

QABALA AS A SPIRITUAL PATH

Iona Miller, c1987

*I inquire, I do not assert;
I do not here determine anything with final assurance;
I conjecture, try, compare, attempt, ask...*

Statement of Purpose: The orientation of the Synergetic Qabala sites is to provide serious qabalists with modern conjectures in Theoretical Qabala with the aim of contemporizing our models and practices. The emphasis here is on mysticism and meditation, rather than ritual and magick. These essays, artwork, and visualizations are not meant as a new dogma, practice, or school of thought. They are simply the result of my own thirty-plus years of qabalistic work. I hope they provide a springboard for your own thought. They are meant to stimulate and provoke your own speculations, insights, and experiments.

Qabala is not a static doctrine, but a living Way. Qabala is an experiential path, an experiment which lasts throughout one's life. Qabala is ultimately about access to and experience of discrete states of consciousness, ways of being and becoming. To glean its wisdom, we must "sample the dish," not simply read the recipes. It is a subject which cannot be exhausted. We must make it our own, even while honoring its tradition. In this way, we have the best of both worlds. Qabalistic traditions and models are validated by modern research everyday. It has a vast capacity to incorporate the entire repertoire of human knowledge and understanding, coordinating through its primary glyph, the Tree of Life.

We can update our models and create revolutions in our own beliefs and thinking, much the same as happens in science. Therefore, we will be drawing on resources from post quantum physics, Jungian and Transpersonal Psychology, and traditional and modern philosophical speculation, such as Buckminster Fuller's Synergetics. I hope you find valuable concepts here for bootstrapping into your own worldview and facilitating your journey toward Union.

*"Ever since the Lord ordained the Creation,
I have been pledged to return to my original home.
People know, from my quest for unity in God,
that I am as anxious as I am eager to merge with him.
I shall bear the blows of destiny as I pursue him,
while I am ferried across to him on the boat of his love.
No one ever found the Lord while living,
O Bahu, except those who found him by dying while living."*

**Sultan Bahu,
17th Century Sufi saint, Punjab, India**

THE SYNERGETIC QABALA

The premise of Synergetic Qabala is based on the fact that manifesting form is essentially energetic. Form is not other than force, and force is often indistinguishable from form. Forces interacting in dynamic stabilization are essentially, therefore, synergetic. The right and left Pillars of the Tree of Life are in a state of dynamic tension, as well as other polarities which it embodies. While Synergetic Qabala is essentially a geometrical philosophy, it is not a sterile number mysticism, but a theosophical approach to the unfathomable mysteries of Qabala and its essentially mystical orientation.

The Tree of Life is a model of the universe that describes energy's behavior and also has the ability to shape our thinking. Synergetics describes the actual underlying geometry of subatomic structure. Here we employ nature's own coordinate system, the geometry nature uses for self-organization --the tetrahedron. There is a relationship between geometry and number which is intrinsic to the spheres and geometry of the Tree of Life. It defines the philosophical universe of Qabala. Explorations in this geometry are covered elsewhere in "The Synergetic Qabala."

The ancient system of the Qabala may best be described as a mystical theosophy, an effective guide for understanding ourselves and our relationship to the universe. It provides a cohesive worldview which is consistent with the findings of modern physics, psychology, and philosophical thought. It provides not only a philosophy, but a Way of life. It is a mystical discipline which requires an active spiritual practice for realization.

As in the case of physics, there are two main branches of Qabala. The first is speculative or Theoretical Qabala and the second is Practical Qabala which concerns the application of its principles through theurgic magic and/or mystical meditation. It is a complex system of symbols and principles for developing the inner potential of human nature, leading to the stage of conscious service to the divine powers at the source of all creation. Though often spelled many ways, we employ the simplest transliteration of QBL, as Qabala (ka-ba-la).

Though associated with the Hebrew, and later Hermetic philosophers, the roots of Qabala possibly originated in Egypt. The Western occult tradition attributes it to Hermes Trismegistus, or Thoth (Egyptian inventor of writing, astronomy, and mathematics). These teachings belong to ancient Egyptian mystery traditions that predate Plato and the Bible, with treatises on ancient cosmology and sacred psychology.

The Hermetic tradition enjoyed a revival when Marsilio Ficino translated a bundle of ancient Egyptian manuscripts with the collective name of the *Hermetica* (1463). The *Hermetica* has been called the fountainhead of Western spirituality, the motherlode of all later esoteric and metaphysical systems. Here we find the suggestion that mankind is a hybrid of human and divine elements. Human nature is potential divinity, or "Godseed." Hermetics opened the way to independent spiritual seeking--spontaneous God contact--in the West. It suggests the possibility of transhumanization, and the divine mission of cocreation.

Egyptian religion is the prototype and source of mankind's interest in seeking immortality. It is the source of mystical teachings on reincarnation, magic, healing, the mysteries and the rudiments of sciences such as astronomy and chemistry. The other primary source of mythic material comes from Sumeria with its stories of God-men, the Great Flood, the creation of Adam, and the nature of deep time (*Enuma Elish*) and the Cosmos. They developed a rich culture, including the first recorded kingship, libraries, and systems of measurement, and sacred geometry. The Zodiac developed from Mesopotamian astronomy.

Early Jewish initiates believed Qabala's mysteries were first taught by God to a school of angels. According to legend, the angels in turn transmitted it to Adam after the Fall in an attempt to help humanity regain its balance. These mythic images suggest a Mesopotamian origin for these doctrines which is lost in the mists of prehistory. Remember, the Hebrew patriarch Abraham began his spiritual journey away from paganism toward monotheism in the Mesopotamian city of Ur, (in the heart of the ancient Sumeria, where recorded history, culture, and modern technology began).

We can use the Qabala today as a guide for our personal growth, both psychological and spiritual. Qabala helps us get in conscious contact with latent or hidden aspects of our deep mind, collective inheritance, and Source. The imagery and phenomenology of Qabala is well documented. The universe is an emanation or flowing forth of Godhead, the primal Source. It is an expression of the dynamic fullness of divine Life.

This plenum or matrix is the source of divine sparks who plunge into the long process of involution or descent through the planes into manifestation. They eventually undergo an evolution in which new and infinitely differentiated aspects of the original, unmanifest potentiality of the Godhead comes to expression. Ascent up the central column of the Tree of Life is the mystic's path to spiritual awakening and absorption. The Source can be experienced directly and discovered within us. This universal paradigm correlates with all mystical traditions. It is the very ground of our self-awareness.

The qabalistic Universe is a spatially conceived cosmos divided into higher and lower worlds or heavenly spheres of influence. Qabala is about the relationship of the One to the Many, and the Many to the One; all are conceived as active aspects of Living Deity and their dynamic interrelations. It describes a vast panoply of involution and evolution. It is an immense network of embedded symbolism and arcane lore, which begins with a cosmology, (a scenario about how the universe and humanity came into being; the patterns of nature in relation to the moral and psychological aspects of human behavior).

The qabalistic Genesis begins with the emanation of *Ain Soph*, "supreme wisdom," the Godhead as pure light-filled creative intelligence, source of all manifestation. The Limitless Light flows out into the 10 Spheres of the Tree of Life down through the Four Worlds of Creation: Archetypal (divine), Causal (mental), Astral (emotional), and Physical. Emanation means that God sent forth a portion of his own essence into the manifestation, rather than creating a separate reality. This cosmic pattern or design reflects the divine order, the pervasive design of the world. **The succession of numbers 1 through 10 symbolizes and is, in fact, identical with the emanation of the manifest Universe. The 22 letters of the Hebrew alphabet contain and create the secret structure of all things. The cosmic process is an unfolding of the mystical name of God. Each letter corresponds with a path on the Tree of Life, and functions as a mystical "gateway" to its experience.**

Though originally an oral tradition, written philosophical doctrines can be traced to the 3rd through 13th centuries. The foundational text of written Qabala, the *Sephir Yetzirah*, 'The Book of Formation' is based on alphanumeric mysticism. It describes how God created the manifest universe by means of letter/numbers which are the foundation of all things. The letters are part of 'one body,' the alphabet which is an extension of God's own being.

All created things, made by means of the letters, are also parts of the one body which is God. Contemplation of and meditation on these Hebrew letter/numbers is fundamental to accessing discrete mystical states. Mystical understanding of this divine Unity is the first concern of qabalism. This is part of the origin of the power of the Word or Logos in the crossroads cultures of the Middle East. In ancient Egypt the specific organ of creation was Ptah's mouth, "*which named all things.*"

Like the descending emanations from the divine source, the soul leaves its home in Godhead and descends into physical form, where its redemption comes through seeking that from which it originated. Thus, Qabala is a Path of Return to the pristine state, but with an experiential legacy.

This legacy comes from "dying while living," a metaphor for the daily "death" to the outer world in mystical meditation. Ultimately Qabala is a solitary pursuit, but one best conducted with an experienced guide. Remember, no teacher can take you any further than they have been, and there are real psychological and spiritual dangers in the realm of the collective unconscious.

Not everyone is naturally equipped to discriminate subtle tricks of the mind (mental imbalance, hallucinations, delusions, ego inflations, flights of fancy) from authentic spiritual insight. True mystical experience, like scientifically conducted experiments, is repeatable and reproducible. It is approximately the same for all practitioners, everywhere, in all times.

The same is not true for what psychologists call "magical thinking," which is a pre-rational, rather than transrational state, characterized by a plethora of superstitions and often paranoid ideations. Much of so-called New Age thought is characterized by these romanticized superstitions and faulty conclusions based on sporadic results from unsystematic, idiosyncratic rites and practices.

We may be well-intentioned when we embark on self-directed studies, but this method can take you no further than the Self, where many magicians make the mistake of setting themselves up as an ersatz God and worshipping their own willfulness. Is not setting oneself up as one's own God the ultimate folly, and the mistake which turns the adept into a Black Magician, deifying his own personality?

We must abandon our narcissism to take up the quest for archetypal origin. It involves personal sacrifice and ordeals. Four factors show the difference between someone who has creative fantasies and someone who is only spinning neurotic nonsense: originality, consistency, intensity, and subtlety.

Though the roots of magic and schizophrenic fantasy spring from the same source, they are not synonymous. Magic is a counterphobic attitude, the transition from passivity to activity. In fantasy, realistic action does not follow; it is a substitute for healthy, pro-active behavior. The ego is weak or totally absent, engaging in fruitless attempts at restitution.

True aspirants show continuity of devotion to God, not self-aggrandizement. One learns how to navigate in the imaginal realm--an *as if* reality--without taking it literally. We learn to become absorbed in the Divine without mistaking our spiritual awakening for de facto personal deification. The attitude is one of "Not my will but Thine be done." It is the spirit of submission and selfless service to the Divine Will.

Reports of angels and demons are commonplace in Qabalistic literature. Once again, this speaks of a Mesopotamian origin or subsequent influence. The crossroads cultures of the Mediterranean and Middle East influenced one another's philosophies.

In late antiquity there was a mingling of Gnostic, Neoplatonic, the ancient Hebrew Merkabah tradition, and magical speculation with Babylonian notions of angelic, demonic, and divine powers. This influenced the development of mystical lore. This co-mingling (syncretism) had long been established by the time the central text of Qabalism, the Zohar was written in 13th century Spain.

In terms of Jungian psychology, the angels seem to correspond with inner guides or wisdom figures, while the demons are analogous to psychological complexes. Qabalistic speculation asserts that angelic guardians and demons can block one's progress to ascent. In many ways these "entities from other dimensions" represent different aspects of the human psyche--forms of our higher and lower selves.

Psychologically, we know that imbalance and neurosis are blocks to our growth, self-defeating behaviors. Angels can be seen as transpersonal resources, while demons manifest within us as autonomous subpersonalities with their own agenda, not necessarily in synch with our personalities goals.

Somewhere in between common angels and demons comes the notion of the *daemon*, genius, or Holy Guardian Angel--a personal inner guide which appears as synchronicities, inspiration, creativity, intuitive knowing, or directly as a personified figure for dialogical exchange. Angels are messengers which mediate between the divine and the human.

The angel instructs and inspires, draws forth and nurtures our talents. We connect with our personal essence and self-expression. It can be a guardian of the threshold of the mysteries, harsh taskmaster or the source of seemingly infinite creative expression. But, once summoned, it will not be ignored without peril. Attainment of "Knowledge and Conversation" with this singular Angel is the primary operation of elementary theurgic magick, and is central to further progress and transcendence.

The purpose of the Qabala (QBL) is to help us experience the Mysteries directly through personal encounter, both inwardly and outwardly. It is no mere study, but an applied philosophy. The transformative lessons of the Qabala come through life experiences and consciousness journeys. It is visceral and emotional, as well as mental. It is a perspective on life that is actively immersed in the mythic as well as personal worlds. The adept has a foot in, or walks between both worlds.

The doctrine of Qabala is based on the premise that God created mankind in his [their] own image. The Creation is attributed to the Elohim, male/female deities acting as agents of the supreme God. There is a hierarchy of hyperdimensional entities which inhabit the various subtle planes of the universe. Each of the classes of angels has a specific relationship and duties toward mankind. They are all in service to the self-revealing dynamic God of religious experience. An existing God means a manifest, revealed and related God.

The guiding axiom of the Creation is "**As Above, So Below.**" This Hermetic axiom means that there is an archetypal identity between divinity and mankind, mankind and the Universe. This intimates that mankind can achieve a "cosmic consciousness," since "we are that." We can "receive" this knowledge or revealed Truth directly from the Source, through QBL which literally means "to receive."

There are six major principles of the Qabala:

*** The cosmos is a Unity, with all aspects in interrelation. It is a wholistic worldview.**

*** The forces of creation represent an eternal interplay between an active force and a passive one; polarity (positive and negative charge, male/female, yin/yang, holding the tension of the opposites).**

*** The human individual is a microcosm of the universe; we come to know the universe through ourselves, and ourselves through cosmic principles.**

*** In daily life we are attuned to only one state of consciousness among many. This is the culturally programmed trance state known as ordinary consciousness, or consensus reality.**

*** We can access multiple states of consciousness, including universal or cosmic consciousness through systematic application of concentration and meditation, by the grace of God. Careful preparation is necessary.**

*** To achieve such transcendent states of consciousness various specific practices and techniques are utilized.**

The main concern of the practicing Qabalist lies in the applications of its teachings to his own life. In other words, we are interested in psychological and spiritual growth with a greater understanding of Universal principles. In Qabala we find many mysteries and techniques for enlightenment. Like any system of theosophy, the Qabala's purpose is to account for humanity's relation to the Divine, and to create a personal, living relationship with that divinity.

The main tools (or methods) applied by the Qabalists include concentration, visualization, ritual, meditation, and contemplation of the Tree of Life. The circuit of this "Tree" is the most important symbol in the Qabala, and posits a series of "heavens" (or discrete yet synergetic states of consciousness) which can be accessed by the aspirant. This Tree describes the descent of creative energy into manifestation, (in a primordial move God begins to turn outwards, to unfold, to exist), and the Path of Return to divine existence. The downward arc of phenomenal creation is answered by an ascending arc of evolving consciousness. The Tree of Life represents the soul of mankind and the essence of the Universe. It is the guiding model for the homeward-bound soul; a consciousness map for the inner journey back to the Limitless Light.

This glyph, which consists of 10 Spheres and 22 Paths, has long been associated with the Way of Initiation. Qabala is a mystery school whose secrets are only transmitted orally and experientially. Because these secrets require maturity, deep commitment and personal experience, and God's grace, they are always "safe" from the profane. The dilettante or dabbler will never "get it." It requires "being there."

The Tree is a compendium of symbolism describing all ways of being and becoming; of forms, images, and ideas. It is a system of correspondences, associating diverse symbolism such as inner experiences, planetary attributions, the Tarot, gods and goddesses, plants, jewels, animals, elements, alchemical operations, etc.

Pathworking is a technical term from the Western mystery tradition. It is a method of using imaginal processes to get actual experience. It is a course of meditations which leads to the awakening of inner potentials or psychic effects, and produces outer effects in the form of synchronistic events, challenges, or growth. It is a means of conscious self-discovery and self-actualization, unfolding our innate essence, "true self".

In meditation the Qabalist concentrates on the Tree of Life and observes certain relationships. When we concentrate on one of the Tree's symbols, our mind contacts a cosmic force and completes a transformative circuit with Universal Mind. A new aspect of the collective unconscious is made available to our conscious minds. The transpersonal becomes personal and finite as it manifests within us. The practice of this meditation eventually leads the student up the paths toward spiritual fulfillment and union with the Limitless Light.

The application of qabalistic principles, practical Qabala, has always been called magic. It supercedes the more primal, shamanic type of magic with theurgy. Its aim is religious or spiritual, rather than personalistic ends, such as healing. It changes consciousness progressively, not regressively. It leads to objective self-knowledge. There is no loss of consciousness to lower trance states, but an enhancement.

Through syncretism (the cross-cultural melding of religious ideas), Qabala became more than a system of Jewish mysticism. It is the basis of the Western Occult Tradition and Hermetic Philosophy. Practical Qabalists use the teachings to transform their lives, using many of the techniques adopted by modern psychology. In fact, many of the ancient mystic arts were the traditional equivalents of contemporary science.

If you embark on a self-directed program of growth, how do you know how to program your transformations? How will you achieve a balanced or equilibrated growth pattern, making sure your rational and emotional selves mature at a harmonious rate? Who or what will be your guide? How will you avoid overemphasizing your strong points, and how can you identify your psychological blind spots, or guide yourself through your own fears?

Both Jungian psychology and the qabalistic teachings include a depth analysis of the personality, and its subsequent reintegration on a higher level of organization. It means the deconstruction of the rigid old ego, its liquification, and subsequent spiritual rebirth. This requires maturity, and both disciplines recommend waiting until after age 40 to begin in earnest. Before this age outer activities such as career and family often take rightful precedence. But many must begin sooner because they are called to the Path early. Both systems employ the study of symbolism and archetypes, creative visualizations, guided imagery, journal work, and meditation. Both seek the actualization of an integrated personality, known as self-realization.

However, Qabala transcends the realm of psychology and the mind; it seeks to use the trained psyche or soul as a vehicle for God-realization. Hence, its emphasis on purification and discipline of the mind and body in service to the soul. This is the task of mystical meditation, whose goal is beyond the realm of the mind. The transpersonal goal is valued more highly than the personal sacrifice which is a condition of success in this endeavor. Yet Qabala is a "householder's yoga" which need not take us away from worldly life and our duties.

We can integrate both ancient qabalistic and modern psychological teachings into our daily lives. Qabala adapts to the continuing changes of contemporary society since it is not a dogmatic, historic curiosity whose mysteries are frozen in antiquity. Rather, it is a living science of the soul, an evolving system of spiritual development accessible to anyone with a desire for higher knowledge and depth experience.

The Qabala is a blueprint of a holistic lifestyle. It is a way to tie your various studies together, relating them to each other, and enabling you to understand each more completely. It is also a useful guide and objective measure of your personal growth.

Dion Fortune defines Qabala as *"an attempt to reduce to diagrammatic form every force and factor in the manifested universe and the soul of man; to correlate them to one another and reveal them spread out as a map so the relative positions between them can be seen and the relations between them traced. . . a compendium of science, psychology, philosophy and theology."* We might add that the Qabala encodes a maximum amount of information in a minimum number of graphic elements, i.e. spheres, paths, number/letters, and colors. It is a universal code.

Israel Regardie calls the Qabala, *"a trustworthy guide leading to a comprehension of both the Universe and one's own Self."* From Gareth Knight we hear, *"A practical method for the interrelations of various systems of symbols."* For example, if you know one symbol system, say astrology, you can readily translate it over into another, such as gods and goddesses, by means of the Tree of Life.

Qabala, as a system of attaining direct religious experience, has been called a step-ladder of spiritual growth, the Ladder of Lights. It may also be used as a study of comparative religions, with their goals mapped at the various stations. W.E. Butler termed it *"a method of using the mind in a practical and constantly widening consideration of the Universal soul of man."* The methods of QBL require that the mind be tamed and trained and its lower desires subjugated to the higher Will.

One of my favorite (slightly outdated) metaphors likens the Qabala to a filing cabinet which contains the Universe. It functions as a filing cabinet for mental concepts, giving a place for everything within the 32 files of the Tree. This data base can be used as a retrieval system, not only to contact the information you've stored there, but also that which is warehoused there from the collective unconscious. Through it, we connect with a vast spiritual heritage, that of previous practitioners of QBL. It brings us in touch with experiences similar to those who have gone before us on this Way.

Regardie states that, *"the art of using our filing cabinet arrangement brings home to us the common nature (or essence) of certain things, the essential difference between others, and the inevitable connection of all things. Moreover, and this is extremely important, by the acquisition of an understanding of any one system of mystical philosophy or religion, one automatically acquires, when relating that comprehension to the Tree of Life, an understanding of every system. So that ultimately, by a species of association of impersonal and abstract idead, one gradually equilibrates the whole of one's own mental structure and obtains a simple view of the incalculably vast complexity of the universe."*

From the Qabalist's perspective, equilibrium is the basis of the work. Qabala functions as an ancient general systems, theory, allowing us to relate that which is apparently separate. Serious students make a careful study of the attributes of the Tree and commit them to memory. They function automatically as mnemonic devices to stimulate synergetic perception of reality.

Jung alleged that there are gods within each illness or dis-ease we experience. Each archetype or godform has its own corresponding pathologies. When we realize that our identities are composed of various complexes (or subpersonalities) and realize that there are different mental and spiritual spaces, we are already engaged in some form of Qabala. The Tree of Life is a map to these consciousness states, and their balancing forces.

In depth psychology we find modern terms for these states of consciousness. In ancient texts we find the names for these spaces and techniques to contact or enter them. The map of inner consciousness unites the soul with the Universe. We move through this map, up the Ladder of Lights by means of the process of progressive identification with higher states, and disidentification with lower ones. We don't lose the lower levels, but bring them into a symphonic relationship with the higher ones. This is the spiritual approach to healing dis-ease.

