongoing process” (Denmark et al. 2008, p. 36). We must therefore continue to help shape this history by engendering psychology through research, teaching, and advocacy, highlighting issues with which women psychologists still face and more importantly, by working toward eradicating the organizational barriers preventing women from pursuing an academic career in psychology. This will be the best tribute we can give to the first and second generation of American women psychologists.

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Woolley, Helen Bradford

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Basic Biography

Helen Bradford Thompson was born November 6, 1874, in Englewood, Illinois, to Isabella Perkins Faxon Thompson and David Wallace Thompson. Her parents strongly supported education for women, and all three of their daughters went on to earn college degrees. Helen Thompson graduated first in her class from Englewood High School in 1893 and was awarded

a scholarship to the University of Chicago. She received her Bachelor's degree in 1897 and continued working toward a graduate degree in psychology with James R. Angell, John Dewey, and George Herbert Mead. Thompson completed her Ph.D. in 1900. Her thesis was titled "Psychological Norms in Men and Women"; in it, Thompson compared the performance of 25 men and 25 women on various sensory and intellectual tasks. She found that sex differences seemed to be largely due to differences in social influences throughout development (Milar 2004).

After completing her degree, Thompson was awarded a European fellowship and studied in Berlin and Paris. She returned to the United States to teach at Mount Holyoke College, where she established the university's first psychological laboratory. During her time at Mount Holyoke, Thompson also completed a book chapter on philosophy and a study of after-images.

During her undergraduate studies at the University of Chicago, Thompson met and became engaged to Paul Gerhardt Woolley, who was studying medicine at The Johns Hopkins University. Woolley received his M.D. in 1900, and in 1903 he accepted a position as chief pathologist for the Bureau of Government Laboratories in the Philippines. Helen went overseas with him, and in 1905 they were married in Yokohama, Japan. After being married, the couple returned to the Philippines, where Helen worked as a psychologist for the Bureau of Investigation. During this time, children in the Philippines were only required to attend school for 3 years, and Helen was asked to determine which 3 years of age would be most optimal for learning. This proved to be a challenging feat; often, the people did not know how old they were, and ages were frequently recorded incorrectly. Woolley eventually recommended ages 9–12 as the optimal schooling years (Milar 2004).

In 1906, Paul Woolley took a position as the director of the serum laboratory in Phrapatom, Siam. Helen, who was now pregnant, returned to the United States and gave birth to Eleanor Faxon Woolley. In 1908, Paul resigned from his position in Siam and the family moved to Omaha, Nebraska, where he was employed as an associate professor of pathologic anatomy at Creighton Medical School. While in Omaha, Helen provided private psychology classes to women. During this time, she also wrote papers on color vision and the development of handedness.

A year later, the Woolley's relocated to Cincinnati, Ohio, where Paul had been appointed Professor of Pathology and director of the laboratories of Cincinnati Hospital. Helen taught philosophy at the University of Cincinnati and in 1911 she became the director of the Bureau for the Investigation of Working Children. There, she worked toward creating tests for adolescents to predict job performance. She also compared the mental and physical characteristics of children who left school to work versus children who remained in school (Ogilvie and Harvey 2000). Along with Edwin Clopper and Mary Edith Campbell, Woolley worked with the Ohio Council on Child Welfare to pass the Bing Law, which became the nation's most aggressive compulsory education attendance policy and offered the highest level of protection for working children (Burns 2009). She gave birth to her second daughter, Charlotte, in 1914.

Although Woolley is known by many for her work on sex differences, she was a strong advocate for the use of psychological batteries in public schools. In 1921, Woolley became the first female as well as the first psychologist to serve as the president of the National Vocational Guidance Association. There, she used the psychology laboratories to test children for developmental delays, behavior problems, and giftedness, and recommended that these children be placed in special classes. By this time, Paul Woolley had left to direct the National Pathologic Laboratory of Michigan and to do diagnostic work at the Detroit Clinical Laboratory. Helen joined him in 1921 and accepted a position as assistant director of the Merrill-Palmer School working with young children. Along with Elizabeth (Bess) Cleveland and Rachel Stutsman Ball, Woolley helped to develop the Merrill-Palmer Scales for Children to measure developmental changes in 3-year-olds (Ogilvie and Harvey 2000). Woolley also actively worked to promote the benefits of early education for parents and children and was an advocate for women's rights. From 1923 to 1925, she served at the vice president for the American Association of University Women (Milar 2004).