The Tree of Life, as a graphic representation of the creation, leads to the communion of the mundane, conscious self with both the subconscious and superconscious Self. The subconscious includes the body with its virtual, subatomic (quantum), atomic, molecular, and genetic organization, autonomic functions, and the personal unconscious of forgotten or repressed desires and memories--the psychophysical. The superconscious is the spiritual self or the god-within.

As with all good road maps, the Tree of Life helps guide you to your destination, but the map is not the territory. In the case of this map, problem solving, obtaining goals, and spiritual experience are the ultimate destinations. Goal setting is a positive thing; without goals we flounder. This is the basis of becoming a "seeker," and then an initiate. Initiation is only the beginning of the process. The imparted teaching must be applied. The ego can initially do those things which lead to its own transcendence, but in the higher stages progress comes through God's Grace.

The Tree has various directional coordinates connecting the spheres, called "paths." The paths are transitional stages while the spheres themselves may be considered discrete states of consciousness or archetypal modes of Being, rather than Becoming. Each of the 22 paths has a series of exercises that strengthen, prepare, and test the body, emotions, mind, and spirit. A student of the Qabala does "pathworking" for spiritual growth.

There are two major divisions to the study of the Tree of Life. The first way to approach it is philosophical. The doctrine of the Qabala includes an elaborate conception of the birth of the universe, or a cosmology. It outlines

detailed hierarchies of entities controlling the various inner realms which lie between the mundane sphere of the earth and the abode of God, as unmanifest Reality. This "blueprint of the Universe" may be studied, and contemplated or meditated upon. Recent investigations reveal that the pattern of the Tree is implicit in the formation of all atomic elements (see The Diamond Body). It is the geometrical basis of natural philosophy.

Once we are familiar with the basic concepts we have the option of approaching the Tree from a practical, experiential perspective. Here the information we learned through study is put into applied practice. This application has been called "magic" from the earliest times, from the same root as Magi, the Mesopotamian wise men, priests and astronomers. Astrology and magic were invented and developed in ancient Mesopotamia.

In contemporary mystical terms, it primarily indicates the building up of multi-sensory mental images or impressions. Sometimes we must resort to sensory stimulation to engrain or reinforce these symbolic images. This is one value of ceremony or ritual: to set up a system for evoking psychosensory subliminal responses which can transform the personality.

The most basic use of the Qabala in our daily living is as a touchstone for solving our personal problems and gaining a transpersonal perspective which transcends our mundane life. Do your actions and choices create more karma? Do they take you closer or further away from your spiritual objectives? The effect of discrimination and better choices is therapeutic for the personality and healing for the soul. It promotes healthy self-esteem and personal integrity. It increases compassion, wisdom, and understanding.

When the fragmentation in our personality begins to heal, we experience rebirth as a more integrated personality. Once we have addressed our major psychological conflicts, the mind becomes calm enough to begin meditation. Those who have mastered this technique are enlightened sages, called masters. They describe the mind as a veil covering and encumbering the soul.

This mind is seen as tied in a knot with the soul. Therefore, whatever the mind does, the soul is dragged along. If the mind is taken outside, willy-nilly by the senses, soul is scattered in phenomena, *maya*, or illusion. If the attention goes within--to the Eye Center in meditation--soul can collect and ascend to higher regions. The mind is necessary for the soul to express itself on material planes just as a diving suit is necessary for any prolonged stay underwater.

The goal of many meditation schools is Universal Mind, or Brahm. But these schools may not speak of soul, per se, although they do address its phenomena. The Tree of Life shows the dominion of mind terminating at The Abyss. The upper one-third of the Tree--the Supernal Triad--supercedes Universal Mind. It exists in an altogether different dimension, an archetypal dimension beyond even subtle manifestation. Masters speak of entering this realm in their meditations, once the soul is freed from the mind. But your model or worldview must include the possibility of Reality beyond Universal Mind, or you won't even seek it.

Qabala describes four discrete aspects of the soul:

- 1) GUPH, the material or physical body;
- 2) NEPHESH, the desire body, instinctual nature, psychosexual self;
- 3) RUACH, the mental body of personality including memory, will, imagination, and reason;
- 4) NESCHAMAH, the soul unfettered by its mingling with the mind. A pure spark of divinity which has the capacity to merge back into Godhead.

Neschamah manifests in the life of the self-realized individual. In fact, the realization is that one is indeed this being of pure light, "I AM THAT."

THE TREE OF LIFE & DEPTH PSYCHOLOGY

We can use the Tree as a technology for connecting with Higher Power, however, we comprehend that notion or force. Using the modern language of psychology (language of the soul) as a level of communication, we can elucidate each sphere in terms of Jungian archetypes, and the various myths associated with that sphere. Briefly, we can make the following associations:

#10 MALKUTH: The Seeker. Can be associated with the initiation of the process of individuation or coming-to-wholeness. It is not the process itself, but the starting point. This sphere is also associated with the central nervous system and brain as the physical plane seat of consciousness. It is an aspect of personal consciousness as well as the personal unconscious. Jung speaks of psychosomatic disorders, ideomotor responses, and the archetype of the Persona or social mask;

the archetype of the Shadow is our potential both for evil and un-lived good; the archetype of the Double is our immortal counterpart. Mythic correspondences of the earthy sphere include Demeter/Persephone, earth mother and maiden bride; Gaia, primal matter; Pan, the nature god; and Hestia, goddess of the hearth, the center. Simple counseling and supportive therapy are appropriate at this phase. It means the end of denial and acknowledgement of the problem.

#9 YESOD: The Dreamer. Corresponds with the moon and 'lunar' consciousness. Also known as the Astral Plane, the realm of waking and sleeping dreams, hypnosis, and twilight imagery. The level of metaphorical perception as contrasted with literal interpretation or "acting out" of Malkuth. Psychosexual, linked to the ego, or emotional concept of self-identity as personal and unique. Lunar archetypes include the Great Mother, White Goddess, and Virgin Goddesses. Jungian archetype is the Syzygy, or anima/animus (contrasexual aspects of self) as it relates to our love interests.

Goddesses include Isis, Artemis, Athena, and Psyche; they relate either directly to the moon or the woman's mysteries of cyclic death and rebirth, or transformation of consciousness in the crucible of the emotions. This is the level of the subconscious mind and instinctual nature; passions (gland central station). Dreamwork is appropriate therapy for this sphere; psychologies which address this level include psychoanalysis, psychodrama, transactional analysis, reality therapy, ego psychology, and dreamhealing.

#8 HOD: The Thinker. Cultivation of this sphere brings about a rational approach to the world. Mental concepts. We learn to approach our problems in a rational manner, and so make effective decisions based on a true understanding of the issues involved, critical thinking. Corresponds with Jung's synchronicity concept of acausal yet meaningful coincidence. Analogous to Mercury, plane of intellect.

Archetypes include Hermes, the alchemical Mercurius, the Trickster, and 'spirit,' as well as certain aspects of Eros as son/lover. Also the Puer Aeternus ("eternal youth"); those who remain too long in adolescent psychology; adult child syndrome; associated with strong unconscious attachment to the Mother (actual or symbolic), much like Eros held for his mother, Aphrodite.

Positive traits are spontaneity and openness to change. Hermes is a god of prudence, cunning, shrewdness and sagacity; invented alphabet, mathematics, astronomy, weights and measure. A study of the psychological types of personality is effective for a rational approach to the diversity of the human race. Hermeneutics and analytical psychologies correspond.

#7 NETZACH: The Lover. A higher aspect of the emotions which includes aesthetics and the establishment of a personal set of values and ideals based on your own personal experience and inner meaning. Must be balanced with the previous sphere for perfect equilibrium and further access. The realm of

divination and oracles; the reflective mirror of the creative imagination. Associated with the planet and goddess Aphrodite.

The archetype of the *puella* or "eternal girl" is a negative or faulty relationship to the father-world. Cinderella complex. A depth understanding of the feeling function as described in Jungian psychology is useful here to move from an overly dependent (codependent) attitude. Love and victory are its qualities. Mythemes relating to this level include those of Aphrodite, Circe; Orpheus; Tristan and Iseult; Guinevere and Lancelot; Heloise and Abelard.

Therapies for the HOD/NETZACH level connect us with our feelings as well as thoughts and process, release, or transform. This is the level of inner child world which comes prior to spiritual rebirth; known as "original pain" work. Polarity Therapy, Bioenergetics, Rogerian Therapy, Gestalt Therapy, Existential Analysis, Logotherapy and Humanistic Psychology.

#6 TIPHARETH: The Initiate. The central sphere of the Tree allows a harmonizing of the reasoning faculty with the feelings. It permits a rational evaluation of the worth of relationships and situations, not the emotions which are due to the activation of a complex. The abstract level of the higher mind can be developed through symbolism based on the power of the imaginative function.

This is the sphere of the superconscious, and it forms the link between the spiritual nature of man and his lower self. It is the principle of integration. It is the goal of the Invocation of the Holy Guardian Angel in Magick; the Jungian Self. Known as Beauty, this is the sphere of self-realization. It comes spontaneously and uncontrollably in its emergent stages, then stabilizes over time, punctuated by peak experiences (as defined by Maslow).

This is the level of Transpersonal Psychology. There is a shift from therapy toward spiritual discipline--notably meditation. The beginning phases are marked by alpha bliss and inspiration. Its spiritual experience is the sense of rebirth. Its psychological models include "self-actualization" and the concept of high well-being. Among its archetypal expressions we find hero/heroine; the divine or magickal child; the dynamics of the puer/senex (or puells/wise old woman) whose positive manifestations appear in the well-balanced personality; and the mana personality or wounded healer.

Important solar myths include those of Ra, Osiris, Apollo, Mithras, Christ, Attis and Dionysus. Other myths associated here are the divine marriage of Eros (Hod) and Psyche (younger Aphrodite, Netzach), and the story of Ulysses (Odysseus) with its quest to return to his original home (the theme of wounding, scaring, and healing).

This sphere forms the heart of the Collective Unconscious or transpersonal bands of the psyche. The therapies which address this depth level include Jung's Analytical Psychology, Personal Mythology, Psychosynthesis, and the works of Abraham Maslow and Progoff's Process Meditation. To integrate this level is to

transcend the realm of traditional psychology and enter that of esoteric religion or mysticism.

In Tiphareth, you contact the archetype of the Self, or Holy Guardian Angel through an I-Thou relationship--a personalized dialogical relationship. It is an inner guiding principle. We are still within the realm of the divine Imagination, not the Clear Light. It is experienced as a transpersonal power which transcends the ego, expanding your sense of "self" beyond that of mere ego personality. This is the level of knowing the nature of your own awareness. The transcendent function is a reconciling "third" which emerges from the unconscious after the conflicting opposites have been consciously differentiated and the tension between them held.

The Self is our inherent guiding principle, if we but listen to it. It is the central archetype of the psyche. The Self is the integrative and transformative center within the psyche from which dreams, visions, and other inspirations originate. It is characterized by the union of opposites such as light and dark, male and female, good and bad. Symbols of the Self express the psychological process of coming to wholeness, and it is the essence of most spiritual experience. The Self represents the fullest extension and potential of an individual, and provides transcendent experiences which come from beyond one's own personal powers by divine grace.

Symbols of the Self include the God-man, or "son of God," the Royal Marriage or divine union; the Philosopher's Stone of alchemy, the Divine Child, the snake eating its tail, the butterfly, the ring, and the tapestry. The self also manifests as synchronicity, or meaningful coincidence, sexual and spiritual ecstasy and absolute clarity. Other symbols include the mandala or magic circle, the temple, treasure, book, gift, bridge, star, seeds, eggs, rainbow, lit candle, and weddings.

The glyph of the Tree of Life gives a firm basis for a study of the nature of man. It is a very ancient mystical symbol which represents the ten Archetypal Ideas or Energies that are the manifestation of the Unknowable Mysteries. By developing in ourselves the psychological counterparts of these energies, we can become re-integrated with our Real Self, and know our true destiny.

Each sphere has ascribed to it a different aspect of the Self which is most closely related to the functioning of the energy in that sphere. They are closely linked and this means that a development of one characteristic will produce an effect in the other. The overall emphasis is that of balance. By identifying the different aspects of our psychological nature in this way, it is also possible to see how existing forms of psychotherapy and other growth experiences can be aligned to various paths on the Tree, according to the functions they utilize, and the spheres which are being developed.

Within each of us are the essentials for the maximization of our psychological and spiritual potential. Yet even those of us who recognize the potentials within ourselves and aspire to realize them, still need an effective means of transformation. One requirement is a form of training which enables the aspirant

to recognize, select and direct the will effectively to life's underlying archetypal realities.

To be able to identify these underlying archetypes, in action, we must have a means for classifying them, and dis-identifying from them. We cannot identify an archetype when we are in unconscious identification with it. If we can detach from it--disidentify--we can identify it as a sub- or superpersonality, rather than our personal self. This is the way to combat archetypal invasion.

The archetypes we are concerned with in Qabala are by no means all the possible archetypes which may subsist either in the collective unconscious or Universal Mind. But they are the essential seven which pertain to magical or mystical evolution, indeed all that pertains to human life. Adding to these another three, we have all that pertains to the universe both outer and inner, both cosmic and microcosmic, as seen by humankind. Speaking both physically and metaphysically, we can perceive only those phenomena which we have the faculties to perceive.

These ten archetypal sources of power correspond to the 10 spheres of the Tree. Since we cannot apprehend them directly, happily there is another way of proceeding. This is the Way which magical and mystical practices have ever followed.

Each of the spheres has its counterpart within each one of us; and that counterpart is also a focal point for the power of the sphere in question. We can, therefore, work with these counterparts within ourselves--and for the greatest effectiveness this working involves the body as well as psyche--to gain a living relationship with the powers of these archetypes.

The main qabalistic exercise for awakening and balancing the powers of the Spheres is known as the Middle Pillar Exercise. It is a means of imaginably "bringing in light." It harmonizes our being on the four levels: physical, emotional, mental, and spiritual. The exercise is first enacted with the body, like a ritual, to engrain it firmly in visceral and kinesthetic consciousness. Later, you need only visualize your astral body going through the motions, since it will be "second nature."

This exercise is totally safe from the psychological perspective, since it aims toward balanced growth. To work thus, by image and enactment, by calling forth within the self the effect which is to be produced in the outer world--this, from the earliest times has been the method of priest and magician, and most recently experiential psychologies.

The Middle Pillar Exercise associates the spheres of the Tree with the human body. Kether is visualized as radiant white light above the head. Chokmah is the Third Eye; Binah is at the throat; Tiphareth glows brilliant yellow like the sun in the heart; Chesed and Geburah are left and right shoulders, respectively; Yesod is a violet sphere at the genitals; and Malkuth centers where the feet meet the earth.

THE COSMIC TREE

By animating the Tree within our psychophysical structure we identify with the Anthropos, the primordial cosmic Being. It unites our finite nature with the Universal consciousness. We learn firsthand that we are not separate from that, but one with it in our deepest essence.

In the diagram of the Tree of Life, the highest sphere Kether is the primal and unconditioned source of all existence. It precipitates from the three "negative veils of existence." In physics, this is virtual or scalar energy, the stress energy of the vacuum potential.

Kether is the initial point of positive spiritual energy in our universe, the First Cause, in whatever manner one conceives it (a sort of White Whole). It is also, to the individual person, that particular Divine Flame which is at once the source and center of one's being.

Next, and proceeding from this primal Cause, come the two great spiritual polarities designated respectively as the Supernal Father (Yang)--creative force in action--and the Supernal Mother (Yin)--formative force in action, giving viability to, but also necessarily in some manner constricting, the energies of the Father.

To the depths of the psyche, these Supernal Parents are represented by the high archetypes of Animus and Anima, in their most exalted aspects. Lesser images of them are made manifest to the less profound levels of the personality. They may be clothed in the cultural bias of a wise old man or psychic wise woman, or with an individual bias may appear as the object of your affection in the archetype is contaminated with personal projections that more appropriately correspond with Yesod.

These top three Spheres are vital to understanding and using the Tree as a whole, although we do no magical work directly with them. They lie beyond the reach of the mind and its power to actualize our potential. The Third Sphere, that of the Supernal Mother, has however another and more accessible identity as the sphere of Saturn, the highest of the traditional planetary spheres. The power of the Mother, who is both bright and dark (as the Qabalists knew long before Freud discovered her ambivalence), is enthroned as it were behind the figure of Saturn who is ruler of primeval opulence and fecundity and of the barren rocks.

Saturn, Jupiter, Mars, Sol, Mercury, Venus, and Luna: these, the seven traditional luminaries of astrology are represented by the third through ninth spheres. Their qabalistic characters are not entirely identical with their astrological influences, although Qabalistic and astrological understanding usefully supplement one another; but the difference need not detain us here. The three outer planets are considered higher octaves of these potencies (Uranus=Mercury; Neptune=Luna;

Pluto=Mars). The tenth and lowest sphere represents this planer Earth, or microcosmically the physical body. In either case it is seen as the recipient of the influences of all the other spheres. The receptive "Bride of the Universe."

If you know something of the quality of the planets in astrology, you already have a foothold in the Qabalistic system. Beginning with the 10th or bottom sphere, which corresponds with the qualities of Earth, the other correspond as follows: Yesod=#9 the Moon; Hod=#8 Mercury; Netzach=#7 Venus; Tiphareth=#6 the Sun; Geburah=#5 Mars; Chesed=#4 Jupiter; Binah=#3 Saturn; Chokmah=#2 Uraus; Kether=#1 spiritual aspects of Neptune (Alternatively, Chokmah is the Wheel of the Zodiac; Kether, the First Swirlings).

The humanistic or psychological meaning of these associations is as follows:

* **Yesod/Luna:** Bio-psychic or psychosexual functions and feeling instinct responses. Survival Instincts. Adaptation to life experiences and the provision of the self with nourishment, protection and assistance. Moon symbolizes cyclic time, and death-rebirth energy. Also, action taken to bring about actualization of solar purpose through establishment of relationships and maintenance of self as an individual. Lunar principle enables one to adapt, develop and mature within the area defined by Saturn. Lunation cycle.

* **Hod/Mercury:** The principles of rationality, interchange, association, relatedness, communication, translation, interpretation. Adoption of techniques and the use of knowledge and skill to function in an effective manner. The intellect, reason and tonal quality of the person. Represents fluidic mind-thinking, logical capacity as well as magical or nervous force, i.e. *prana, chi*.

* **Netzach/Venus:** Establishment of values and ideals through inner meaning. All attempts to reach the center and partake in communion with one's self and others. Aesthetics and the establishment of a pattern of appreciation and set of values and ideals. Expression of internal experiences.

* **Tiphareth/Sun:** Principle of Beauty, harmonization, equilibration, integration. Center and power of Self. The person's purpose and direction in life. Principle of self-actualization and centering, one's True Nature. The person's total self is sustained through the vital force of spiritual consciousness.

* **Geburah/Mars:** A manifestation of initiative, assertion, aggression, activity or will. The centrifugal force active within experience. All forms of outwardly directed activity. How you begin and maintain things. Power or Might. Force that demolishes all forms and ideas when their term of usefulness and healthy life is done. Symbolizes not so much a fixed state of things, as an act, a further passage and transition of potentiality into actuality. The warrior-consciousness.

* **Chesed/Jupiter:** The principle of compassion, mercy, preservation, increase, compensation, expansion and assimilation. The process of individual assimilation of the social consciousness. Realm of ethics and morals. The urge to be a self-sustaining entity consciously participating within the social realm. The

establishment of a larger frame of reference and the power to grow through cooperation with experience. Dharma or the individual power of right action. Philosopher/king; Renaissance person.

* **Binah/Saturn:** The True Self, or Anima; liberated soul cleansed of all traces of the mind. The principle form as definition for the purpose of individuation through evolution. Principle of Understanding; *Shakti* or *Shekinah*, Maya, Isis; the substantive vehicle of every possible phenomena, physical or mental, just as Chokmah is the essence of consciousness.

* **Chokmah/Uranus:** The True Will, spiritual energy or libido, creative genius, essence of consciousness. Transformation of the power of transformation and the urge to go beyond the area defined by Saturn. Wisdom. The vital energizing element of existence--pure Spirit or *Purusha*; the basic reality underlying all manifestations of consciousness. The Word or Logos.

* **Kether/Neptune:** Liberation; universalization; release of self. Master soul. Highest inspiration. Destruction and dissolution of antiquated forms. Source or root of all physicality and consciousness. The Divine Flame in the microcosm, the primary Cause, the Crown, the Monad (the one indivisible and absolute consciousness thrilling throughout every particle and infinitesimal point in the manifested universe in Space.

We can train ourselves to be able to attune to the various spheres, at will. That is, we can learn to induce in ourselves the magical state of consciousness of each (at least the lower seven). Our first objective in doing this is to familiarize ourselves with the primary characteristics of each sphere. This will strengthen the counterpart of each of the powers within the depths of your psyche. This is nourishing and increases your personal potential, and at the same time ensures the balanced progress of your psychological and spiritual development.

Having strengthened these archetypal counterparts and enhanced your awareness of them, and having learned to attune yourself readily to the powers of the spheres, you will be able to draw upon the mighty resources of one or another of those powers as you require, either in psychophysical, psychosexual, and psychological exercises, rituals, meditation, or daily life.

The Qabala is thus a system of relationships among mystical symbols which can be used to open access to the hidden reaches of the mind--beyond the frontiers of reason. Qabala gives us the means to penetrate the meaning behind symbolism, and pass through its interdimensional gates.

It could be regarded as the mystical process in reverse. A natural mystic will have visions by what he calls "the Grace of God" and then attempt to write down his experience in symbolism or analogy. He seeks the nearest approximate metaphors in the language of the mind. The Qabala, by a study of symbolism and archetypes, helps the Qabalist to break through to the reality that the mystic has attempted to describe.

Universal symbolism is more or less immutable in basic significance. The symbolism of mystical man includes the birth mysticism of origins, the heroic battles of the mysticism of love and rebirth, and the mysteries of death and the afterlife. On the Tree of Life, these are all coordinated by the central sphere, Tiphareth, the Sun. It symbolizes the rosy dawn of illumination after crossing the realm of the stars and the moon. Numerical symbolism is shown in the essential 3-ness of the triangle, the Three-In-One of Divinity; the thesis, antithesis and synthesis of Hegelian philosophy; the possible modes of manifestation of force-- active, passive and equilibrated. The Sun is the center of a system, source of light, sustainer of life and is a symbol of Deity, etc.

The Tree of Life is waiting to share its fruits with us if we but partake. It is the source of spiritual nourishment. May you eat hearty and enjoy the savor of the One Taste.

*Love bade me welcome; yet my soul drew back,
Guilty of dust and sin.
But quick-eyed Love, observing me grow slack
From my first entrance in,
Drew nearer to me, sweetly questioning
If I lacked anything.
'A guest,' I answered, 'worthy to be here.'
Love said, 'You shall be he.'
'I the unkind, ungrateful? Ah, my dear,
I cannot look on Thee.'
Love took my hand, and smiling did reply,
'Who made the eyes but I?'
'Truth Lord, but I have marred them;
Let my shame go where it doth deserve.'
'And know you not,' says Love, 'who bore the blame?'
'My dear, then, I will serve.'
'You must sit down,' says Love, 'and taste my meat:'
So I did sit and eat.*

THE AURIC KEY

(SYNDEX SYNERGETICS SYNOPSIS)

By Iona Miller, c1999

"Your cyclic synchronographing work clarifies and simplifies this whole matter to an epochal degree. At any rate, your work fills me with joy. Would you be willing to have me publish this work in another edition of SYNERGETICS with full credit to you?"

Buckminster Fuller to Bob Marshall, 1981

"...the powers of human reason could not be limited to any accepted prearranged system of formalized rules. What Godel showed was how to transcend any such system of rules, as long as those rules themselves could be trusted."

Roger Penrose

Syndex I & II are about the spiritual and universal beauty of numbers. They reflect the order and beauty of nature, but also of psyche. According to Jung, number unifies the physical and psychic (as in "realm of the psyche", not fortunetelling) worlds through synchronicity. Jung's basic ideas about the unity of knowledge and existence are in principle synonymous with the Platonic tradition, alchemy, Qabala and Gnosticism. Plato treated the end product of the evolution of mathematical concepts, (a fixed system of idealized objects), as an independent beginning point of the evolution of the "world of things." This concrete form of philosophy was determined by the nature of Greek mathematics.

These philosophies seek to reconcile the actual condition with a hypothetical distant ideal, which expansively incorporates both personal and universal dimensions. It is an inward-oriented epistemology. By intuitive perception we can consciously reiterate the laws of Nature and mind which are equivalent to the archetypes themselves. Belief in the essential aspect of the mathematical as a real world, a "last reality" underlies the surprising efficiency of mathematics in the natural sciences and technology.

But are numbers really abstract entities existing independently of the human mind? What is the nature of mathematical truth, and how is it translated into mathematical knowledge? If it exists in another "ideal world", how can we know anything at all about the subject-matter of mathematics? What collective criteria determines the nature, terms and rules of this world?

In the Jungian view, numbers (like other archetypes of the collective unconscious) are contents and patterns of behavior which are not personally acquired in experience but are inborn. The Platonic Forms are the objects of knowledge, which is regarded as innate. They can emerge dynamically as well as imagistically. The essential nature of the Forms is dual: unity and multiplicity, finitude and infinitude. "The One" is the origin of Forms in the same way that the psyche is the origin of the archetypes.

Because they form a primary conceptual language, numbers have heavily influenced the development of culture, philosophy and myth as well as sciences such as cosmology. 'Number is All' was the Pythagorean motto. Numbers were symbols representing cosmic principles. The whole philosophy of numbers came from distinctions created by the primordial division of the One into multiplicity. Because of their archetypal essence, their mode of articulation is essentially mythic and radically symbolic.

Mathematics, by the very nature of its method, is an essentially Platonic pursuit. Mathematicians treat the objects of their investigations as real objects in a hypostasized space, *as if* they existed independently in some pure world of their own. Thus, they reason that the amount of prime numbers is "infinite." Discussing the amount of prime numbers, mathematicians believe that they are discussing objects as real as collections of things in their everyday life.

We use numbers casually and rigorously as a language to order space. Since ancient times, their archetypal dynamics have been the foundation of philosophy, religious, and artistic thought. Patterns of dynamic energy in numbers reflect patterns of nature--the order of the universe. Whether they actually *form* the basis of the universe is the subject of ongoing debate among many schools of mathematicians. The qualitative distinctions we make between phenomena are fundamentally numerical. We still don't know why the universe appears to follow mathematical laws. However, as Hilbert has suggested, we do know that the idea of the Infinite deviates significantly from the situation in the physical Universe.

Are numbers and functions the inventions of mathematicians, or do they exist independently of us? Just because a mathematical object can possibly exist doesn't mean it actually *does* exist. Yet, mathematicians imagine they are talking about real objects, when they may be talking about stabilized concepts. The new direction in the philosophy of mathematics is a "quasi-empirical approach that treats mathematics as just another messy experimental science." A partially unconscious process of idealization ends in the stable concept of numbers, points, lines, spheres.

When working in geometry, a mathematician does not investigate the relations of real things. He investigates some idealized, fixed notion of these relations. This notion is subjectively treated as "reality" without any fundamental reality behind it. It can, therefore, arguably be considered art as well as science. In practice, mathematicians jump to conclusions, and after the jump has been made begin the labor of proving the theorem or constructing a coherent theory. This involves subconscious reasoning, tenacity, focus, judgement, concentration, elementary intuition, free association, and conceptual visualization.

Some say mathematics is a purely human construct, an artifact of our nervous systems and culture. Others attest that even chimps and infants are hard-wired by evolution for arithmetic to deal with real objects in the real world. Numbers are not Platonic ideals but neurological creations. Integers, like colors, are artifacts of our sensory processing mechanisms. Dehaene traces the arithmetical model to the inferior parietal cortex. This poorly understood location is where visual, auditory, tactile signals, and language processing converge. Mathematics, or at least mathematical notation, is another human language. It also appears to be the language of nature, and therefore physical reality. Of the

infinite range of mathematical creations, scientists keep those that help explain and predict reality.

The concept of natural numbers is a fixed model, an idealization of quantitative relations which ends in stable concepts of numbers. The dynamics of those numbers are described in number theory. Number theory, one of the oldest branches of pure mathematics, concerns elementary properties of primes, divisibility among integers, the existence of greatest common divisors, the study of specific families of numbers, simple recurrent relations, factorization, and more. Syndex addresses these aspects with easy to state conjectures which can be understood and observed in graphics without any particular mathematical training.

Mathematical Platonism concerns the investigation of fixed or self-contained models. The Platonic Idea or Form is essentially an unchangeable form. As symbols, numbers express the particular in the universal, the eternal in the finite. They express the ordering function of their archetypal nature. The Neoplatonists assumed an a priori structure of knowledge grounded in archetypal forms and directed toward a unification of the ultimate principle of "the One" with the diverse phenomena of "the Many." This could also apply to the number field.

We contend that the Holotomes are such self-contained models of holistic, self-reflective, finite portions of the number continuum. Holotomes are geometrically symmetrical, modular unities, based on the minimal numbers divisible by the the maximal factors of division. Each holotome adds an additional factor of divisibility to its circular unity. All base digits are captured by the number 2520.

Every subsequent holotome retains a copy of the initial data plus an additional factor. Each holotome contains a rational section of a complete cycle. In these geometrical entities, the prime numbers are distributed in perfect radial symmetry within the context of every holotome. Such closed loops of causation are 'objective,' i.e. considered legitimate objects of scientific scrutiny.

Number and geometry are two ways of expressing the same set of ratios or relationships. The Exemplary 9/11 Basewave (Cycloflex) is also a synergetic, dynamic representation of objective closed loops of causation. They can not only be described, but also graphically displayed. This is a reflexive +4, -4 ambidirectional base wave with a ninth null event, (as per Buckminster Fuller), forming a series of octaves running through the continuum.

This octave is a cyclic function. This base wave can be faithfully mapped into a single coherent syntactic time frame. The base wave is highlighted by palindromes and transpalindromes (the reverse identity of any number over a single digit, i.e. 16 - 61). Syntactic objects, which clearly exist represent similarly "real" objects--objects of investigation.

Syndex is a method of mapping number structure and dynamic, synergetic behavior making number theory visibly coherent It geometrically paraphrases the elements of numeric progression. Syndex reveals the self-reflexive, synergetic properties of the base-10 natural number continuum or field. It simply exists at the level of nodes and mappings in the Syndex diagrams.

Syndex graphically displays formerly undiscovered symmetries in the natural number sequence and distribution of primes. It is based on a series of circular unities (self-contained objects), the results of prime number multiplexing, from whose factors cascade the whole panoply of ancient "sacred numbers" of many diverse cultures.

These sacred numbers come from the ancient wisdom traditions, including those of Sumeria, Babylonia, Egypt, the Bible, Plato, Pythagoras, ancient India, Stonehenge, the Mayans, and Qabala. Their importance to human culture echoes down to us from the past, not in any occult way, but by disclosing an ancient number canon that conceals and reveals inherent rhythms in the base-10 continuum. It reveals a synergetic relationship between number and geometry, which can be displayed graphically and easily understood even by the nonmathematical.

These circularities are based on prime number multiplexing. Within each circular number wheel, the primes are dispersed in rational, symmetrical deployment. This mandalic science helps us visualize facts about dynamic aspects of the interaction of numbers and their families. This fact remains undiscovered in classical number theory, and is discussed under the rubric of the prime number enigma.

The Auric Key to this enigma is the rediscovery of the original program of the alphanumeric system of notation and the fundamental platform of general science, the history of which began with horizon-based astronomy and cosmology in Sumeria. The Auric Key excavates many vital properties of numbers.

Classical cultures are characterized by certain basic ideas, of which metrology is foremost. Ancient metrology was a system of interlinked measures, numeration, astronomical cycles, and geodetic standards. We can find the most often cited numbers of ancient metrology extrapolating out of a certain numerical sequence, (The Holotomic Sequence).

We begin with the question of why some unknown and ancient geometer selected 360 degrees for dividing the celestial sphere and the circle. The division of 360 by 12 produced one of the first historical cosmologies--the Zodiac. The basis of this standard of circular unity can be deduced.

360 is divisible by all eight base digits except the number 7. To include 7 as a divisor, the prime circular module must be raised to 2520, the Auric Key, the lowest number divisible by all base digits. From this clue, we can destrapolate and extrapolate an essential sequence, a family of numbers.

It turns out that 360 is but one in a strategic series of circular unities based on prime number multiplexing. Numbers 2, 3, 5, 7, 11, and 13 are the first primes. By starting with 6 (the first perfect number) and multiplying by the primes in their natural order, we get the sequence 12, 24, 72, 360, 2520, 27720, 360360, 6126120, etc. Each of these numbers forms a geometrical entity, a circular unity, (Holotome). These numbers just happen to be the exact sequence of minimal sums that accomodate the maximal amount of factors of division. Their synergetic qualities have remained unnoticed in classical number theory.

This minimalism is reflected in Syndex number theory. The first concern of Syndex method is to encode the maximum information expressed through minimal graphic elements. Therefore, we employ correspondences between numbers, colors, and frequencies of divisibility to integrate the system.

The number 2520 is the Auric Key. It, *not* 360, is the first number divisible by all nine base digits. It is exactly twice the number 1260, a number referred to cabalistically five times in the Book of Revelations (12:6 and 12:4). It is half of the number 5040, which figures prominently in Plato's "Laws" regarding his ideal city/state.

This number 2520, more than 360, captures nature's cyclic behaviors. And the graphic number wheel (synchrograph or mandalog) based on this number reverses to form a mirror image of itself at the midpoint of 1260. The real key involves the sequence in which prime numbers naturally occur in the base-10 continuum.

This synergetic effect is demonstrated by multiplying the third and fourth Holotomes together: $72 \times 360 = 25920$, a number given for the Precession of the Equinoxes in Sumerian cuneiform records. In Sumeria, mathematics was based on a sexagesimal system (60s) with a decimal substrate (10s). The Sumerian *sar* was based on multiples of 36, 360, 3600; it was known as the number of the Universe ($36 \times 10 = 360$). Imagine a circle for space of 360 degrees x 60 minutes x 60 seconds = 1,296,000 seconds.

The real key to this system involves the sequence in which prime numbers naturally occur in the base-10 continuum:

$72 \times 360 = 25920$ divided by 2 = 12960; divided by 3 = 8640; divided by 4 = 6480; divided by 6 = 4320. $72 + 360 = 432$.

The precessional number, 25920, can also be arrived at by $432 \times 60 = 25920$, employing the Sumerian sexagesimal system. This number relates directly to ancient Hindu cosmology and divine time measurement as the Ages and *Yugas*. Their numbers (without the cosmological zeros) include 432, 864, 1296, 1728, 4320 for the *Yugas*, and 648, 1296, 1944, 2592, 6480 for the Ages. Both Ages and *Yugas* share the number 1296 (36^2).

The Hindu systems are based on multiples of #108 (3 x 36), the divine numberword OM, also known as the number of the Universe. The Yugas and Ages can also be generated on multiples of 36. Multiply by 12, 24, 36, and 48 for the Yugas; and 18, 36, 54, and 72 for the Ages.

12960 (half the Precessional cycle) is a numerical basis for astronomical measures and played a role in Plato's mystic symbolism: 12×2160 (Platonic Month) = 25920 (Platonic Year). In all cases, the historical precedent for this system comes from Sumeria, and its ancient cosmology inspired by horizon-based astronomy. These numbers and their importance come from direct observation of the precessional cycle and orbital times of the planets.

Ancient India raised mathematics and astronomy to a fine art. In medieval times, it gave the west its system of so-called Arabic numerals, the base-10 system, place value, and the zero, and created a Renaissance in art and science. It is within this system of mathematical notation that the +4, -4 basewave inherent in the continuum can most easily be seen through the mechanism of palindromes and transpalindromes.

SYNDEX I identifies and demonstrates the various properties of the base-10 number field, such as the symmetrical distribution of prime numbers. The continuum can be viewed as both progressive and regressive, or self-reflexive. The key to the comprehensive analysis of general number behavior is found in the concept of "circular unity." The graphic importance of the Holotomic Sequence is that circular symmetry is being conserved and may be enlisted as the fundamental reference key in the graphic investigations of number behavior. The primes are deployed in symmetrical interface only within these specific Holotomic domains.

Synchrographics regards symmetry as a primary analytical reference, making the Syndex archetypal system of number classes possible. The foundation of this system is palindromes and transpalindromes, yielding 12 classes of number. Palindromes, or binomial reflection numbers are neither purely accidental nor without significance. Transpalindromes are the reversal of any particular number exceeding a single digit.

Numeronomy, the laws relating to the essential structure and dynamics of number, is a new word for an extremely ancient science. This science, (based on the knowledge that the continuum contains a definite structural order with general laws that describe the nature of that order), has laws that relate to the general behavior of nature itself. Each number has both a geometrical and numerical identity. The outcome of Synchrographics is that numbers speak for themselves through structure and synergetic behavior.

All Syndex mandalogs (number wheels) are the product of the systematic generation of the exact sequence of minimax factorization. They have the perfect retrograde feature by which the patterns generated in the first half of the spiral are reversed at midpoint and are reflected as a mirrored image in the second half of the spiral. Revisioning the number continuum with the concept of simultaneous counterflow yields a more accurate picture. This revisioning is also happening in post-quantum physics under the rubric of quantum backflow.

With large spans of numbers, the complex interrelationships become difficult to visualize without good graphics. Because of the octave nature of the base cycle, there cannot be more than four consecutive transpalindromic pairs in a single symmetrical sequence, regardless of the amount of digits in each individual number. The Holotomic Sequence consists of a series of key numbers or circular unities in the rhythmic wave.

Buckminster Fuller was very excited and "filled with joy" over these revelations, when the Syndex discoveries were shared with him before his death. He wanted to publish them in a subsequent edition of Synergetics. And why not, since they shed light on old enigmas. After all, numbers are what they are, not what we wish them to be. They will not do what they cannot do, i.e. show symmetries where none exist.

SYNDEX II is about the process of discovering synergetic, rhythmic symmetries on a graphic enspiralment called Synchrograph C. It is based on the Hindu number of the Universe, 108. On this number wheel, the natural numbers are spiralled 60 times around a radial array of 108 increments to the number 6480. Contemplating the C-Graph over the years has produced several revelations, including the Holotomic Sequence, created by prime number multiplexing, and the exemplary 9/11 wave cycle (a +4, -4 base wave).

On Synchrograph C all the numbers that represent the two Hindu astrocalendaric systems fall in the same zero axis. The sum of the *Yugas* falls at 2/3 of this axis. 6480 divided by 3 = 2160, the Platonic Month; 12 x 2160 = 25920, Platonic Year. On this graph the four-digit palindromic sequence (1881, 2772, 3663, 4554) appears in quadratic array, where only chaos exists in classical number theory.

Jung asserted that number forms the particular element which unites the realms of psyche and matter. It is real in an archetypal, qualitative sense and a quantitative sense, uniting the imaginal and the physically knowable. The psychic dynamics of

the concept of number appear archetypally as its "transgressive" aspect in the realm of matter. Numbers above the threshold of consciousness appear as quantitative discontinuities and qualitative individual numbers. But according to the Jungians, in the unconscious they interpermeate and overlap participating in the one continuum that runs through them all.

Thus, we find certain synchronicities in the Syndex numberwheel mandalas, creating metaphysical and empirical harmonies. Certain authentic mathematical structures can originate in the unconscious even though Western number theory has traditionally followed a very different path, using its accepted, formalized rules. On rare occasions graphical architecture combines with the data content to yield a uniquely spectacular graphic. Such entities can be described and admired but there are no compositional principles on how to create that one wonderful graphic in a million.

The ultimate Platonic ideal was that of Beauty. The most beautiful graphics do not traffic with the trivial. Graphical elegance is often found in simplicity of design and complexity of data. Visually attractive graphics also gather their power for content and interpretations beyond the immediate display of some numbers. The best graphics are about the useful and important, about life and death, about the universe.

A SYNERGETIC PERSPECTIVE ON NUMBER DYNAMICS

IN THEORY (NUMERONOMY) & PRACTICE (SYNCHROGRAPHICS)

by Robert Marshall with Iona Miller, copyright, 1998

A GRAPHIC NUMBER THEORY FOR THE MILLENNIUM

Abstract: SYNDEX identifies and demonstrates various properties of the base ten number field, such as the **symmetrical distribution of prime numbers**. The continuum can be viewed as both progressive and regressive. The key to the comprehensive analysis of general number behavior is found in the concept of "circular unity." Synchrographics has been systematically contrived to formally illustrate behavioral patterns that have successfully led to a general understanding of the fundamental elements of the geometrical nature of the base ten system. The graphic importance of the **Holotomic Sequence** is that circular symmetry is being

conserved and may be enlisted as the fundamental reference key in the graphic investigation of number behavior. **The primes are deployed in symmetrical interface only within these specific Holotomic domains. Here, the enigma of prime number distribution has been solved.**

Synchrographics regards symmetry as a primary analytical aspect of reference, making the Syndex archetypal system of classes of numbers possible. The foundation of this system is palindromes and transpalindromes, yielding 12 classes of number. Palindromes, or binomial reflection numbers are neither purely accidental nor without significance. Transpalindromes are the reversal of any particular number exceeding a single digit (for example, 16 and 61).

Numeronomy, the laws relating to the essential structure and dynamics of number, is a new word for an extremely ancient science. This science, (based on the knowledge that the continuum contains a definite structural order with general laws that describe the nature of that order), has laws that relate to the general behavior of nature itself. Each number has both a geometrical and numerical identity. It is the outcome of Synchrographics: numbers speak for themselves through structure and behavior. The first concern of Synchrographics is maximum information expressed via minimal graphic elements. Correspondences, such as those between geometry, numbers, colors, and frequency of divisibility form an integral part of the system.

All **mandalogs** (number wheels) are the product of the systematic generation of the exact sequence of minimax factorization. They have the perfect retrograde feature by which the patterns generated in the first half of the spiral are reversed at midpoint and are reflected as a mirrored image in the second half of the spiral. Comprehending the universal nature of the transpalindromic function of number behavior is not easy. We tend to see the number chain as a unidirectional continuum, which is too linear for a synergetic perspective.

Revising the number continuum with the concept of simultaneous counterflow yields a more accurate picture. Remember, this is also happening in Post-quantum Physics under the rubric of **quantum backflow**. With large spans of number, the complex interrelationships become difficult to visualize without good graphics. Because of the octave nature of the base cycle there cannot be more than four consecutive transpalindromic pairs in a single symmetrical sequence, regardless of the amount of digits in each individual number.

We cannot contemplate numeracy without an automatic involvement with geometry. A triangle is an expression of the number three and a square is an expression of number four, i.e. number and geometry are two sides of the same coin. Therefore, Synchrographics was contrived to analyze the geometrical properties of number and conversely the numerical properties of geometry. In the procedures that will be explained in the text, we discovered the key sequence (**Holotomic Sequence**) which consists of a series of key numbers or circular unities in the rhythmic wave.

Buckminster Fuller was very excited, and "filled with joy" over these revelations, and we hope you will be also. After all, numbers are what they are, not what we wish them to be. They will not do what they cannot do, i.e. show symmetries where none exist. Nor can they hide their inherent qualities forever from the astute devotee. Using a **general systems theory** approach, we employ metaphors from many disciplines to demonstrate how this perspective can be employed in other fields of investigation.