In May of 1925, Woolley was offered a position as the director of the Institute for Child Welfare Research at the Teachers College of Columbia University. There, she organized two nursery schools and used the educational clinic to conduct research on phases of child

development and parental education. Paul Woolley had moved to California by this time, where he was receiving treatment for the tuberculosis he contracted from his laboratory work in Detroit. For a while, Helen shuttled back and forth between her positions in Detroit and New York, and her physical and mental health began to deteriorate. Her friend, Bess Cleveland died of cancer in late 1925, and Helen's daughter, Charlotte noted that her mother had been losing weight and having trouble sleeping (Milar 2004). Paul Woolley also filed for divorce during this time, which was finally obtained in 1929 (he delayed the divorce when he found out that it could adversely affect Helen's position at the Teachers College). Helen also had an abdominal tumor and underwent an appendectomy and a hysterectomy. By February 1927, Helen was admitted to the Four Winds Sanitarium in Ketonah, New York, for depression and suicidal ideation. Teachers College continued to pay her salary in addition to her medical expenses, and in September of 1928, Helen Woolley returned to her position as the director of the Child Welfare Institute. Yet, Woolley's mental health problems persisted and began to impact her work and her teaching abilities and, in February 1930, Dean William Russell asked for her immediate resignation. The college agreed to pay Woolley a partial salary for a few years after her departure. Woolley initially took the news well and thanked the Dean for being so kind to her. However, over the next several years, Woolley reportedly became obsessed with proclaiming how poorly she had been treated by Russell and sent letters to colleagues and potential employers detailing what she considered his wrongdoings to no avail (Milar 2004).

Helen Woolley spent the last 17 years of her life at her daughter Eleanor's home in Havertown, Pennsylvania. She died November 24, 1947 of an aortic aneurysm at the age of 73.

Accomplishments

Although Helen Woolley was rarely able to remain in one setting for an extended period of time, she was still nationally renowned for her research in child development. Some of her more notable works include *An experimental study of children: At work and in school between the ages of fourteen and eighteen years* and *The*

mental traits of sex: An experimental investigation of the normal mind in men and women. Woolley also authored several journal articles, including "Personality studies of the three-year-olds" in the *Journal of Experimental Psychology*, "Eating, sleeping and elimination" in *A handbook of child psychology*, as well as three case studies on children written during her time at The Merrill-Palmer School. Helen Bradford Thompson Woolley played an instrumental role in the foundations of women's studies and educational psychology, and her contributions continue to have a significant impact on both fields today.

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Wundt, Wilhelm

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Basic Biography

Known as "The Father of Experimental Psychology," Wilhelm Wundt was born in August 1832 just outside of Mannheim, Germany. The son of a country minister, at age of 4 Wundt moved with his parents to Heidelberg. After attending Tübingen University, Wundt earned his doctorate at the University of Heidelberg, just as many of his relatives had. His career included work as a professor at Zurich and Leipzig Universities. At Leipzig, Wundt established the world's first experimental laboratory in psychology. Wilhelm Wundt died in August 1920 while still a professor at Leipzig.

Major Contributions

Discussion of Wundt usually focuses on his strict adherence to experimentation and introspection. However, the human child was also of great interest to Wundt, and a topic for which he had much to offer. Considering child psychology's lack of objectivity one of its limitations, Wundt encouraged sound observations keeping in mind influences on the child.

Just as with adults, Wundt believed children were products of learning and imitation. Willing to admit a newborn possesses inherent reflexes; Wundt theorized learning begins around 1 month. At this time, reflexes become refined and a consciousness emerges as evident by changes in mood. Physical and mental maturation enable the child to display his or her learning. During the emergence of intelligence, the child's attention becomes more focused for longer periods of time. Similarly, initially the child's associations are short-lived and last only a few hours. However, as the child grows so do the association intervals in his life span. Paralleling developments in attention and association is the emergence of self-consciousness. Impossible to observe its beginnings, Wundt felt self-consciousness functioned as early as the first few weeks after birth with the child's recognition of his or her body.

The progression in self-consciousness allows for the development of will, which distinguishes humans from animals. Wundt also argued a newborn child does not show signs of volitional acts. For example, a child does not instinctively follow visual objects. Instead this ability is gained only after improvements in attention.

Perceiving communication similarly to other volitional acts, Wundt offered an early theory on language acquisition. According to Wundt, the burgeoning of language resulted from the child's increasing ability to perceive and imitate different forms of communication in his or her environment. A child's early babbling was not equivalent to language since it lacked meaning. Babbling develops into language through social interaction with others in the child's environment, such as reciprocal imitation with parents.

Finally, it is interesting to note the impact Wilhelm Wundt had on educational systems. Many psychologists who have played a critical role in academics in America have ties with Wundt. For example, G Stanley Hall, a protégé of Wundt, worked with John Dewey. Dewey eventually became a professor at The University of Chicago where he played a very important role in developing new progressive approaches in child education.



Z

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Basic Biographical Information

Robert Boleslaw Zajonc (1923–2008) held many prestigious titles in his lifetime for his numerous accomplishments in the discipline of psychology. Zajonc was a professor of psychology at both University of Michigan and Stanford University. He was once the president of the Society of Experimental Social Psychology, and the president of APA Division 1 (Society for General Psychology), as well as a member of the APA Board of Scientific Affairs (Burnstein 2009). Zajonc was a recipient of the Award for Distinguished Scientific Contributions from the American Psychological Association in 1978, as well as the Distinguished Scientist Award from the Society of Experimental Social Psychology in 1986 (Burnstein 2009). Though he lost his life to pancreatic cancer (Burnstein 2009), Zajonc has made many contributions to the field that will live on.