DEDICATION

to EROS...

and CHARIS...

Electra...

and Tesla...

SYNDEX

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LETTERS FROM R. BUCKMINSTER FULLER

These letters, from R. Buckminster Fuller to Bob Marshall speak of his delight at the discoveries and graphics of Syndex. He found them so intriguing, he wanted to use them in a third revision of Synergetics.

February 11, 1980

Dear Mr. Marshall:

Thank you for your letter and support material on the mandala and the use of prime number 7 in circular unity. As you know, I have a great deal about that in SYNERGETICS number 1, but even more in SYNERGETICS, number 2 on page 460. I couldn't have been more interested in those pictures. The final number which is then the product of all the prime numbers up to 50 which takes care of all the numbers which occur in trigonometry plus the series of second power of all the numbers to fifty are unique and turn around at fifty to return to zero and vice-versa. There is a basic wave running through the second powering of all numbers up to 50 and return(ing) to zero. The wave series (see Column 3, pg. 768, SYN. 1) is 24 integers long. I'm confident that the circle consisting of the 71-integer number shown on page 460 is the number employed by Universe as the comprehensive circular unity by virtue of which all interoperation of all numbers will always come out in whole rational results.

I'm including a xerox of the way in which I arranged that number which discloses considerable symmetry in its componentation.

Warmly, faithfully,

Buckminster Fuller

enc

jb

March 3, 1981

Dear Bob Marshall:

Very vigorous applause your very intelligent, scientifically systematic, synchrograph evolved elucidations binomial symmetries, tantalizing manifestations of which prominently published both SYNERGETICS Volumes 1 and 2, which to me clearly related to several fundamentals: firstly, that number behavior of Universe operates independently of arbitrary modular congruence systems employed by various [sic] societies and cultures of historical humans, secondly, that nature is always operating in her own modular system of four progressively additive, then progressively subtractive event octaves with a ninth null event altogether consisting of an octave nine system, all of which relate physically to two four vertexed-each tetrahedra as the tuned in or tuned out minimum structural experience of Universe; thirdly, as Plato apparently realized long ago that the failure to include the prime number seven in the comprehensive quotient of cyclic unity rendered physiomathematical epistemology eternally baffling. Plato does not say why he is concerned with the number twenty five twenty, but it is easy to discover as the product of the conventional 360 degrees of a circle being multiplied by the prime number 7, the circle's 360 degrees having included the first three primes to wit, two and three and five, wherefore omission of the seven in the inherently octaved pythagorean physical demonstrations of musical note progressing of tensed strings rendered inherently all irrational. The cyclic calculating referenced to the Babylonianly adopted 360 degrees as the comprehensive quotient of nature's cyclic behaviors.

Your cyclic synchrographing work clarifies and simplifies this whole matter to an epochal degree. I am assuming that you have read both volumes of SYNERGETICS, else you would not have sent the exciting three pages of your work to me, which could not have been as easily accomplished--if at all--without the advent of the electronic computer--the number of calculations involved in exploring each intuitive insight being possibly too much to be accomplished in the long hand method of the B.C. world (Before Calculator). [Editor's note: but this is not so, since the whole work was accomplished without calculator or computer]. At any rate, your work fills me with joy. Would you be willing to have me publish this work in another edition of SYNERGETICS with full credit to you?

Faithfully,

Buckminster Fuller

Excerpt from "HOW LITTLE I KNOW" (for the Saturday Review Series: "What Have I Learned?"), by Buckminster Fuller. 1966.

"Tell me -
In five thousand
Written words" -
Equivalent, at my oral rate,
To three quarters of an hour's
discourse)
"What have you learned --
In your life time,"
Said Norman Cousins.
"That ought to be easy," said I.
Three weeks have gone by -

I recall that
Thirty eight years ago
I invented a routine
Somewhat similar to
Muscle development
Accomplished through
A day-by-day lifting
Of progressively heavier weights.

But my new
Intellectual routine
Dealt with the weightless process
Of human thought development
Which subject is
Known to scholars
As *epistemology*.

And I have learned
That such words as Epistemology
Stop most of humanity
From pursuing
Such important considerations
As the development
Of the thought processes.

So my new discipline
Was invented for dealing
Even with the ephemeral

Which word means
Conceptual but weightless --
As is for instance
The concept of **circularity**.

My new strategy required
That on successive days
I ask myself
A progressively larger
And more inclusive question
Which must be answered
Only in terms of
Experience.

Hearsaids, beliefs, axioms,
Superstitions, guesses, opinions
Were and are
All excluded
As answer resources
For playing my particular
Intellectual development game.

However, when lacking
Any possible experience clues
I saw that it was ineffectual
To attempt to answer
Such questions as for instance
"Why I?"
Or
"Why - - -
Anything?"

And because it was my experience
That some individuals
Proved as persistently faithful
In reporting their experiences to me
As were my own senses
The rules of my game permitted
My inclusion of such individuals'
Directly reported experiences

For use in my progressively
Greater and greater
Self-questioned. answering.

PREFACE

*What jubilation bursts out of this sight
Into my senses--now I feel it flowing,
Youthful, a sacred fountain of delight,
Through every nerve, my veins are glowing.
Was it a god that made these symbols be
That sooth my feverish unrest,
Filling with joy my anxious breast,
And with mysterious potency
Make nature's hidden powers around me, manifest?*

*Am I a god? Light grows this page--
In these pure lines my eye can see
Creative nature spread in front of me.
But now I grasp the meaning of the sage:
"The realm of spirits is not far away;
Your mind is closed, your heart is dead.
Rise student, bathe without dismay
In heaven's dawn your mortal head."*

*(HE CONTEMPLATES THE GEOMETRIC DESIGN OF THE
MACROCOSM)*

*All weaves itself into the whole,
Each living in the other's soul.
How heaven's powers climb up and descend.
Passing the golden pails from hand top hand!
Bliss-scented they are winging
Through the sky and earth--their singing
Is ringing through the world.*

FAUST, Goethe

Transpersonal Psychology is seeking to define and explore "mandalic science and education," as a sacred science. According L. E. Thomas of the University of Connecticut: "The tension that lies with any sacred science is the same as that faced by the mystic: in describing the mystical state it is necessary to split unitive experience into the phenomenological and culture. Whatever unitive visions we are given or are able to attain, sacred inquiry must deal with this crucial tension.

Phenomenology refers to the world as perceived by the individual. In the post-modern, constructivist world, there is no assurance that there is an isomorphism (matching) between one's perception and objective Truth-out-there. The way we create our

phenomenal world is through the stories we tell, both to others who we are, and for ourselves to learn who we are. The narrative reality that we create is the construction of our reality.

...Such extreme relativism touches on philosophical solipsism 'there is no reality out there beyond my perception.' As exciting as this position may be, and perhaps needed to move beyond our encrusted practices and traditions, such an epistemological position does not make for viable community life...Culture represents the shared reality of a community. Our narratives are not just soliloquies we recite to ourselves; they are created in dialogue with our fellow story-tellers. If there is no community of others, we are limited to monologue; without dialogue, we literally don't know who we are.

In terms of science, we need community confirmation of our stories, and our creation of meaning. Science requires Popper's check of publicity, so it can be judged by the community of scientists as to its adequacy. And for a MANDALIC SCIENCE, it is required that those who do the judging be adequate to this task...These parameters are also necessary for phenomenology, when it deals with the 'profane' level of science and education. They apply equally to the area of the 'sacred' or 'mandalic' science.

For this sacred science, we would agree with the steps that Reason (1993) has suggested for 'knowing:' Experience, Representation, Understanding and Engagement. Of these four phases, only the third, Understanding, depends primarily on our left brain, rational formulation. The other three draw upon other reservoirs of knowing, from the intuitive to the ecstatic to the kinesthetic.

It is with these other modes of knowing that we must grapple, as we seek to understand and transform human consciousness, through our research and education. And even the cognitive mode of Understanding will require stretching, by means of paradox and non-

linear formulation, if we are to do justice to the demands of a sacred science."

CONCEPTUAL GEOMETRY

In SocioEconomic Synergism, A. Nicholas Frank makes the importance of synergy and synergetics in understanding the Universe and Nature clearer. Conceptual geometry explains the nature of reality (tetrahedral) and the relationships among parts. Synergy is a holistic science.

Synergy is the metaphysical self-organizing order and intelligence that resides in every part and particle of the Universe. Synergy explains the powerful creative process that drives evolution. It explains the **reciprocating**, working principle among components and how two parts or particles joining, can create the more--than the-sum-of-the-parts surplus and the emergence of qualitative gain. Synergy also explains why natural selection favors systems with synergetic economy--doing the most with the least of resources.

The synergetic process provides a rational and logically understandable model by which the Universe was created from seemingly nothing, and evolved to its present complexity.

This model is reproducible in human affairs and we can use it for social transformation toward sustainable human habitation of our planet.

We can trace the roots of the influences shaping western civilization back to the Greek philosophers of more than two millenniums ago. The atomists proposed that one has to deconstruct all things to find the indivisible building block in order to understand nature. At the the opposite end, the holists believed that a system, indeed the universe, has to be understood as a whole, undivided, in order to preserve its holistic quality.

Western culture and science has embraced the atomistic view in near complete ignorance of the teachings of the holists. Steeped in the atomistic mind-set, science and the modern world developed along the reductionist line highly specialized and deeply fragmented.

Nature on the other hand speaks the language of holism or synergism. In the language of synergism every part and particle in the Universe is intelligent--it "knows" its atomistic structure as well as its emergent holistic quality. This cosmic intelligence is what enables simple parts and particles to come together in self-organization to build an evolving and complex Universe.

Science has discovered nearly all the parts and particles of the physical world. We are nearly fluent in the language of reductionism, but we do not speak or understand synergism. We are insufficiently prepared to manage our existence as complex living organisms dependent on a very complex life support system.

The only instrument that can possibly handle this job is our consciousness. And the only tool we know that is capable of rational probing of both physical and conceptual/metaphysical events is the synergetic tetrahedron. Synergetic tetrahedron is an instrument of rational exploration. The synergy code is carried by the physical laws of Nature.

Infinities are self-contradicting, and not natural. Nature has limits and boundaries in all aspects, physical and conceptual (metaphysical). Smallness, largeness, speed, space, time, and everything else has limits.

The cosmic building code, on the other hand, is uniform and unchanging. It is tetrahedral in its conceptual geometry, and while it is able to organize matter, it is metaphysical in essence. The cosmic building code is the synergy code which operates in the physical and metaphysical dimensions. It is a metaphysical wave with reciprocity potential.

The physical world is organized by an order which, by the virtue of its orderliness, is intelligent. Ordered intelligence is a force since it is capable of organizing matter. If it is a force, but not physical, it must function in a metaphysical dimension of its own.

Read this book forward and backward. Like a hologram, all of it is contained within each part, but expressed from a slightly different point of view. The high level of redundancy is required for efficient information transfer -- higher signal to noise ratio.

A picture produced by holography cannot be divided. If it is divided, it jumps back to form the full picture. Divisions or (detail sections) cannot be produced. Even a smaller format shows the whole, more or less brilliantly

FOREWARD

UNORTHODOXIES: Most mathematicians have had the following experience and those whose activities are somewhat more public have had it often: an unsolicited letter arrives from an unknown individual and contained in the letter is a piece of mathematics of a very sensational nature. The writer claims that he has solved one of the great unsolved mathematical problems...

The writer of such a letter is usually an amateur, with very little training in mathematics. Very often he has a poor understanding of the nature of the problem he is dealing with, and an imperfect notion of just what a mathematical proof is and how it operates.

The writer is usually male, frequently a retired person with leisure to pursue on his mathematics... Very often the correspondent not only 'succeeds' in solving one of the great mathematical unsolvables, but has also found a way to construct an antigravity shield, to interpret the mysteries of the Great Pyramid and of Stonehenge, and is well on his way to producing the Philosopher's Stone. This is no exaggeration.

If the recipient of such a letter answers it, he will generally find himself entangled with a person with whom he cannot communicate scientifically and who exhibits many symptoms of paranoia. One gets to recognize such correspondents on sight, and to leave their letters unanswered, thus unfortunately increasing the paranoia.

Davis and Hersh, The Mathematical Experience (1981)

For the past 30 years I have made an in-depth study of the so-called BASETEN NUMBER CONTINUUM through an innovative system of graphics that is capable of illustrating the interrelationships existing between the chain of number and the elemental aspects of geometry -- specifically that which we call CIRCULAR UNITY.

The beauty of the graphic Syndex Theory is that the proofs are easily seen and understood, even by the nonmathematician. This is not an abstruse backroad of

mathematics, but a graphic description of number laws, which can easily be understood by small children.

Because I have invented my own syntax does not make me a crank. Because I have had some difficulty since new paradigms are not readily embraced in science, does not make me a paranoid to be summarily dismissed. I present no prophecies, no eschatology, no divine number theories (even though commenting on *why* they were so considered). Sometimes, useful new ideas come from highly unlikely sources.

The discipline, called SYNCHROGRAPHICS, has pointed out an exemplary BASEWAVE that occurs through the interaction of square number NINE and the first palindromic prime: ELEVEN.

This exemplary "wave cycle" initially culminates at 99 or 9×11 . It is then referred to as the NINELEVEN CYCLOFLEX:

The first four multiples reverse at 49.5 and go retrograde to 99. The multiples, then, of 99 do the same and so on forever. Thus, we find four forward and four reverse event octaves with a ninth null event, as per the suggestions of R. B. FULLER in SYNERGETICS II, regarding the way nature functions dynamically.

I contend there is absolutely no mathematical error in my findings, which I came upon without the aid of computers. By experimenting with a series of graphic depictions of number arrays, I FOUND THE RATIONAL BASIS OF PRIME NUMBER DISTRIBUTION. These experiments in what I call SYNCHROGRAPHICS lead to the observation of two manifestations:

#1 The sequence of minimal sums that accommodate the maximum amount of consecutive factors, called the HOLOTOMIC SEQUENCE, each of which demonstrate a half positive, half negative symmetrical and harmonious octave CIRCULAR UNITY when expressed in a synchrographic MANDALOG.

#2. A total explanation for the behavior or distribution of PRIME NUMBERS as a totally rational order. This is something most leading math experts consider unlikely. Most current ideas regarding number theory are based on the new science of chaos theory.

At the moment we are in search of a math writer who can help explain and upgrade these renderings. This is (arguably) the most significant discovery in physio-mathematical epistemography (Fuller's term) in the industrial era.

In my correspondence with him, Bucky Fuller assumed that I relied heavily on electronic computation to achieve what I have, but nothing could be further from the truth. That is what makes it so amazing it was not discovered before. My major source of insight has been the graphic enspiralment of two ancient Hindu systems of calendric/astro nature. The first was a spiral of #108, the Hindu

number of Om and the Universe, and basis of the Ages and Yugas. I discovered the 9/11 wave cycle on this Synchrograph C number wheel. The number spiral of Holotome E, (2520), clarifies the essential necessity of the regard of RETROCITY as the primary element in number behavior, as it graphically reveals the reflection sequence.

The HOLOTOMIC SEQUENCE is represented as follows, with the *primes* as mutipliers in their natural order:

TWO TIMES SIX = 12 : A
x 2 = 24 : B
x 3 = 72 : C
x 5 = 360 : D
x 6 = 2520 : E
x 7 = 27720: F
x13 = 360360: G
x17 = 6126120: H
etc...

The growth rate of this sequence will be of great interest to mathematicians. It is seen as slightly deficient in that after the 9th example the number of integers, in a seemingly erratic fashion, skips a number. In this way the tomes slightly shrink as they grow. This suggests a finite end where a number can be reached that will be divisible by all previous numbers: an OMNISYNCHRONISTIC MODULE so to speak. It would be a massive, yet perfect number. Perhaps it is God's unlisted phone number...

The major error in all systems that attempt to analyze the behavioristics of the usually so called baseten system of quantitative notation begins with the confusion of the term "NUMER ONE" with the term "UNITY."

If we regard the term number one as SINGULARITY (as Fuller did) and give this idea no direct analogy to those idea-entities that we refer to as numbers, or those base digits that are divisible into discrete sectors, then we realize that **one is not a number** which leaves us with exactly EIGHT BASE DIGITS: 2, 3, 4, 5, 6, 7, 8, and 9...

The most revolutionary concept in regards to the term UNITY that has been suggested in the past 6000 years of physio- mathematical epistemography is the proposition suggested in the late R. Buckminster Fuller's definition of the term unity as a distinctly plural term. In SYNERGETICS II, there exist two definitions which could suggest an element of paradox or ambiguity but in point of fact denotes that UNITY CAN EXIST AS A SERIES OF DISCRETE CLASSES OF PLURALITY.

QUOTATION A: "Unity is plural and at minimum twofold." This suggests the unification of a pair of singularities...

QUOTATION B: "*Unity is plural and at minimum sixfold.*" This suggests the unification of a harmonious set of a rational interrelationships of whole factor base digits. This involves the classic attitude that six is the first perfect number in that one plus two plus three equals six, or that six is the sum of its first three integers. Even though one is not a number it can still be a part of a true number.

These two definitions of the term unity, even though they seem simplistic are of epochal significance to the syntax of quantitative notation. Without this critical distinction of the different classes of numerical articulation, the true behavior or structure of the numerical continuum cannot be coherently acknowledged in a logical perspective.

The quasi-chaos encountered by those engaged in the theory of numbers or any other form of analyzing the distribution of prime numbers in terms of rational order has usually been an approach based on the belief in a "base wave" in the continuum that would reveal a pattern of relationships between two kinds of number: primes and composites. Also, it was thought, even though not specifically stated, that this hypothetical base wave would manifest as a rhythmic sequence revealed by cataloging sequences as per Neil J. Sloane of Bell A.T. & T. Labs at Murry Hill, New Jersey.

What is missing in the sequence approach which would require symmetry in any kind of proof is that numbers per se have never been properly classified beyond a two-fold system of primes and composites.

The full wave band of number classification (which I tag and clarify with TWELVE GLYPHS in this introduction to SYNDEX) is based upon the idea of the TRANSPALINDROMIC FUNCTION in the continuum of natural number. The validity of this approach to the analysis of number behavior is predicated on the simple observation that all previous studies of number have ignored the fact that any series of diversified entities, real or imaginary, can be viewed as both a graduating series AND a retrograde series. It has been the retrograde aspect of the numeric continuum that has been habitually ignored like many other forms of tradition.

As a special example, #16 is the ONLY 2-digit square, out of 90 candidates, that is a prime number when reversed, (61 is a prime). This we call a retrograde prime square and assign this class with the glyph: .

Altogether there are only TWELVE PERMUTATIONS possible to the ambiclassification of all possible numbers. As we go along, it will become clear that some such system was known in extreme antiquity. The zodiac is but one example.

In regards to prime number behavior this ambidirectional, or transpalindromic system of number regard is essentially mandatory. By regarding the continuum of number in only one direction, number symmetry is compromised.

The other aspect of this system of number classification that requires notice is the fact that SYMMETRY REQUIRES A FINITE COLLECTION IN ORDER TO BE SEEN AT ALL. An open-ended series or infinite collection (a contradiction of terms itself) cannot produce symmetry. Nor can we expect to find symmetry in an arbitrarily chosen collection. **What is needed are discrete levels of finitude.**

This is where the HOLOTOMES come to the rescue. The Holotomes are examples of CIRCULAR UNITY that are non-arbitrary but generated by specific logic contained in the continuum itself. These finite and symmetrical NUMBER MODUALS (dual modules) are generated by the natural order in which the primes occur and represent the minimal numerical magnitudes that accommodate the maximum amount of consecutive divisors.

The series begins by doubling the first perfect number: SIX, which produces 12 as the first true Holotome. Thereafter, we multiply each resultant sum by the next prime in its natural order of occurrence:

HOLOTOMES

Two Times Six = 12 : A
x 2 = 24 : B
x 3 = 72 : C
x 5 = 360 : D
x 7 = 2520 : E
x 11 = 27720: F
x 13 = 360360: G
x 17 = 6126120: H
etc.

Through this process, we produce a sequence of FINITE AND NON-ARBITRARY NUMBER MODUALS that may be represented in a geometrical format that demonstrates the rational and totally symmetrical distribution of PRIME NUMBER ORDER.

For a number of years I was plagued with the paradox of how the Holotomes were connected as a continuum and yet separated as discrete, finite, and symmetrical entities. I finally found the answer to this dilemma which gives me full confidence as the proper solution. It is this phase of the present document that will produce the greatest difficulty in the communication of the final and exquisite answer.

It is the CYCLOFLEX, the EXEMPLARY 99 OCTAVE CYCLE, that produces the continuity while it is the finite nature of each of the Holotomes that produces the discontinuity.

How this occurs is through the same function of cyclooscillating retrocity that creates the warranted paradox.

Each of the first few HOLOTOMES when added to the reverse of their respective numerical sum produces an even sub-multiple of 99:

A: $12 + 21 = 33$: 1/3 of 99

B: $24 + 42 = 66$: 2/3 of 99

C: $72 + 27 = 99$: 3/3 of 99

Therefore by a series of reversals that synchronize the EXEMPLARY 99 CONTINUUM with the finite holotomes, we have both continuity and discontinuity in a non-ambiguous paradox.

The SYNCHROGRAPHS and number structure field patterns will clarify this assertion of a graphic syntax that accomplishes a clarification that words alone cannot provide to the satisfaction of the educated person.

I should further remark on this issue of continuity that Richard Dedekind in his essays on the theory of numbers deals with continuity in conjunction with the straight line. I assume he was referring to a straight line in the Platonic sense of an ideal straight line which, of course does not exist anywhere else but in the mind, allowing that the mind is part of nature.

But the continuity/discontinuity to which I refer is not related to a straight line. To the contrary it relates to cyclations and oscillations which are curvilinear, at least as I contemplate the functions involed in the EXEMPLARY CYCLE and HOLOTOMES.

The continuity/discontinuity of the Holotomes as knots on a string of the EXEMPLARY 99 WAVECYCLE is about the closest I can come to an analogy of the quasi-predicament. After all, you can only do with words what syntax will permit.

And I am not a philosopher but merely a numeronomist (which title is not even honored with a place in the dictionary).

Credit for the concise definition of Unity would include a list of people who have facilitated explication of the AURIC KEY. Most are relatively unknown souls whose names would add nothing to the substance of this material. They will recognize their input wherever it manifests itself. But he who is foremost on such a list has moved on to an alternate space of being.

That specific person of major contribution is the late R. Buckminster Fuller, and the contribution referred to is his duplicate definition of unity as two-fold, sixfold, or plurality. This leads us to recognize that there are at least two classes of unity and therefore more.

The idea of a MAXIMUM UNITY is beyond the boundaries of the concepts dealt with herein, (i.e. THE OMNI- SYNCHRONISTIC MODUAL).

The philosophy of number/geometry has in the past been plagued by the association of One (1) and UNITY, or the regard of ONE as a number (member).

Both Plato and Pythagoras missed this critical distinction between one and unity. This oversight still confuses the number theorist to this later date in history.

One is singularity and two is the nexus (unity) of at least two singularities or what we refer to with the term unity.

The concept of various forms of unity is a crucial aspect of NUMERONOMY.

In *SYNERGETICS II*, I find wandering remnants of Fuller's own confusion with unity and how it relates to the null-concept of "infinity."

Fuller described the closepacking of thirteen spheres of equal diameter as the VECTOR EQUILIBRIUM MATRIX. It is the symmetrical array of twelve spheres around/about a thirteenth nuclear sphere.

This nucleus can be seen as an expression of singularity....The shell of twelve which surrounds this singularity is a symmetrical unification of members that describe the profile of the V.E.M., which is the unification of squares and triangles.

The closepacking of four spheres of equal diameter is a non-nucleated complex which describes the profile of a tetrahedron. In this case we have a symmetrical unity of four spheres about a null-singularity: no nucleus.

Unless these distinctions are observed in our physiomathematical epistemography we will encounter a problem with syntax.

None of the foregoing is to be intended as a criticism of the general syntax of *Synergetics II* but is intended to suggest a reformation of the gospel of synergetic terminology.

I worked in close parallel with Bucky during his final days and the 3rd edition of *Synergetics* was his foremost priority. The mistakes made in *SYNERGETICS I* were corrected in *SYNERGETICS II*, but those made there were never reconciled inasmuch as the manuscript was never completed.

The oversight of primary importance concerns the exact point of turnaround in the numbers "up to fifty," which will be a major item in the present document, which on this crucial account re: number behavior would proxy the missing page of the null-event *SYNERGETICS III*.

It is a brief, simple, logical and necessary step from the concise definition of unity to the epistemographic expression of circular unity and thence to quasi-spherical unity. You will appreciate this once you understand that ideal sphericity is not a feature of universe, which is (or Who is) Nature.

Since my union with the true nature of number came from ecclesiastical, architectural, and astronomical sources in conjunction with a synchronicity of mind, eye, ear, and hand, I can only relay my insights in the language of matter to

which the spirit is blind, mute and without feeling. My home planet is NUMERIA and it will be there in its cremation that my smoke will cover the highest peaks.

I took a perfect sphere and milled a flat surface on the random side which represented a disc which was equal to the radius of the sphere. At what latitude was this circumcism?

If it were not for the centrifugal force vectors of spin, this idea would be valid tool of science.

I've never felt a devotion for money making or ambition for worldly honor. I submit my words and pictures for those who may find their own brand of edification through my price and power.

Find then the things that do not tend to limit your potential towards discovery of some beautiful truth and do not expect any perks that smack of Terra Firma.

Robert Marshall , Master Numeronomist

INTRODUCTION TO GENERAL NUMERONOMY

PART I

SYNDEX

IN THEORY (NUMERONOMY) AND

PRACTICE (SYNCHROGRAPHICS)

INTRODUCTION TO GENERAL NUMERONOMY

SYNDEX: A SYNERGETIC PERSPECTIVE ON NUMBER DYNAMICS

by Robert Marshall with Iona Miller, c1998

"...I would conjecture that the task of future mathematicians will be to collect their characteristics and analyze, when possible, every number in its logical relationship to all others. This research should be undertaken in collaborations with physicists, musicians, and psychologists who are conversant with the empirical facts about the structural characteristics of numbers in different mediums."

M. L. von Franz, Jungian Analyst

NUMBER AND TIME

PRO: *"Unity is plural and at minimum sixfold..."*

R. Buckminster Fuller

SYNERGETICS

CON: [There is a] *"complete waste of time involved in the pursuit of a rational order to the distribution of prime numbers."*

Professor Kline

Harvard Mathematician

ABSTRACT: Syndex Theory is about the intrinsic structural patterns that appear in the baseten continuum of number. A main feature of number theory has been the absence of any noticeable pattern of regularity among prime numbers. Reversal is the key to number law. Prime numbers play a fundamental role in the construction of geometrical form, and in turn of structures. The Holotomic Sequence produces a graphic syntax that displays all the structural intricacies of the continuum of baseten numbers. Syndex theory can graphically show 100% symmetry of prime number distribution within the context of its finite series of geometrical modules. These mandalic modules are the minimal amount of consecutive factors of division. Syndex is not number mysticism, but a non-reductive holistic way of viewing obvious realities about the continuum through "circular unities." Number is not an abstraction in synergetics. Rather, each number has a geometrical identity plus a numerical identity, which is inter-transformative.

"We know that hidden symmetry groups exist in both physics and number theory but we understand very little of how they are related to one another."

Yu I. Manin, Nov., Science 85

THE PUZZLE OF PRIME NUMBERS

Numbers are what they are, not what we wish them to be. They will not do what they cannot do, i.e. show symmetries where none exist. Nor can they hide their inherent qualities forever from the astute devotee.

Well before Euclid's day, mathematicians had listed the first primes, looking for patterns or other clues to their distribution. No particular patterns are immediately evident, except for the obvious one that all primes except 2 are odd numbers (since all larger even numbers have a factor of 2).

But a closer look suggests that the primes seem to be spreading out, or getting scarcer as the numbers grow larger. For instance, there are eight primes between 102 and 120. Further, note the gap of 13 consecutive composite numbers between 113 and 127. There is no such long gap among the first 100 numbers.

(See table of first primes and table of statistical distribution).

Due to inherent difficulties in mathematics and physics, these sciences have adopted the art of modelling as a working strategy. Physical theories are provisional models of reality. Mathematics itself is a model. All physical theories are models. A model should be able at the very least to describe certain phenomena fairly accurately.

A mathematical model is a complete and consistent set of mathematical equations, which may describe some physical, biological, social, or psychological entity...or conceptual entity. We can substitute "structure" for "equations" when working with a non-numerical model.

Some of the purposes for which models are constructed are (1) to obtain answers about what will happen in the physical world; (2) to influence further experimentation or observation; (3) to foster conceptual progress and understanding; (4) to assist the axiomatization of the physical situation; (5) to foster mathematics and the art of making mathematical models.

A model may be a convenient approximation, simplistic or sophisticated. By creating models, or approximations, many researchers and philosophers think they have discovered the keys to the universe. But even if those keys open only a small chamber on the periphery, they can be highly significant in their implications.

The whole object of mathematics is to create order from seeming chaos, to extract structure and invariance from disarray and turmoil. In banishing chaos, we seek pattern, regularity, arrangement, understanding. When it is there, we intuitively "feel it in our bones." We can sense graphic or visual order, pattern, and symmetry in mathematics just as we do in nature.

Among the integers, the prime numbers play a role that is analogous to the elements of chemistry. They are nature's building blocks, but unlike the elements, the list never ends. Euclid proved that there are an infinite number of primes. Classically, the main feature of the list of primes is the absence of any noticeable pattern or regularity.

The attraction of this unsolved mystery of the prime number problem is that we are able to see what is going on long before we can prove it. As in Popper's theory of scientific knowledge, we formulate a "bold conjecture," not likely to be true by accident. Then this conjecture is subjected to the test of numerical calculation. If the test fails to refute the conjecture, it is strengthened--proved so to speak, in the sense of natural science. Prime numbers are the key to the required rate of growth in the Holotomes.

In physics or chemistry, experimental agreement with theory to 8th place accuracy is considered strong confirmation of the theory. The agreement is hardly accidental, therefore, the principle by which the calculation was made must be right.

In Platonism, mathematical objects are considered objectively real. In a certain sense, this is the realist or Platonist philosophy. The regularity which has been predicted and confirmed is not illusory--there is something there which is lawful and regular.

But in another way, Syndex also conforms to the constructivist dogma where genuine mathematics can only be obtained by a finite construction.

THE HOLOTOMIC SEQUENCE OF CIRCULAR UNITIES

Confidence in the orderliness or rationality of the number system underlies all research. This realism is more than convenient; it is indispensable. Proofs are a way of understanding why and how conjectures are true.

A "wave-particle" complementarity theory of the number field reveals a key (here termed THE AURIC KEY) to the orderly, rational distribution of prime numbers. According to Fuller, the occurrence of a basic wave has the significance that despite their discrete nature numbers as integers have wave-like properties. It is a metaphysical wave with reciprocity potential. In fact, there is an abundance of waves occurring on all levels of numbers.

Fuller demonstrates that "...nature is always operating in her own modular system of four progressively additive, then four progressively subtractive event octaves with a ninth null event, altogether constituting an octave nine system..."

REVERSAL is the key to number law. SYNDEX THEORY is about the intrinsic structural patterns that occur in the BASETEN CONTINUUM of number. RETROCITY, as a dynamic of the number continuum, has been ignored by orthodox science.

This study of the BASETEN number continuum through an innovative system of graphics is capable of illustrating the interrelationships existing between the chain of numbers and the elemental aspects of geometry -- specifically CIRCULAR

UNITY. These graphics so excited the late Dr. Fuller that he asked to include them in his planned publication of SYNERGETICS III.

The theoretical aspect of SYNDEX is termed NUMERONOMY; the practice or practical side is contained in the graphic depictions whose creation and employment is known as SYNCHROGRAPHICS.

One of the graphic keys to NUMERONOMY is the TRIAXIAL RETROGRADE INTERFACE. It represents the graphic foundation of the synchronicity between geometry and number and sets the stage for the series of circular unities designated as the HOLOTOMIC SEQUENCE. These geonumerical modules also represent the minimal numerical sums which accommodate the maximum amount of consecutive divisors.

Each of these modules, presented in the form of a spiralic SYNCHROGRAPH, is a half positive, half negative retrograde octave wave cycle and reveals an ideal symmetrical circular unity.

The HOLOTOMIC SEQUENCE begins with the three ambidirectional axes of the TRIAXIAL RETROGRADE INTERFACE. Then by the involvement of prime numbers in their natural order of occurrence, the following series of true circular unities (HOLOTOMES) emerge:

HOLOTOMIC SEQUENCE = HOLOTOMES

The HOLOTOMIC SEQUENCE revolutionizes the science of description by producing a GRAPHIC SYNTAX that involves all of the structural intricacies of the continuum of baseten number.

The scientifically systematic discipline of NUMERONOMY via SYNCHROGRAPHICS establishes a whole new phase in GENERAL SYSTEMS LOGIC. SYNDEX is an ancient yet new wave in the realm of Physiomathematical Epistemography. It deals with a unified series of transfinite idea interactions in a closed loop, (IDEAL SYNTAX), sans paradox.

The AURIC KEY excavates many vital properties of numbers. Its very existence and ultimate form hinges on numbers which occupy space. By arranging numbers in synchrographics, a dynamic number field or matrix is formed. Regarding numbers in terms of matrices or fields is important, and acknowledging that numbers have spatial qualities is vital to fully appreciating their significance.

Prime numbers play a fundamental role in the construction of geometric form, and in turn of structures. These structures are manifested from the microscopic to the macroscopic, and comprise our physical reality. As far as the realization of the implication of numbers is concerned, a knowledge of prime numbers is crucial.

SYNCHROGRAPHICS emerged from the notion that geometry and numbers are interwoven disciplines emerging from a mysterious or unified source. By isolating

basic relations between number and geometry something may be learned about that source.

HOLOTOME E (2520) may be considered the cornerstone to the various MANDALOGS that comprise the AURIC KEY. It reveals the pattern of compound synchronicities that occur in the behavior of the base digits in all their permutations which end at 2520. It graphically shows 100% symmetry of prime number distribution within the context of each Holotome.

The wavecycle begins near the center and spirals outwards, a process which reveals even more inherent symmetry and produces tantalizing rays. There are seven spiral bands, each divided in 360 subsections of circular unity.

(Insert picture, Holotome E synchrograph)

Cycles in numbers can represent dynamic feedback processes, just as discrete numbers can represent "things," entities, or quanta. In the living "journey" of ongoing manifestation the rigid structural elements of number may be considered male (or yang); the complementary, dynamic cycle process (recursion) can be considered female (or yin).

This cyclic process can be demonstrated in the distinction between palindromic and transpalindromic numbers. It can be graphically depicted with minimal elements in a short series of self-reflecting mandalas, revealing the frequencies and harmonies inherent in the natural number sequence, the marvelous in the mundane.

The psychological mechanism that we refer to as the BASETEN concept of quantitative notation, commonly referred to as ordinary number is the ultimate foundation of the science of mathematics which in turn is the solitary foundation

of industrial civilization.

SYNCHROGRAPHICS

Analogs with consciousness reveal the process of psychological transcendence unfolding from the O (circle-zero) of undifferentiated "objective" wholeness which depicts the eternal principle of universe and the inner being, or Self. Wholes can be modeled as circles, cycles, spheres, or hyperspheres. The natural number sequence can lead our consciousness from point, to line, to plane, to multi- and hyper-dimensional representations.

The SYNDEX perspective regarding the geometry of number, (and visa versa, or the interrelationship of plurality and form, including structure), is predicated upon a series of geometrical modules that involve a discrete plurality determined by the natural order of prime number occurrence. These modules, (here designated as HOLOTOMES), are the minimal amount of consecutive factors of division. They

display the progressive and regressive movement of the pilot-wave or pulse inherent in the number sequence.

The various properties of the so-called baseten system of numerical notation have been the objects of serious study, (under differing titles), for many centuries: numerology, number theory, etc. The singular most common element of all such systems is that one cannot contemplate numeracy to any extent without an automatic involvement with geometry. The reason for this is clear: A triangle is an expression of the number three and a square is an expression of the number four, i.e. number and geometry are two sides of the same coin.

Beginning with this simple observation, the discipline of Sychrographics was contrived to analyze the geometrical properties of number and conversely the numerical properties of geometry.

The solution to the question of how to find the most evocative points of synchronicity between the disciplines of quantitative notation and the essential expressions of geometry occurred through an observation of such simplistic proportions that it is a mystery of profound depth that even such masters as Euler and Dedekind (or anyone else, for that matter) did not employ such thinking long ago.

That a synchronetic relationship exists between the so-called baseten system of numerical notation and the fundamental principles of geometry was clearly suggested by Pythagoras in his series of rectangles with whole number commensuration between specified rectangles and their diagonals. The 3:4:5 right angle triangle is the initial example of triplets.

That no clear mathematical progression was found that established a systematic serial law was the catch in all attempts to establish a synchronetic order to the distribution of such triangles of whole number commensuration.

The key to the solution of this problem of Pythagorean triplets is contained in another mathematical enigma, that is, the distribution of prime numbers.

The most elegant and beautiful solution to this pair of classical mathematical mysteries has appeared through an innovative discipline labeled sychrographics which was rediscovered and redeveloped by Marshall over the past thirty years.

Instead of dealing with a series of triangles or diagonally divided rectangles, SYNCHROGRAPHICS deals with a series of spirals that are generated by numerically commensurate sums that are generated **with** the prime numbers beginning with half of the first Pythagorean rectangle.

These sums, the HOLOTOMES, are the actual sequence of minimal numerical factors. The sequence begins with twelve as Holotome A. Its nave, or midpoint, being six, is classically referred to as the first perfect number.

The first synchrograph then, which depicts the initial Holotome is twelvefold (as is the ancient Zodiac) of six positive and six negative symbolic events, and is the first sum divisible by four base digits: 2, 3, 4 and 6.

Doubling HOLOTOME A, we get B or number 24 which is the first number divisible by five base digits: 2, 3, 4, 6, and 8...

From there on we multiply each resultant sum by the next prime number in its natural order of occurrence $24 \times 3 = 72 \times 5 = 360 \times 7 = 2520 \times 11 = 27720$, ad infinitum. Thereby we release the HOLOTOMIC SEQUENCE from obscurity.

I will list here the four pairs of two-digit retroprimes or transpalindromic primes, or reversible primes, to see if I can add any significant enhancement to their importance to the behavior or structure of prime numbers:

13 31; 17 71; 37 73; 79 97 and a fifth pair of near prime composites that act as a latching pair that COMPLETES THE SYMMETRY GROUP WHICH DOVETAILS WITH THE OCTAVE THAT IS FOUR POSITIVE AND FOUR NEGATIVE EVENT IDENTITIES THAT CREATES A CIRCULAR UNITY IN THE 9/11 retrograde wavecycle:

(INSERT TABLE)

A VERY CLEAR AND NATURALLY SYMMETRICAL THREE COLUMN RENDERING OF THIS NUMERICAL LATCHING ORDER EXISTS. The chances of this being an accidental coincidence is as likely as finding an 8000 lb. elephant inside the nose of a mouse. Interesting in view of how the multiples of nine turn retrograde at 49.5.

The same pattern continues with the 3, 4, 5, 6, etc. digit transpalindromic primes which indicates clearly that the progression of prime numbers is totally an orderly and coherent progression with no sign of disorganization, whatever.

Does the Number Seven Produce an Irrational Sequence?

Industrial civilization has been, in effect, dealing with a short deck. 360 (Holotome C) is an example of circular unity which accomodates all of the base digits except number seven. This renders physiomathematical epistomography eternally baffling, at least until SYNDEX is understood.

To the traditional number theorist, SEVEN (7) appears to generate an irrational sequence.

Several years ago, Bob Marshall came to realize that 1428571 repeating is NOT AN IRRATIONAL SEQUENCE, but that any number in this sequence added to the third following number produced nine (9):

Note that the only digits not represented in the seven sequence are 3, 6, and 9, (also no zero).

THIS IN EFFECT IS GRAPHIC PROOF THAT 1428571 is A SIX DIGIT CYCLATION OF TOTAL RATIONAL ORDER.

By the simple expedient of multiplying 360 by prime number seven we get 2520, the very first and very smallest number divisible by ALL EIGHT BASE DIGITS. Remember, singularity or ONE IS NOT A NUMBER. [insert Hebrew character for Aleph] is Aleph, THE FOOL.

When One (singularity) is divided by seven, the resulting decimal .142857 is formed, which is a six-digit cyclation. 3, 6, and 9 are the only base digits missing from this cycle, but they can be accounted for by the observation that it is a six digit cycle. Another way of viewing how 3, 6 and 9 are accounted for is that any digit in this sequence when added to the third following digit produces 9:

$$\begin{array}{r} 1428571428571428571428571 \\ + \underline{142857142857142857142857} \\ 99999999999999999999999 \end{array}$$

SYNDEX THEORY AND PRACTICE

As per M.-L. vonFranz's suggestion in our opening quote, we choose an interdisciplinary, general systems theory approach, finding common patterns of methods employed in a wide range of theories. We can use ontological (the science of reality; that branch of metaphysics which deals with the essential nature, properties and relations of things) and epistemological metaphors ("how we know what we know") from physics, music, and psychology to explore the relationships among numbers. We shall do that here, also adding a fourth art - metaphysics.

However, the primary mode of Syndex transmission, its SYNTAX, is GRAPHIC DEPICTION. Its philosophical basis is minimalism, minimism (maximal information in a minimum number of graphic elements).

From the dawn of history our species has always carefully, thoughtfully, and systematically observed nature and modelled nature. Our general world view, including our attitude to physical and mathematical aspects of basic concepts is very important. The essential truth lies in mathematics. The physical universe is an aggregate of frequencies. Mathematics has penetrated sociology, psychology, and linguistics, as well as many other fields.

In **Questioning the Millennium**, Stephen Jay Gould says, *"My argument for the origin of our fascination with numerical regularity closely parallels my claims about our affinity for dichotomous classification. In part, we latch on to numerical regularity, and seek deep meaning therein, because such order does underlie much of nature's patterning. The pperiodic table, after all, is not an arbitrary human mnemonic, and Newtonian gravity does work by a law of inverse squares. But our search for numerical order, and our overinterpretations, run so far beyond what nature could possibly exemplify, that we can only posit some*

inherent mental bias as a driving force...Our searches for numerical order lead as often to terminal nuttiness as to profound insight."

Without equations there is nothing to talk about. Or, more properly, the mathematics enables us to talk about physical concepts more precisely. Mathematics is a form of language, a very precise form of communication. These extremes usually compliment one another and our thinking process can move back and forth between them. Physical concepts can guide the development of new equations as well as visa versa.

SYNDEX is primarily a form of insight that arises through our attempts to obtain a perception of a deeper nature of reality as a whole. Its imaginative qualities are as important a feature as precise math concepts. Imagination helps further the development of holistic concepts. Even in physics, play and speculation are part of the legitimate process of discovery, and in fact essential to it.

These dynamic connections are a fact of nature provable by experiments; but to explain them philosophically is difficult, or rather complex. Demonstrable evidence cannot be found in a conceptual vacuum, therefore a testable theory must be assumed. Theory is a perspective, a "Way" of seeing.

SYNDEX THEORY assumes along with R. Buckminster Fuller that unity is plural, and also that nature manifests only in a +4, -4 wavecycle with the ninth null event.