Zajonc was born in Lodz, Poland. During the Nazi invasion of Poland, the Zajonc family fled to Warsaw,

where a bombing killed Zajonc's parents (Fox 2008). During this tumultuous time in history, Zajonc escaped imprisonment in a German labor camp but was captured and sent to a political prison in France (Fox 2008). His successful escape allowed him to join the French Resistance, where he moved toward England. Having mastered numerous languages including English, Zajonc served as a translator for the US Army in England (Burnstein 2009). He later worked for the United Nations and the Rehabilitation Administrations in Paris as the war came to an end (Burnstein 2009).

In 1948, Zajonc immigrated to the United States, where he received his undergraduate education at the University of Michigan. Despite being accepted to the university with "probation" status, Zajonc continued on to receive a bachelor's, master's, and doctoral degrees from the university (Burnstein 2009). After earning a Ph.D. in social psychology in 1955, Zajonc became an integral part of the University of Michigan faculty. Here, he began to look into the mind, a pioneering effort in this time when behavior was the core of most research (Fox 2008). Zajonc studied a number of areas, including the effects of birth order on intellectual performance. Well known for his findings of the mere exposure effect, Zajonc also studied the link between physiology and psychology. His most recent research interests have been focused on racism, terrorism, and genocide (Fox 2008).

Major Contributions

One of Zajonc's important contributions to the field of social psychology regards the effect of the presence of others on performance of a specific task. Known as social facilitation, Zajonc explored why the presence of others enhances performance in some situations but not others. He found that the presence of others enhances performance on a given task when the performer has mastered the specific skill at a high level.

On the contrary, the presence of others hinders performance on a given task when the performer has not quite mastered the specific skill (Fox 2008).

From his war-torn childhood, Zajonc was attracted to the field of psychology to provide research that may someday aid in preventing future wars (Fox 2008). Possessing both intellect and kindness, Zajonc's contributions to psychology have been plentiful. From Lodz, Poland to Palo Alto, California, Zajonc ended his career as emeritus professor of Stanford University. Zajonc influenced the field of psychology with his research but also helped inspire budding psychologists with his excellent mentoring skills (Burnstein 2009).

See Also

► [Social Psychology](#)

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Basic Biographical Information/ Major Accomplishments

A prodigious student of Henri Wallon, René Zazzo was affected by his mentor throughout his life. Zazzo sought a more Marxist interpretation to human higher mental functions than the instinct doctrine which dominates the field of psychology. In the footsteps of Wallon, Zazzo expanded his vision of psychology in Ecole Pratique des Hautes Etudes which was one of the first interdisciplinary institutes in the social sciences, and prepared the way for what was to become behavioral science in France. Zazzo did combine dialectical materialist conception of history with psychology, which was an unusual synthesis at the time. Psychology at that time was seen as a bourgeois science. It was

through Zazzo's effort that Marxist psychologists now had a language of their own to guide experimentation, empirical research, and stimulate discussion with such concepts as intelligence, human nature, higher mental functions, learning, personality, etc. To these were added over time the concepts of consciousness, cognition, dialectics, contradictions, conflicts, praxis, social production of the individual, alienation, activity, actual cognitive development, potential cognitive development, etc. Much of the development of the field along Marxist psychology lines was the extension of Wallonian conceptualization (Georges Politzer, Lev Vygotsky, Alexis Leontiev, René Zazzo, and Lucien Sève among others). Zazzo also pioneered in methodology in going beyond the laboratory to study twins in their field settings (compare the development of identical twins). Though he was the first real genetic psychologist, he did not allow himself to become a captive to a single type of technique. He sent his students into the field, schools, kindergartens, and other natural settings to observe concrete realities at first hand. He argued clearly and convincingly that the language of data should not be confused with the language of metaphor concepts. Zazzo observed that psychologists frequently resisted the attack on their favorite theories which lead in many cases as a way out or the attempt to conceptualize their concepts. Zazzo was skeptical of these strategies, because the outcome is only the growth of empirical behavioral psychology. He was known for his penetrating accounts of historical, cultural, and social factors in the shaping, formation, and structuring of human higher mental functions. Human sociality is inherited in human nature.

Zazzo spent the rest of his life trying to develop a theory of human activity (instead of behavior) that would take account of the structure of human action in an objective, concrete, and scientific manner. He was widely recognized (in Spain, South America, Africa, Eastern Europe, and Russia) for his professional and scientific contributions. He served on the board of directors of many psychological, educational, and philosophical journals. He was a great teacher, PhD mentor, and his character was as generous as the sweep of his intellect. He published over 20 books and more than 200 scientific papers in the field of child psychology, education, learning difficulties, psychometrics, philosophy, and epistemology. His works still inspire

psychologists and educators worldwide. He had a stimulating mind, a piercing wit, and was a Marxist developmental psychologist.

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