If you don't understand this, or you disbelieve it in relation to prime number dynamics, we suggest you temporarily suspend disbelief. If you don't like metaphors go directly to the number proofs and graphics. If you are math phobic, try the metaphors before tackling the math. Hopefully, one of our metaphors will speak to you. Let the experimental facts, as displayed in the graphics, speak for themselves, creating a new frame of reference. These pragmatic, positivistic (what is physically observable is real), operational assumptions suggest a deeper connection.

If nature behaves in certain fundamental ways, we can expect the dynamics of natural number, which describe those processes, to do the same. In seeking greater control over nature and a wider glimpse of cosmos man forges his thoughts into concepts. Among the vital concepts realized so far, number and its chief mode of expression geometry, coupled together, play the most crucial role in man's technological development.

Space and time can be quantified, their mutual relationship described more objectively and less arbitrarily with a firm grasp of geometry and numbers, and the subsequent description of space and time in exact terms, allows us to examine our world more thoroughly and tap the cosmic forces which govern our very lives and future.

Megalithic structures, such as Stonehenge and the Great Pyramid of Cheops, show the great extent to which our ancient ancestors already achieved this,

thousands of years before modern technology. The functions of these and other examples of ancient technology varied from sophisticated calendars and celestial gauges, to temples of worship and dwellings.

One common feature of them all was concise geometry and direct reference to numbers in their very structure and dimensions. Apart from these essential outgrowths of reliable calculating techniques, man has sought to harmonize the systems of mathematical insights into a single whole.

Ancient mathematicians also sought to understand number on their own terms with results which often seem vague or arbitrary to the modern mind. Consider astrology, Qabalism, numerology, etc. In ancient times, numbers were also letters. The continuum was indivisibly ALPHANUMERIC (ref. Hebrew, Greek, and Latin systems, which form the basis of the modern western occult tradition).

But regardless of the conclusions drawn from these ancient systems, geometry and numbers are vital to their inner workings. And despite enormous variances in time, place, and culture, certain numbers recur so often that they cannot be dismissed as coincidence.

Why does Plato relate 5040 to his ideal city-state? Why is 1260 referred to five times in the Book of Revelations, and so prevalent in music theory? Why did the Babylonians base their number system on 60 and have 360 degrees in a circle, when they knew the sun took more than 365 days to complete a yearly cycle? And further, why does 12 abound everywhere from the western zodiac, to calendars and clocks? Why are there 56 Aubrey Holes in the outer circle of Stonehenge? And why is 7 considered a sacred number in many religions? We hope to convincingly, empirically, answer some of these points. Others you may work out for yourself.

The fact that these numbers relate to THE AURIC KEY may be significant. Could it be that the systems from which these numbers derived had a common origin or basis, which is cross-cultural? There is an indication of this, founded on NUMBER LAW in itself, i.e. Numeronomy.

Plato and Pythagoras both dealt with the nature of the perception of reality by using geometry as an aspect of number. Plato taught that there are changeless, eternal forms on which existing things are modeled. "The theory of forms" is the most famous of all Platonic doctrines. **It asserts that any object's true reality is found in its RATIONAL FORM or structure, rather than its material appearance.** Philosophy begins in the sense of wonder coupled with the discipline of reason; its pre-geometric forms describe changes from one state to the next.

THE SYNDEX PERSPECTIVE regarding the geometry of number, and visa versa, or the interrelationship of plurality and form, including structure, is predicated upon a series of geometrical moduals (dual modules) that involve a discrete plurality determined by the natural order of prime number occurrence.

These moduals, designated as HOLOTOMES, are the minimal plural quantities that accomodate the maximum amount of consecutive factors of division.

The two-dimensional representative of HOLOTOME A is a circle divided into 12 radial sections just as the Zodiac divides the celestial sphere into 12 radial constellations of thirty degrees each. Twelve also reflects the 12 Buddhist links in the chain of causality.

The present document provides conclusive proof that this ancient system of a twelvefold classification of primary qualifications was by no means an arbitrarily invented system but a clearly logical discovery of the qualities and quantities of nature's actual scenarios.

The 360 degree cyclation of this archaic celestial roadmap is also both a logical and rational quantity and quality of nature and was by no means arbitrarily determined by the processes of human cognition and conceptualization.

The array of cleavage possibilities that result in the growth of crystals follow structural laws. Likewise, the pre-geometric structural design of the atomic configurations of individual elements also conforms to structural qualities that over the centuries have been identified and labeled according to the systematization of description we know as the alphanumeric principles of notation. Remember, in ancient times letters were numbers, although they never reached a level of universal tabulation fully translatable linguistically.

In a very legitimate sense the revelations contained in this writing provide the means of a basic and universal system of describing the structural and topological characteristics of matter which makes no distinction whatever between inert and organic, dead or living.

The observations to be revealed declare that the universe in its so called "infinite entirety" is a living being only separated from itself by the limits we impose on our imagination, which if not hindered by a misunderstanding of itself has no limits.

Henceforth regarded as the SYNDEX PERSPECTIVE, the present document begins with a graphic gesture which acts as a primal foundation for an IDEAL SYNTAX which, when seen in the light of its own vision, arguably abolishes the two arch-enemies of truth: paradox and chaos. Neither of these can exist in nature, except in the province of language and modelling itself, which of course is a variable aspect of nature.

The graphic gesture just mentioned is entitled the TRIAXIAL RETROGRADE INTERFACE or T.R.I., for short. It differs from the Cartesian XYZ in that it is based on the tetrahedron, rather than cube. The purely imaginary geometrical figure denotes the 3 ambidirectional axes of spatial description. But these are not the XYZ of Cartesian coordinates, but represent a dynamic tertahedral tensegrity.

Altogether, these vectors represent the six minimal ways that one may move in the omnidirectional options of spatial tropism: up/down; right/left; fore/aft.

Since we cannot visit the past by the expedient of walking backwards we must concede that time is not a direction. And since we could not know if everything is expanding as space time passes, we have no reason to regard time as either a direction or dimension.

Time, then, being an empirical assumption based on what we recognize as spatial movement (the past is 3D, at least we remember it that way) is a complete mystery. Due to the nature of human language, specifically the descriptive mechanism of language, time can only be regarded as the duration of whatever scenario we are concerned with at the moment of concern: TIME IS A DURATION OF CONSCIOUSNESS.

Einstein's suggestion that time is the fourth dimension implies that past and future are separated from the here-now by the insertion of a hyphen between space and time. In reality,. these are only words and words always refer to something else. No amount of semantic trickery can change the fact that the cosmos is not constructed of alphanumeric imagery. Only our apprehension and consideration is thus fabricated. It's the old saw: THE MAP IS NOT THE TERRITORY.

The essence we are dealing with is tripolar with three degrees of ambiretrocity -- i.e. the cosmos is 100% omnidirectionally retrogradient, following the third law of thermodynamics.

Even though the enigma of temporality has its only solution at the instant of our personal death we may speculate upon its nature by dismantling a clock and observe the cause of its ticking.

Note that a coil spring loads the escapement mechanism with a reserve of kinetic energy stored up in the elasticity of the spring. If the spring happens to break due to molecular flaw, the universe goes on down the road without it. Time does not depend on how it is measured, but is measured by how it depends....beginningness is absurd in regards to matter.

"Most people believe that time passes. In reality, it stays where it is. The concept of passing time is false, because man, limited to experiencing time only as passing, does not understand that it stays where it is." Dogen, Zen Master.

"To put it differently, we do not live in time, but time lives within us...Space is externalized, objectivated time, time projected outward. Time...is internalized, subjectivated space...Time and space are related to each other as the inside to the outside of the same thing." Lama Govinda.

The universe depends totally upon time which stops when we die. Therefore time is life. The universe is a cyclooscillating complex of events that was never born and can never die.

CIRCULAR UNITY AND THE TRIAXIAL RETROGRADE INTERFACE (T.R.I.)

In thermodynamics, an ideal process is called a reversible process, defined as a change in the state of a system which goes through a continuous succession of equilibrium states.

The full definition/description of circular unity begins first with the definition of the word unity. As defined by R. Buckminster Fuller in *SYNERGETICS II*: "Unity is plural and at minimum sixfold." Circular unity, then, can be graphically demonstrate by a circle divided into six individual but interdependent sections.

The color wheel is a good graphic example of circular unity, and represents six discrete qualities of six individual but interdependent quantities represented by each section of the wheel. A circle divided into six distinct quantities, each with individual but interdependent qualities...i.e. unification of number and geometry.

In that SIX is the sum and/or product of the first three numbers, $1 + 2 + 3$ or $1 \times 2 \times 3$, it contains a harmonious whole number relationship with them, and is thus called the first "perfect number". The first instance of the harmonic synchronization of number and geometry (quantity and quality) occurs in the number six.

However, this prescription for circular unity is two-dimensional. Three pairs are each separated by the centerpoint which has no dimension. In order to formulate a spatial abstraction of circular unity, we draw three lines that interconnect the six face centers of a cube and enclose that cube within a sphere.

Doubling this two dimensional circular unity produces the first true Holotome (A) which is predicated on number twelve. This three dimensional holotome of six positive, and six negative, symmetrical retrograde event identity axes, is then also represented by the closepacking of twelve spheres about a thirteenth nucleus sphere. This produces the dodecahedron, (the primitive non-pi spherical module).

This TRIAXIAL RETROGRADE INTERFACE then, contains the graphic capability to represent a virtual spacetime object. One example found in nature is the primary cleavage planes of crystals.

We invoke the entirety of Dr. Fuller's master work, *SYNERGETICS II* to clarify the preceding remarks.

The following shows the fundamental platform from which the Holotomes evolve:

Perfect number (Unity) = 6 Nave of Holotome A
Doublation produces =12 (Zodiac) or Holotome A
times two =24 Holotome B

times three =72 Holotome C
times five =360 Holotome D
times seven =2520 Holotome E

In this way, circular unity is conserved by the employment of prime numbers only. No redundant multiplexing is done through numbers that contain factors of division as in the case of the factorials.

It is easy to tell, at least with very high probability, whether or not a large integer is a prime. If it is not a prime, then it can be written as a product of two or more factors. For instance the integer 146,527,939,199 is the product of the two primes 1,445,599 and 101,361,401. There are no methods currently known for efficiently determining factors of large nonprime integer.

An important scheme for secret codes, developed in the last decade, relies for its security on the difficulty of factorization. As a result, the U.S. National Security Agency is interested in factoring. The coding scheme has also caused a strong surge of interest among mathematicians in the problem of designing well-defined procedures, or algorithms, to factor integers.

The Holotomes are the minimal numerical magnitudes to accommodate the maximum amount of consecutive factors of division.

WHEN MAPPED OUT IN A CIRCULAR ARRAY, EACH OF THESE MATHEMATICAL ENTITIES PRODUCE A HALF-POSITIVE, HALF-NEGATIVE, SYMMETRICAL RETROGRADE MANDALOG, which represents the GRAPHIC SYNTAX of a Holotome. Here are the graphics of the Holotomic Sequence:

The baseten concept of quantitative notation consists of a sign denoting nothing, 0 (zero), a sign denoting singularity, I (one), and eight other signs denoting eight discrete degrees or ratios of plurality: 2, 3, 4, 5, 6, 7, 8, and 9, altogether representing a cyclic continuity of plural members we call numbers. This continuum must be regarded as an endless series inasmuch as there can be no such idea-entity as a highest or top number. Because of this open-ended nature of numbering this continuum is said to be infinite, that is, without an end.

Because of this infinite quality of the numeric continuum, we cannot speak of number as having a definite structure, however, if we choose to regard any particular numerical event beyond duality, then we have a finite series which is then a closed system. Such a system then contains a definite structure which may be described in words, geometrical structures, graphs, diagrams, etc.

To arbitrarily choose a number (amount) for the purpose of establishing a finite and therefore describable system of numbers will provide only one of very many possible systems and/or structures; (the term "infinite number" is meaningless).

The foregoing proposition contains the reason for the need of a non-arbitrary numerical modal that renders possible a scientifically systematic method of describing members in terms of structure and behavior.

Such non-arbitrary numerical modules now exist. They are called Holotomes: a discrete plural quantum of coherently describable interaction, i.e. a finite unity of a plural componentry.

For those readers who may think that a Holotome is something new, or recently invented, there is indisputable evidence from existing records that clearly indicate that the Sumerians understood the discrete series of Holotomes over 6000 years ago. That their knowledge of the Holotomes was still clearly remembered as late as 1900 years ago is evident in the writings of the New Testament.

The information contained in the ensuing pages is instrument not only to the intrinsic nature of number, but also to the specific way in which number relates to the descriptive mechanisms of human languages, that is, to the exact and actual structure of an ideal, non-paradoxical syntax.

The crux of the descriptive mechanism of language revolves around the Greek prefix QU as in WHO and HOW much (identity and plurality) and of course, Quality and Quantity. This preceded the English prefix WH (as in WHO, WHAT, WHEN, WHERE, WHICH, and WHY). This yields the full sixfold coordinate system of the descriptive mechanism:

- 1 WHO : Identity: person A**
- 2 WHAT : Identity : object E**
- 3 WHEN : Time : duration I**
- 4 WHERE : Space : extension O**
- 5 WHICH : Plurality : number U**
- 6 WHY : Causality: and/or HOW Y**

These relate to eternal questions of our orientation in the cosmos: Who am I? What is the object and source of being, and limitations? When will I die? Where do I come from? Which is my path in life? For what purpose? How am I related to it?

In the table, the six vowels are all accounted for and figure qualitatively in the six primary axes of description. The fact that unity is plural and at minimum sixfold gives added credibility to the concept of the TRIAXIAL RETROGRADE INTERFACE, which is the fundamental paradigm upon which rests the symmetrical unity of the Holotomes.

Marshall asserts that the Sumerian alphabet contained exactly six vowels, three primary and three secondary, which suggests an interesting correspondence between ancient descriptive syntax and the T.R.I. in the color wheel.

These comments supplement the intended meaning of the phrase, "IDEAL SYNTAX," which should clarify the idea that paradox results from unconscious disregard of retrocity in at least one of the three primary axes of qualification.

IDEAL SYNTAX becomes possible through the concept of word contexts that derive from a rational correlation between quantitative notation and geometrical notation. This may be understood as a GRAPHIC SYNTAX.

The sequence of mandalogs that represent the Holotomes is an example of this graphic syntax: a rational arrangement of numbers, words, and geometry, by which to convey information not available to the imperfect literary syntax of modern scientific philosophy or what is otherwise termed physiomathematical epistemography.

When Sir Isaac Newton formulated the third law of motion, he could have been much more general and stated that for every axiom there is an equal and opposite reaxiom. The third law of motion is as much a statement about descriptive language as it is about any intrinsic behavior of physical law. The concept of action and reaction occurring on a straight line is not stated but is unconsciously accepted. We know that in modern dynamics, curves and vectors are fundamental, since spacetime is curvilinear. A vector is a line of force aimed in a known angular direction in respect to an axis of reference. The length of the vector is the product of its mass multiplied by its velocity.

Number is not at all what we think but how we think. Remember, the alphanumerical aspect of language in ancient times.

Language, both oral and written is the result of the ideas evolving from plurality on the neurological level. Civilized culture could not exist without the subliminal notions occurring beneath the words, each, every, any, many, both, all, and either/or, etc.

Up/down, right/left, and front and aft are cognitions that precede conceptions and symbols in the matrix of the mind. Number and geometry are quantity and quality on the prelinguistic level.

The T.R.I. depicts six forward and six reverse quantity quality event scenario data events on the non-semantic level. It is another way of demonstrating that within the context of oral tradition the roots of written language reach in six directions.

An example is the Qabalistic meditation device known as THE CUBE OF SPACE, also known as the Key of the Cosmos. In it, each direction and vector is assigned an alphanumerical glyph from the Hebrew alphabet (See Part Four). The T.R.I. provides conceptual orientation in imaginal space in much the same way. The six directions stem from three ambiconceptual axes of spatial cognition. Time, which we do not directly perceive, is totally conceptual.

Number/geometry is the preverbal mind-scape from which we derive our picture of the so-called real world. The mind's eye sees very differently than in our

familiar three-dimensional world. Geometry lets the inner eye visualize such spaces as if they truly existed.

Mathematics teaches us this art and at the same time protects us from illusions. For to understand these spaces, we must first rely upon the exact symbolism of formulas. Only then can we stand aside and give free reign to our imagination. The most fundamental geometrical concept is the idea of dimension. Number/geometry is the foundation of the conceptual world, not real at all. We perceive plurality without resort to number, just as we perceive qualities without the words that refer to them.

Numbers, letters, and symbols are devices of utility in themselves and are only required to supplement the utility of our legs, arms, hands, fingers, and cerebral activity. Social order can exist without language but language only exists because there is an innate order in our interpersonal concerns.

The archives of antiquity speak of many disciplines predicated on the metrologies peculiar to all successful technological cultures. The number twelve (12) and its multiples stand as an exemplary statement of number utility. They range from the signs of the Zodiac, the labors of Hercules, the hours in the day, the months of the year, the planets of the Sumerian solar system, the stones of Aaron's breastplate, birth stones, the tribes of Israel, the twelve spheres around the 13th nuclear sphere of Fuller's Vector Equilibrium Matrix.

By SYNDEX definition, one is a singularity, not unity, and therefore not a number in the sense that the other eight base numbers are unifications of a plurality of singularities. This misunderstanding was acknowledged in the Qabala by stating that Aleph is the first letter, but it does not count. This story is in accord with the legend of Lord Krishna who lost one of his ten fingers on the last day of creation, but still considers one as a number or digit.

The ten number signs only contain eight true numbers: 2 - 3 - 4 - 5 - 6 - 7 - 8 and 9, as an octave. No transpalindromic sequence can exceed four forward and four reverse number event identities.

Multiples of nine: 18

27

36

45

nave

54

63

72

81

Thus, the retrograde cycle of number is an octave cycle, with a ninth null event, as stated by Bucky Fuller, the first modern number analyst to recognize this crucial aspect of number behavior.

BASE TEN NUMBER DYNAMICS

"Henri Poincare, for instance, says: "Every whole [natural] number is detached from the others, it possesses its own individuality, so to speak; each one of them forms a kind of exception, for which reason also general theorems of number theory are but seldom forthcoming." Nevertheless, this individual aspect of number appears to contain the mysterious factor that enables it to organize psyche and matter jointly."

M.-L. von Franz, *Number and Time*

"The number one as the first and original number is strictly speaking not a number at all. One as unity and totality exists prior to the awareness of numbers which requires a capacity to distinguish between separate discrete entities. Thus, one symbolically corresponds to the uroboros state prior to creation and the separation of things. Two is the first real number."

Edward Edinger, *Ego and Archetype*

We consider numbers to be so familiar that we have nothing left to discover about them of any possible interest. But perhaps this is not so. The continuum of base ten number is generally looked upon as a progressive and linear series of cardinal and ordinal numbers. Iterations signify the simple addition of the initial unit to each resulting member encountered in the continuing series of elements known as numbers. The digits 1 - 9 are known as integers or numerals. Of course, multiples of 10, 100, 1000, etc. are formed simply by adding zeros.

Further analysis discloses that this continuum can be viewed as **both progressive and regressive**. It is not exclusively linear, but has a cyclic function resulting from the terminal character of the last base digit and the next beginning initiated by zero producing the two-digit range. This doubling of number is for all practical purposes a cyclic function that recycles again and again with each ten-fold group produced.

Besides the cyclic and ambidirectional aspects of the number series, there is also a periodic series of reversals that occur in conjunction with the cyclic aspect.

This ongoing combination of diverse functions can be considered a mixing effect not unlike an egg beater that folds the medium over and over. Remember, from our previous discussion that "OM is said to issue from a process of multifold reflection." That process, exactly, is revealed in the number continuum when we can hold a metaphorical mirror up to nature's primal manifestation--the natural number sequence.

The key to the comprehensive analysis of general number behavior is found in the concept of "circular unity." Circular unity is an idea demonstrated by the harmonious interaction of the first six numbers. SIX is the first perfect number is the sum of its first three digits, or $1 + 2 + 3 = 6$.

$1 \times 2 \times 3 = 6$; $6^2 = 36$; $36 \times 3 = 108$; $36^2 = 1296 \times 2 = 2592$.

The term "unity" (or Universe for that matter) implies something that is composed of parts. Fuller agreed, and stated it as, Unity is plural and at minimum two, or at minimum six.

The sequence of perfect numbers (6, 28, 496, etc.) does not have the structural nor metrological significance of the Holotomic Sequence, which graphically displays an important structural order within prime number distribution.

Note that the first Pythagorean Triple 3:4:5 equals 12, which is Holotome A (which is also twice the first perfect number). $3 + 4 + 5 = 12$.

The sheer complexity of the waves and cycles that are generated within the base ten continuum cannot be described nor explained with conventional modes of philosophical description. Number theorists must resort to higher mathematics. But these cycles can be demonstrated graphically so they are visible even to those not mathematically inclined.

Synchrographics has been systematically contrived to formally illustrate behavioral patterns that have successfully led to a general understanding of the fundamental elements of the reflective and symmetrical as well as geometrical nature of the base ten system.

Can we find a cosmic mandate expressing Fuller's assertion that unity is plural and at minimum sixfold? The Holotomes and Holotomic Sequence fulfill this mandate with neat, logical finite sections. They represent circular unity and whatever else remains of the "infinite rest" that swells beyond our immediate focus.

When we refer to the base of a number system, such as base ten, we are also referring to the amount of iterations in a loop or cycle for the FOLDMENT that multiplies the base and the multiples of that base is for all purposes a circle.

The coexistent independency and interdependency of the base digits creates the rational notion that continuity is discontinuous. From this we derive the closed loop logic of the Holotomes as discrete levels of finitude.

The graphic importance of this particular Holotomic Sequence is that circular symmetry is being conserved and may be enlisted as the fundamental reference key in the graphic investigation of number behavior. The primes are deployed in symmetrical interface only within these specific Holotomic domains.

The Synchrographic process of regarding symmetry as a primary analytical aspect of reference makes the Syndex archetypal system of fundamental classes of

numbers possible. The foundation of this system is the palindromes and transpalindromes.

These 12 archetypal classes of number are catalogued by the ambidirectional glyphs that disclose the transbinomial nature of any individual number. Only 12 permutations exist in the total foldment of the number field or domain: retrosquare primes, retroprime composites, transpalindromes squares, retrosquare composite, palindromic composite, retrocomposite prime, transpalindromic prime, retroprime square, palindromic square, retrocomposite square, transpalindromic composite, palindromic prime.

The so-called four fundamental operations of arithmetic are in reality two binomial pairs: addition is reverse subtraction; multiplication is reverse division.

The term transpalindrome is invoked merely to establish a context through which to establish a bilateral system of numerical classification, that is, to create a notational link between any integer of 2-digits or more with its antithetical or reverse companion. For example, number 21 is the transpalindromic companion of number 12.

This simple concept brings into being a host of valid structural relationships that would otherwise be totally ignored. For example, number 16 is the ONLY 2-digit square that is a prime when reversed: 16 is a square, 61 is a prime. We call number 16 a retroprime square, and number 61 is conversely termed a retrosquare prime.

Without his classification system, it is impossible to analyze the number field. Palindromes, or binomial reflection numbers are neither purely accidental nor without significance. Remember, OM (#108) issued from a process of multifold reflection to create the entire universe of phenomena.

It is through the classification process that the enigma of prime number distribution has been solved. By labelling all possible permutations of the ambidirectional system of number dynamics, we find there are twelve discrete members in the domain of number class.

In order to systematize the study of the base ten concept, a graphic format was essential to organize sizable spans of the continuum for in-depth analysis. The enspirament of number offered itself as the ideal format. The cyclations of the spiral could be referenced to the longer cyclic periods intrinsic to number itself. There are cycles within cycles, more readily seen in graphic format than in a continuous sequence.

This was the general reasoning for adopting the synchrographic methods: to condense, or sample the number continuum, and establish reference to related periods of cyclicity.

The fundamental basis of the compound cycling begins with the circular unity six (ref. Fuller). It is the 2-dimensional circular unity of the spherical 3d model of

sacred space which is composed of the nexus of the four cardinal directions with a vertical axis, (T.R.I.), six ambidirectional axes. It leads directly into the full spectrum of SYNDEX discoveries, or the nuts and bolts of general Numeronomy:

#1. The Triaxial Retrograde Interface is the fundamental program for circular and symmetrical retrograde unity and the general basis of the Holotome's profile.

**$1 + 2 + 3 = 6$; $1 \times 2 \times 3 = 6$; $6^2 = 36$; $36^2 = 1296$.
 $60, 60^2, 60^3, 60^4 = 12,960,000$.**

#2. Description of the proliferation of the Holotomic Sequence by prime number multiplexing; list of first five holotomes and synchrographics describing them.

12
24
72
360
2520

#3. The twelve Syndex glyphs denoting the archetypal system of ambidirectional number classification; also the general explanation of transpalindromicity.

#4. The exemplary nineleven retrograde octave wavecycle and prime/square/composite triplex diagram, denoting the profile of 9/11 cycle in conjunction with the four 2-digit pairs of transpalindromic primes. Also various descriptions of transpalindromic profile in 2,3,4,5,6,7, and 8 digit multiples of 99 sequences. The 9/11 wave cycle was discovered on Synchrograph C, #108.

#5. How retroadditive sums of holotomes produce 1/3, 2/3 or full 99 count or even multiples of 99, thus synchronizing with exemplary wavecycle.

#6. The fourteen 3-digit pairs of transpalindromic primes.

#7. The location of holotomes in exemplary 99 wavecycle path.

#8. Tracks denoting interval symmetry of primes: Holotome D.

#9. Ancient Metrology: The Sumerian knowledge of the Precession of the Equinoxes: $72 \times 360 = 25,920$; and the Holotomes as circular unity, 12 - 24 72 - 360 - 2520, etc. Here the intrinsic structure of number coincides with nature's scenario. And the Hindus used exactly the same figures as metrological modules, as have all subsequent civilizations. Temple architecture is based on multiples of $36 = 6^2$.

In *Cosmic Fishing*, Applewhite recounts Fuller's reaction to the great hexagonal court in the ancient ruins of Baalbek. He said, "The Phoenicians knew my principles."

So, Numeronomy, the laws relating to the essential structure and dynamics of number, is a new word for an extremely ancient science. This science, based on the knowledge that the continuum contains a definite structural order with general laws that describe the nature of that order, has laws that relate to the general behavior and structure of nature itself.

In Synchrographics, the cyclic and reflexive nature of the cardinal/ordinal number series is portrayed through a graphic context which reveals the minimal set of key numbers required to show the coherent nature of prime number order.

Synchrographics suggests some new terms, including a 12 symbol alphabet which is justified by the context. Systematic investigation of the intrinsic structure of the numeric series is purely a matter of selecting a graphic method of mapping numbers in their natural order so that geometrical order is also an integral aspect of that sequence.

The system of multiradial and multiaxial interfacing between number and idea is called spatial formation. The maps that include the relationships of circular unity and the distribution of primes and other classes of number are called mandalogs.

The employment of this multirelational spread sheet permits the number analyst to consider aspects of the numeric continuum that would otherwise not be taken into account and therefore beyond the order-seeking functions of human mentality.

The first important concept of numeronomy is the exemplary base wave. The wave begins both before and after number 10. In fact, it is called the nineleven cycloflex because it is the result of the mutual interaction of both nine and eleven.

This wave begins at ten and concludes its first cycle at 99 ($9 \times 11 = 99$). Then it continues through the multiples of 99 and never ends. This is called exemplary because it sets up a continuous pattern that never ceases and never changes. This

pattern is responsible for the continuous integrity of number behavior.

Numeronomy

Numeronomy, or the laws governing the behavior of the continuum of quantitative notation is the natural result of numerology, the study of number. Numeronomy is the outcome of Synchrographics. Numbers speak for themselves

through structure and behavior. And it is the task of Fuller's synergetic geometry to identify energy with number.

The single most important discovery of the SYNDEX PROJECT is the Holotome and the Holotomic Sequence, created by prime number multiplexing. It was discovered on Synchrograph C.

The second most important discovery is the Exemplary Basewave Octave or Nineleven Cycloflex. It was also discovered by meditating on the C Graph.

The third important discovery is the four pairs of 2-digit transpalindromic primes which served as major clues to the discovery of the coherent order of prime number distribution.

The fourth discovery is how the Holotomes relate to the exemplary octave wavecycle.

Number/geometry is the fundamental cornerstone of human communication and specifically the alphanumeric principle of descriptive notation. The T.R.I. represents the geonumerical basis of the sequence of minimal pluralities that accommodate the maximum amount of dividing factors. The Holotomic mandalogs display the retrograde symmetry of each of the circular unities in the form of a half positive and half negative octave system predicated on the octave nature of the so-called base ten system of number.

The base ten system of number is an octave system, where either one or nine can be seen as a null value event.

Furthermore, this octave can be regarded as a cyclic function. The zero, one, or nine can function as the null event which acts as the null value gap between the beginning and ending of the octave retrograde cyclation, due to its half positive and half negative symmetrical cycle (which negates the numerical value of one or nine just as if they were of the same nature as zero).

Due to the octave nature of the eight true numbers, no transpalindromic sequence can exceed an octave cycle.

Each Holotome in the sequence of holotomes when represented in a radial series of the numbers is composed of a perfectly symmetrical array of prime numbers diametrically opposed to other prime numbers or numbers composed of primes multiplying other primes. Also, the intervals that separate the primes are diametrically opposed to the same magnitude intervals across the wheel, yielding 100% perfect radial symmetry.

In the context of the Holotomes, then, the deployment of prime numbers is an orderly progression. This ends the tradition that the primes do not occur according to any recognizable pattern.

This is the essence of the holotomes and their graphic elegance. Graphical elegance is often found in simplicity of design and complexity of data. Visually attractive graphics also gather their power from content and interpretations beyond the immediate display of some numbers. The best graphics are about the useful and important, about life and death, about the universe. Beautiful graphics do not traffic with the trivial.

On rare occasions, graphical architecture combines with the data content to yield a uniquely spectacular graphic. Such performances can be described and admired, but there are no compositional principles on how to create that one wonderful graphic in a million.

Number is considered so simple and mundane in nature that a popular assumption exists that there is nothing more to know about it that could really be of any valid significance. In a sense, number is self evident and apparently contains no subtle mysteries.

Contrary to this attitude, number is the repository of a highly complex system of very intricate and involved interrelationships that have shaped the cosmological and religious backgrounds of all cultures. They affect us unconsciously at the deepest levels of our belief system, which in turn conditions our thoughts, feeling, and behavior.

The true mechanisms operating in the number chain can be shown in a system of incremental spirals portraying the numeric continuum and the special events which occur in it. R.B. Fuller recognized this when he wrote to Marshall, March 3, 1981: "Your cyclic synchrographing work clarifies and

simplifies this whole matter to an epochal degree."

SYNCHROGRAPHICS

Synchrographics is an innovative, systematic discipline interfacing the natural base ten integer progression with the fundamental elements of geometry. This institutes a graphic synthesis of the the two basic disciplines which in essence are initially two interdependent concepts that only occur through their mutuality.

The Pythagorean Triples that begin with the 3-4-5 triangle bring to note this initial unity of number and geometry attesting to the scientific validity of the synchrographic method of analysing relationships. They are not at all evident without such an interdisciplinary medium.

Each holotome expressed in synchrographic form is geometrically symmetrical. The base digits of the parallel spirals of iterating squares give direct visual evidence of the factorial degree of any specific integer by the

occurrence of squares that have been color-coded for that particular incident of synchronicity.

In that the initial holotome is twelve and all subsequent holotomes are a multiple of that number, the valuable duodecimal interface that encompasses the base digits is reflected in the substratum of all holotomes.

Synchrographics offers a plausible answer to the question of why the Babylonians adopted the 360 degree circular unity. The ancient Hindus chose 108, which is 3 x 36.)

The classic answer is that 360 has many divisors. But perhaps some unknown numerist discovered this sequence in the ancient past.

This sequence is generated by doubling the first perfect number six to equal 12. Then doubling 12 for 24. Then multiplying 24 by the first true prime $12 \times 3 = 72$. Then by multiplying that number by the next true prime $72 \times 5 = 360$. Then multiplying that by the next true prime: $360 \times 7 = 2520$, etc.

By beginning with twelve we have already involved 2,3,4, and 6. By doubling 12 we have involved #8. or five of the base digits. By multiplying 24 by prime number three, we involve nine, or six base digits. By multiplying 72 by 5, we involve seven base digits or 2,3,4,5,6,8 and 9. Finally, by multiplying 360 by 7 we have captured them all: 2520.

If the Babylonian metrologists knew of this, neither they nor modern number theorists make mention of it.

Whatever the case, the Holotomes are ideally adapted as instruments for translating intricate geometrical interrelationships into the language of number. Only through the careful study of these special modules does the exquisite order of prime number occurrence become obvious, for the primes are found to be deployed in symmetrical interface only within these specific holotomic domains.

Thus, number stripped of its structural character is reduced to the empty and monotonous iterations used essentially for counting objects and measuring distances. When numbers, on the other hand, are permitted to be deployed in cycles that are in phase with their already inherent rhythms, a clearer picture emerges.

All mandalogs are the product of the systematic generation of the exact sequence of minimax factorization. They have the perfect retrograde feature by which the patterns generated in the first half of the spiral are reversed at midpoint and are reflected as a mirrored image in the second half of the spiral. Remember, OM was formed by multifold reflection!

Also, because of the existence of palindromes and other reflective qualities issuing through each holotome there is an exemplary wave form that begins at the end of the first holotome. This is a dual component wave, resembling the DNA

helix. The wave begins amid number ten and is composed of square number nine and palindromic prime number eleven.

This compound cyclic wave is labeled the nineleven cycloflex. It cycles and oscillates through multiples of ninety-nine and produces decant or tenfold series of consistent tranpalindromic sequences or numbers. Each number in the sequence has its perfect reversal on the corresponding other side.

The total reversal of number should always have been expected in that the number chain is by its graphic nature a two-way street, refolded again in the four fundamental operations of arithmetic.

The graphic mandalogs contain a rational and logical system of interrelating number and geometry or quality and quantity. They are graphic expressions of identical ideas regarding the descriptions of events in nature.

A critical consideration in expressing the optimum number of interrelated ratios is to do so with a minimum amount of graphic details. That is, to show the most information with the least given axis of reference. The mandalogs, or number wheels, are mathematical entities which express a plurality of interdependent formulae in a simple singular system.

The cornerstone of SYNCHROGRAPHICS is the preliminary Pythagorean Triple:

$$3 + 4 + 5 = 12:$$

Holotome A times two equals B or 24

times prime number three equals C or 72

times prime number five equals D or 360

times prime number seven equals E or 2520

times prime number eleven equals F or 27720

times prime number thirteen equals G or 360360

In this way, the minimal numbers that accommodate the maximum amount of consecutive factors of division are generated by the multiplication of each resultant sum with the next prime number in its natural order of occurrence.

Each of these Holotomes is a number of special geometry, a circular unity. Expressed as a geometrical entity, a synchrographed Holotome is found to be reflectively symmetrical. At its midpoint, its initial pattern reverses and its second half becomes a reflection of its first half, much as OM created the Universe through its "multifold reflection."

J.S. Bach used this numerical phenomena in his Crab Canon or Retrograde Fugue. The breakdown of that notation was 22×144 or 3168. This number is cited in the Qabala as the perimeter of Solomon's temple: 3168 divided by $1008 = 3.1428571$ (4×252).

The secret traditions seem to have made liberal use of the Holotomes without ever pointing them out.

The number 3168 has special qualities: By adding the palindrome which is the sum of a palindrome times another palindrome:

$$\begin{array}{r} 3168 \\ \underline{5445} : 55 \times 99 \\ 8613 \end{array}$$

We get a reversal of the initial number.

The ninety-nine cycle is the carrier wave of the transpalindromic reflection sequence. This sequence is crucial to the mapping of the natural number scenario because the 99 cycle issues through the Holotomes.

The Holotomes are ideally adapted as an instrument for translating into the language of number the intricate geometrical interrelations between the configurations of cubic space. The Pythagorean Triples are the best examples of the interdependent nature of number and geometry. These triples logically deduced as an "infinite set" all share the 90 degree angle. They show the geonumeric character which describes the same ratios and interrelationships in different styles of notation.

Synchrographics begins with the assumption that since number and geometry are two ways of expressing the same set of ratios or relationships, then it holds true that a graphic device may be generated that faithfully aligns these two methods of notation in a synchronetic diagram. That is, a single notational system may express the geometrical nature of number and visa versa.

The "four progressively additive and four progressively subtractive event octaes with a ninth null event" depicts the primary cycle or finite extent of the initial program parameter.

With the turnaround occuring at ten (between square number nine and prime number eleven), the nineleven wavecycle then begins and proceeds to fortynine and a half (49.5). It turns around and proceeds to ninetynine (99), and thereafter continues through the multiples of 99 to 1089 or the only four-digit transpalindromic square.

The behavior or structure of the baseten system requires the perspective of an integrated complex where number and geometry are interqualifying aspects of an unified system of congruent identities. The character of notation determines whether data is in the form of number or geometry. Each requires the other in order to be expressed.

This interdependency authorizes the synchrograph to represent a number as a geometrical phenomena in which each holotome contains the triquadric core intitiated in number 12.

Holotome A diagram

Thus, every subsequent holotome retains a copy of the initial data, plus new more involved data. **Each and every holotome is a symmetrical retrograde MANDALOG**, representing the four progressively additive then progressively subtractive event octaves with a ninth null event synchronicity. Altogether it represents the octave nine system of R.B. Fuller, or Marshall's nineleven cycloflex.

The exemplary compound wavecycle which proliferates through the multiples of 99 is the carrier wave that both integrates and isolates the Holotomes with accumulative integrity. In this scenario, the primes behave in an orderly manner through their special palindromic members:

13 31 17 71 37 73 79 97

The four pairs of two-digit palindromic primes form the octave bridge in the 99 cycle.

The general laws of number behavior can now be written from the behaviors clarified through synchrographic mapping techniques. Numeronomy is then expressed or emanated through the tranpalindromic functions, which remain unseen in classical number theory and structure.

The intellectual separation of geometry from number removed from number the purely geometrical aspects of the numerical continuum that made the holotomes apparent as symmetrical mathematical entities.

Only through the study of these special modules does the exquisite order of prime number occurrence become obvious. These geometric number wheels are unique examples of circular unities.

The primes are deployed in symmetrical interface only within these specific Holotomic domains.

There is a way in which to seek out these entities by intermultiplying the primes from a special base module. Much in the way that the factorials are produced but with the difference that diminishes the huge sums that result from the redundant multiplication of the accumulating composites, out of what would have been primes.

We begin with six, the first perfect number, then double it to produce 12, which we call a holotome. This produces a **number wheel** that involves all of the base digits plus three of the first two-digit numbers. This number wheel contains all of the needed geometry by which to proliferate the family of related Holotomes.

All mandalogs are the product of the systematic generation of the exact sequence of minimax factorization. They have the perfect retrograde feature which reverses at midpoint, because of the existence of palindromes and other reflective qualities.

They are graphically elegant due to simplicity of design and complexity of data. Visually attractive, they gather their power from content and interpretations beyond the immediate display of some numbers. The best graphics (most important and beautiful) are about the useful and important, about life and death, about the universe. They contain maximal information with minimal graphic elements. On rare occasions graphical architecture combines with the data content to yield a uniquely spectacular graphic. Such performances can be described and admired but there are no compositional principles on how to create that one wonderful graphic in a million.

The first solid indication of a rational link between prime numbers and square numbers was found in the diagram entitled the prime/square interface which actually includes the composites in that the full overview addresses the holistic interaction of all classes.

The prime/square interface diagram consists of a vertical column of the first one hundred and one numbers with their squares listed on a right hand column. The finite extent of this number map is calculated to encompass the full range of the 99 cycle. The cycle contains the exemplary basewave that is essential to the structural integrity of the Holotomes. This wave in a certain sense is such that it determines the point places in the continuum where discontinuity may or may not occur.

The mandalog, then, is a graphic mathematical entity for the expression of a plurality of interdependent formula in a simplicated singular system, i.e. an information containment mechanism, or book: Holotome.

Such a device contains information and is at the same time a device to convey information clearly and accurately, with a minimal possibility of ambiguity, error, or paradox.

In classical systems of encoding and conveying information, elements of paradox occur through the vehicle of language itself. The fault generally exists in the very foundation of language at the fundamental level of syntax.

It is through the transpalindromic nature of the natural baseten number sequence that the irregular occurrence of prime numbers is recognized as a purely causally-determined pattern of rational explanation.

The classical approach to a study of prime numbers is such that the primes are considered more or less estranged from other classes of numbers in hopes that the primes might manifest some intrinsic rhythm of their own that could be found to account for distribution, density, etc.

No single class can be isolated as an element responsible as a determinant of any specified classes of behavior, since the full compliment of classes that comprize the self-modifying continuum interact congressionally.

Synchrographic analysis has shown that an exemplary wave form is formulated in the structuring of the base digits which when issuing through the sequence of numbers maintains its own structural quality even while it modifies the quality of the numerical event identities it encounters.

This wave form occurs through the mutual interaction of square number nine and palindromic prime number eleven. In that nine times eleven equals ninety-nine, the wave proliferates through the multiples of ninety-nine.

Fuller did not have the advantage of synchrographs to clearly see and properly describe this basewave. This description of an octave-nine system had the turnaround at fifty. The true nineleven turnaround is a 49.5.

The graphic mandalogs allow us to monitor the exemplary basewave that is guided through the continuum of natural number by the cyclic and reflexive qualities inherent in the special or noble numbers.

In the Prime/Square Interface Diagram, the basewave is seen to contain itself throught the palindromic mechanism that is sustained through the four pairs of transpalindromic primes that act as transnumeric relay stations.

The tapestry of number is literally woven with the four warps and four woofs, or octave, of the transpalindromic bridge between the fist and only two-digit pralindromic prime number 11 and the first, but not only, 3-digit prime number 101--primes that are known to proliferate palindromes in being multiplied by themselves.

The full importance of the basewave continuity observed in the multiples of 99 is only realized when investigating its involvement in the structure of the Holotomes. The initial holotomes contain only a rational section of a complete cycle; that portion necessary to insure a quality of infinity, (the number repeating itself indefinitely).

The number structure or number behavior mapping technique makes number theory visibly coherent. Synchrographic techniques are scientifically systematic. The general scheme of Numeronomy involves a more complete system of classification which takes special note of both the palindromic and transpalindromic nature of number. It is possible (but remains to be calculated), that the holotomes contain a consistent ratio between primes and non-primes with the holotomes that precede and follow.

TRANSPALINDROMES

Transpalindromicity of number is merely a term by which we include the reversal of any particular number exceeding a single digit. For example, 16 and 61.

Another example involving a transpalindromic distinction is when a reversed number remains in its class, like 13 and 31 which are both primes, i.e. transpalindromic primes as compared to a simple palindromic prime such as eleven. These are only twelve permutations possible within the whole continuum of number.

The complete analysis of number behavior is not possible without taking into account the palindromic and transpalindromic characters of number. This is the crucial and paramount reason that the behavior of prime numbers have remained an enigma for so long.

Number theory has ignored the ambidirectional reflexivity inherent in the number continuum. Regaining an impartial view of how reflexivity is totally conserved within the continuum leaves no gaps in the concept of numerical continuity.

The synchrographs and mandalogs used in this study are to support the continuity that has been disrupted by the belief that prime numbers are without connective order. Toward this end, we introduce approximately 16 new words that fill in the missing blanks to form a coherent picture or concept of true number dynamics.

The term "synchrostat" designates an event synchronicity in the numeric continuum. This term and its subsequent Tables were valuable tools in indentifying a cyclic series of numbers that embody features that were common to all members of the series. They embody and exemplify a practice that was used to explore many other cycles until the main base cycle was finally discovered.

Synchrostat illus. here.

Comprehending the universal nature of the transpalindromic function of number behavior is not easy. We tend to see the number chain as a unidirectional continuum, which is too linear for a synergetic perspective. Revisioning it with the concept of simultaneous counterflow yields a more accurate picture. With large spans of number, the complex interrelationships become difficult to visualize.

Fortunately, because of the octave nature of the base cycle there cannot be more than four consecutive transpalindromic pairs in a single symmetrical sequence, regardless of the amount of digits in each individual number.

However, we are only looking at the multiples of nine. But, in fact, all the numbers in between are also involved in transpalindromic transactions. To address such a complex interchange by graphic means can only be accomplished in a series of static cross-sections each involving no more than the eight required transactions.

The exemplary 99 wavecycle affords us a context that gives a graphic expression of total transpalindromic symmetry which it is possible to contemplate with clarity.

All the Holotomes contain the same general mechanism seen in the 99 cycle, but even the Holotomes must be contemplated in various graphic modes to capture their full integrity.

Transpalindromicity functions through the ambidirectional nature of number. It is therefore, the initial or primary function of number behavior in general. All details of number behavior derive primarily from a transpalindromic function operating through an ambidirectional chain of ambidirectional numerical events.

If any aspect of direction is left unconsidered in the behavior of any specified event then behavior observed in connection with that event will have been compromised. In the past, there has been a general disregard for the retrocity of number in general. Yet, no single function is more important or interesting than this transpalindromic nature in determining the basic waveforms inherent in baseten numeration.

Transpalindromic symmetry refers to a circular module of numerical relationships and interoperations which form a totally harmonious retrograde and symmetrical octave unity. The emphasis is not on palindromes, but on the relationship existing between palindromes and transpalindromes:

1089

Palindromes: 55 x 99 = 5445

9018

We can take any number, reverse it, add the two numbers together, continue to reverse and add, and eventually end up with a palindrome--a number whose digits appear in the same order whether they are read from left to right or from right to left.

Transpalindromic symmetry is not isolated to the few graphic expressions submitted here as examples to clarify the meaning of this neologism (transpalindromicity) on the subject of number behavior.

Transpalindromic behavior itself is a totally general condition of the number chain and is operative throughout the continuum. It is also a primary factor in the graphic disclosure of many subtle but important aspects of number behavior; an intrinsic structural condition effecting every and all numbers in their collective interactions.

Transpalindromic symmetry is a condition relating to specific isolated groups of number or special numerical quata where symmetry manifests as a collective mutual interaction.

A Holotome is such a collective interactive group where symmetry is herein claimed to be absolute.

A Holotome is distinguished by an integrity of retrograde octave symmetry, discrete levels of finitude and circular unity. Its expression in synchrographic form is a holistic synthesis of graphic syntax.

A contemplative instrument of inquiry into the relationships between words and the ideapictures they mean to represent.

Transpalindromic symmetry means cycloreflexive synchronicity: what comes around goes around. Palindromes are symmetrically flanked by

up to four tranpalindromic pairs.

SUMMARY

The Goldbach Postulate alleges that '*every even number is the sum of two primes.*' The case has not yet been reported where this does not hold true. Even though this postulate is unprovable in the sense that all even numbers can't be checked out, it may be provable through a true understanding of how the sequence of number operates.

No even number may be a prime because of the prior occurrence of number 2, which acts as a divisor for all even numbers. The first three odd numbers are primes because no number preceding them has occurred that could act as a divisor. Number 9 is the first odd number that is not a prime, because of the prior occurrence of number 3.

Therefore, the occurrence of the first odd number as a composite is the result of the previous occurrence of an odd number that had no preceding divisors except unity, which is indivisible by definition. So, the composite nature of 9 is causally determined in that 9 would have been a prime like all previous odd numbers, but for the prior occurrence of number 3.

From this it may be postulated that all even numbers will be composites, and all odd numbers are potentially primes unless some previous odd number has occurred that acts as a factor, rendering them composites.

This is also a way of saying that every odd number that is not a prime is the product of at least one previous prime and one previous composite, ($3 \times 6 = 9$).

But the serial equatability of the of the progressively divisible number chain produces a surplus of combinations to produce primes from even numbers. In fact, as numbers progress, composites will occur that accomodate multiple sets of primes and visa versa, rendering the Goldbach Postulate a probability.

The assumption that all odd numbers would be primes if no previous number had occurred that would act as a divisible factor perfectly fits the case. If the prior number had not occurred, or could be stricken out, as in the case of number three, 9 would be a prime number, but since three is three and not something else, 9 is a composite.

The fact that nine is also a square number tells us also that the generation of squares, cubes, etc. is also a result of the occurrence of previous odd numbers, as two odds make an even and two of the same odd numbers multiply into a square number.

Continuity is a provisional term that requires a context describing a series of entity events that connect or disconnect to or from each other.

The primes have always been regarded as a single class with no breakdown into sub-classes, no different kinds of primes.

Secondly, the primes have been viewed apart from the composites, thereby ignoring any relationships that they certainly must share with other classes of number.

The first indications that other classes of primes exist was found in the nature of square numbers. The square number sixteen contains unique features when reversed to 61, as we have noted elsewhere.

All consecutive primes between 0 and 1000 differ from each other by even numbers which range from 2 to 20 with one exception: none differ from each other by 16, reflecting our exceptional 2-digit prime/square reversal.

The first three digits--1,2, and 3--are generally regarded as primes, but the initial members are in a class by themselves. One is not even a number, in the serial sense. It does not multiply like real numbers do. Two is also not a number, but the source of doubling of unity--duality. 1×2 is 2×1 . It is the source of duality, evenness or balanced symmetry, and essentially static state.

Three is also not a number, but the source of imbalance and asymmetry, a source of dynamic flow. The source of oddity or difference with these three qualities produces **number four, the first real number or the idea of quantity/quality and dimensionality of the tetrahedron.**

Even and odd are established in the ideas of two and three. They are essentially spatial or geometrical ideas relating to shape and form. They are the prototypes that establish the classes of number yet to come.

All even numbers are non-primes because they are matched pairs or symmetrical sets of two.

All odd numbers are potentially primes, being uneven non-symmetrical amounts. The first odd number to become a composite is nine. It is not a prime because of the initial occurrence of 3, which acts as a factor making 9 geometrically symmetrical. Two odds make an even. 9 is axially odd, but radially even.

The SYNDEX description of number behavior employs the overview of the cycloflex. It represents the reality of function that is both cyclic and oscillatory, i.e. both rotational and reciprocating.

In describing number behavior and dynamics, it becomes necessary to show the interaction existing between palindromic and transpalindromic numbers--an interaction that is in essence a cyclic behavior.

The retrograde functions progress to a point and then reverse in octave cycles of four forward and four backward number events. This is a wave-cycle or cycloflex.

Continuity in the description of the exemplary basewave cannot mean it in the sense of something uninterrupted because it must be curtailed on the upper limit of the Holotome for the sake of holistic unity.

Continuity has given trouble to the number theorist because of the mind's insistence that any specific integer is an isolated idea entity and cannot be effected by another integer, several or even many times removed. But this is, in reality, the case when number 9 is not a prime because of the usurpation of its "primeness" by 3.

This transinteger dynamic is a passive dynamic. It happens as an acausal determinate which means the retrograde loops on the SYNDEX number maps are left to show the truth.

The number reversals that purport to carry the exemplary wave are gestures of quasi-disconnective continuity because the relations must be shown that we may see how numbers interact as they flow towards some "nothing" called infinity.

The prior reference to approach of holistic continuity at the end of a Holotome is the final non-event of such a specific system. The octave is best deactivated at these discrete points. It is predominantly the Holotomes that clarify the distribution of prime numbers, for the primes are symmetrically arrayed within the context of each holotome.

The radial symmetry of the holtomes is, in itself, the geometrical proof of numerical coherency. That each subsequent holotome admits one, and only one, additional divisor establishes a rational medium between prime numbers and the sequence of specific compositry.

Though the structure of the baseten continuum is a highly complex order, there are graphic methods by which the more important aspects of that order may be appreciably simplified.

For example, there are very rare, often unique examples, of certain classes of number that occur seldom or even just once in the two-digit numbers and it was through the discovery of these rare or noble examples that the exemplary basewave cycle was discovered. Once that cycle was isolated, it was a simple matter to extrapolate into the higher order to secure the multiple digit cousins of those noble examples for comparisons to confirm the sustained functions of the cycles being investigated.

A basewave was long ago suspected by the classical number theorists, but its elusive nature was due to the fact that it was not a singular wave form but a compound variety. A wave composed of the mutual interaction of square number nine and prime number eleven whose essential palindromic nature is connected with the transpalindromic aspects of the total numeric profile.

The Synchrographs act as maps by which we may follow the progress of this exemplary wave cycle. It is a feature that would not in any way be apparent without such a systematic graphic mechanism.

The nineleven wave is further caged by such features of the continuum as the line pair of 4-digit transpalindromic squares--those being the square of 33 and 99: 1089 and 9801. These two interreflecting squares neatly bracket an octave sequence of four forward and four reverse multiples of the first square which significantly includes a center or nave member which is a palindrome which results from two 2-digit palindromes.

By and large, it is predominantly the holotomes that clarify the distribution of prime numbers because the primes are symmetrically arrayed within the context of each holotome. And the number of primes in each holotome is determined by the total modular amount of the previous holotome. For example, Holotome E or #2520 contains 367 primes or just seven more than Holotome D which is #360 ($360 \times 7 = 2520$) and Holotome D contains 72 primes, where #72 is the modular sum of the previous holotome.

The fundamental intent of the initial ideas was to create a context which would geometrically paraphrase the elements of numerical progression in a graphic system that involves the primary elements of plane or two dimensional geometry. The two axes provide a base for symmetry as a reference to systematically involve the cyclic and wave functions of the numeric continuum.

APPLICATIONS
GENERAL SYSTEMS THEORY
PART II
REFLECTAPHORS
INTERDISCIPLINARY ANALOGS

General Systems Theory

Post-Quantum Physics & the 99 Cycloflex
Rhythm: The Music of the Spheres
Number & Jung's Transformational Process
The Diamond Body: Buckminster Fuller & the Qabala

N=50, V=6: A 56-Facet Stonehenge Mandalog

INTERDISCIPLINARY ANALOGS

"Computation according to the wisdom of Anship, is the secret of the deity, the guarded knowledge of the expert. The informed may show it to the informed;

the uninformed may not see it. It belongs to the forbidden things of Any, Eniii, and Ra, the great Gods."

Sumerian astronomical tablet from Uruk

Most of the population is so math phobic that they have little idea of what mathematicians do let alone how they do it. In fact, most mathematicians can't comprehend one another's work. Few realize that mathematics has become progressively more specialized (with over 3500 subcategories), until even most mathematicians cannot understand each others theories and proofs. There are extremely few qualified critics. They don't even know what one another are doing and generally only have a coherent pattern of development in their own narrow specialty.

There is no stated criteria for evaluating work in widely separated specialties, for example nonlinear wave propagation and category-theoretic logic. Probably no one knows what is going on in both fields, and 95% of all professional mathematicians couldn't understand either one. No one in all of mathematics attempts to decide what is important and what is ephemeral.

With all those subcategories, and over 200,000 theorems published a year, there is no assurance of their survival except "survival of the fittest," what is deemed useful rises like cream, and gets used and remembered. What is valuable in math is based on our notion of the nature and purpose of mathematics, itself. Most professionals have learned to bypass the ontological and epistemological question as irrelevant by cleaving to ontological materialism, and epistemological empiricism.

In practice, panels from many specialties are formed to determine grant funding. Since hardly anyone knows what is important outside of their narrow specialties, funding is political, rather than based on perceived merit. Generally, each specialist favors his specialty first, then each "area" or "field" gets its quota. "...no one has to justify his own field's existence, and everyone tolerates the continued existence of various other "superfluous" branches of mathematics."

There is work, then, which is wrong, is acknowledged to be wrong and which at some later date may be set to rights. There is work which is dismissed without examination. There is work which is so obscure that it is difficult to interpret and gets ignored. Some of it may emerge later.

There is work which may be of great importance--such as Cantor's set theory--which is heterodox, and as a result, is ignored or boycotted. There is also work, perhaps the bulk of the mathematical output, which is admittedly correct, but which in the long run is ignored for lack of interest, or because the main streams of mathematics did not choose to pass that way.

In the final analysis, there can be no formalization of what is right and how we know it is right, what is accepted, and what the mechanism for acceptance is. As

Hermann Weyl has written, "*Mathematizing may well be a creative activity of man...whose historic decisions defy complete objective rationalization.*"

GENERAL SYSTEMS THEORY

Systems theory was proposed in the 1940s by the biologist **Ludwig von Bertalanffy** (anthology: **General Systems Theory**, 1968). He and his colleagues were reacting against reductionism and trying to revive a holistic perspective in science, lost since the expulsion of natural science as a unified, self-directed study of many subjects. His main thrust emphasized that real systems are open to, and interact with, their environments, and can acquire qualitatively new properties through emergence, resulting in continual evolution.

Rather than reducing an entity to the properties of its parts or elements, systems theory focuses on the arrangement of and relations between the parts which connect them into a whole (holism). This particular organization determines a system, which is independent of the concrete substance of the elements.

Thus, the same concepts and principles of organization underlie the different disciplines (physics, biology, technology, sociology, etc), providing a basis for their unification. Buckminster Fuller was an avid generalist and proponent of systems theory and interdisciplinary interaction.

General Systems Theory was proposed by **von Bertalanffy** to provide a common meeting-ground for interdisciplinary studies. Fuller promoted generalism over the obvious alienating constraints of over-specialization, but he raised it to a high art in Synergetics, combining poetry, geometry, mathematics, architecture, etc.

Scientists and humanists had long lamented the isolation of their respective disciplines. Bertrand Russell pointed out:

"It is noteworthy that modern Platonists, with few exceptions, are ignorant of mathematics, in spite of the immense importance that Plato attached to arithmetic and geometry, and the immense influence that they had on his philosophy. This is an example of the evils of specialization; a man must not write on Plato unless he has spent so much of his youth on Greek as to have had no time for the things that Plato thought important."

We have dared to do so, for syndex theory is a platonic pursuit.

In sharing theories from other disciplines, light can be shed metaphorically on theories from another area of inquiry, for example using physics theories to create psychological models for therapy. This is the goal of the **Society for Chaos in Psychology and the Life Sciences**: to use chaos and complexity metaphors to model new therapeutic processes. Physics, has also been illuminated by spiritual

metaphors, specifically works citing Buddhism, such as **THE TAO OF PHYSICS** (Capra, 19).

We call the union, through metaphor, of these seemingly disparate areas of research **REFLECTAPHORS** (Reflective Metaphors). Jungian Psychology has been one of the main proponents of this pursuit, and M.-L. von Franz, herself has invoked many a metaphorical model from physics and number theory to define her psychological concepts. Perhaps this type of interdisciplinary task force is what she had in mind when she suggested mathematics continue to be examined in fresh ways:

"I would conjecture that the task of future mathematicians will be to collect their characteristics and analyze, when possible, every number in its logical relationship to all others. This research should be undertaken in collaborations with physicists, musicians, and psychologists who are conversant with the empirical facts about the structural characteristics of numbers in different mediums."

Metaphors help identify how to apply discoveries to new situations, and may even guide efforts to develop new theories. At first, they may be a movement away from scientific rigor, but we need this flexibility in thinking. The interplay between rigor and metaphors can still be monitored to avoid confusion. We can redefine terms to give clear meaning to essentially untestable ones.

Metaphors are useful for discussing different ways of looking at process and behavior, but there is little effort to test them beyond limited cases. We can use them for epistemological, explanatory purposes, and in defining implications, for defining communication and mental clarification. In this regard, Syndex forms a comprehensible language for calculation and derivation.

Metaphors are tools for getting into and out of assumptions, which might not be obvious just from looking at assumptions. Metaphor is a language for communicating about phenomena, and can lead to nonobvious conclusions. We need innovative quantitative measures derivable from verbal content to apply our work on a deeper level than only numerical reports.

Immersing oneself in a concrete scientific thought, and then clearing the mind allows images to spring forth spontaneously which may be very relevant. The ego interacts with the deeper mind in wonder yet with logic and active images. Einstein had his two passing trains which evoked his theories about time and his famous thought experiment where he imagined riding on a beam of light. Watson and Crick had the two snakes entwining which stimulated the concept of the DNA double helix. Kekule dreamed of a serpent biting its tail, and discovered the benzene ring.

Rather than relying on the gifts of association, correspondences, and dreams, we can also create an atmosphere and situations which give us the opportunity to discover and create rich metaphors, which expand, deepen, and lead to valid concepts. In new studies, metaphor is a great aid to communication.

POST-QUANTUM PHYSICS AND THE 99 CYCLOFLEX

"Somewhere within that emptiness, we know, is a nucleus. We scan the space, and there it is, a tiny dot. At last, we have discovered something hard and solid, a reference point. But no--as we move closer to the nucleus, it too begins to dissolve. It too is nothing more than an oscillating field, waves of rhythm. Inside the nucleus are other organized fields, protons, neutrons, even smaller 'particles.' Each of these, upon our approach, also dissolves into pure rhythm."

George Leonard, *THE SILENT PULSE*

Our first reflectaphor comes from the leading edge of physics. Most terms in physics are metaphors, including time and matter. When Max Planck originally worked out his theory of Quantum Mechanics, he drew inferences from his extensive knowledge about the nature of harmonics in music.

"The most important point for our context is the fact that the spin [of an electron] is always a whole-number multiple of the most important natural constant of the microcosm, Planck's constant. When I say 'whole number multiple,' it is clear that we are dealing with a harmonic phenomenon. As a matter of fact, Max Planck, who was very much interested in music, supposedly was inspired to work out his quantum theory by the well-known phenomenon that the notes in an overtone scale jump from one whole number to the next."

(Berendt, *THE WORLD IS SOUND: NADA BRAHMA*, p. 71).

Non-orthodox POST-QUANTUM MECHANICS is only about two years old as of this 1998 writing. In modern number theory, integers in their entirety are considered a field, an active informational field. Extrapolating from physics, we can suggest a "wave-particle" complementarity theory of the number field.

This model reveals a key (here termed THE AURIC KEY) to the orderly distribution of prime numbers. It suggests a "nonlocal" connection between "distant" numbers. Post-quantum BACKACTIVITY is the key idea. PQM merely adds backactivity or a two-way process to all other QM processes. One of the main implications for this theory is the plausibility that not only does "mind affect matter" at the quantum level, but that "matter affects mind" in a backacting feedback loop. Proponents of PQM include David Bohm, Roger Penrose, Jack Sarfatti, Fred Alan Wolf, Nick Herbert, Basil Hiley, Stapp, etc.

Post-quantum mechanics uses the notion of a guide wave or quantum "pilot wave," which propagates backwards and forwards. We suggest, analogously, that there is an "EXEMPLARY WAVE" (99 CYCLOFLEX) which is a basic element of the structure of number -- a repeating cycle of 99. The wave permeates the field, and has no sources or other forms of dependence on the "particle positions" of integers, to the nth degree.

As in PQM, we suggest a two-way relationship between wave (cycloflex) and particle (integers). Its source, as in physics, could be "backactivity," the inherent tendency to intrinsic self-organization. Sarfatti (1998) informs us that, "Self-organization emerges when the direct backactivity of the particle supplements the one-way relation of wave on particle on its guiding quantum pilot wave." There is a non-local connection between wave function and its corresponding physical particle.

He also states that, "the self organizational change of direct post-quantum backactivity is a self-referential kind of change." Since it is not a classical mechanical wave (such as a sound wave), "the quantum potential is independent of the strength (i.e. intensity) of the quantum field but depends only on its FORM."

A good description of the nature of mind (and also apparently rational numbers) requires non-random, self-organizing, post-quantum mechanics. In PQM, departure from randomness is the signature of sentience and intent. This statement is food for Syndex thought.

In SYNDEX THEORY, prime number distribution departs from randomness, indicating an "intentionality" in the rhythm. Thus, we can conceive of the number continuum as a self-organizing "living process."

We can pursue the analogy of a two-way relationship or feedback-control loop between wave (CYCLOFLEX) and particle (integers). Syndex theory reveals a symmetry structure, a reversible engine of spontaneous non-random, orchestrated self-organization. CYCLOFLEX is a feedback-control loop. Orchestration is from the two-way relationship between guide wave and integers feeding back like the loop between a conductor and his orchestra.

Classically, the quantum wave acts "one-way" as the "unmoved mover" of its manifesting particle without the latter acting directly on it in a self-organizing way. However, in PQM advanced influences propagate both forwards and backward in time from future to past. The past conditions the future causally, but there are also precursor waves travelling back in time from strange attractors in the future which "pull" us forward.

The wave affects the particle and the particle then affects and conditions the wave. This is a model for quantum mind over matter. If the "influence" acts

as a signal, it has the additional property that it can be locally decoded at the receiver without needing additional bits from the "sender."

To summarize, PQM introduces the notion of backactivity of direct action of the "particle" on its guiding quantum wave. Sarfatti points out that this forms a closed feedback loop which replaces fragility in the system with a robust self-organization. **Syndex is a catalog of operations designed to evoke operations of increasing order, resulting from just such feedback loops and self-organization..**

RHYTHM: THE MUSIC OF THE SPHERES

"Music is a hidden arithmetic exercise of the soul, which does not know that it is dealing with numbers, because it does many things by way of unnoticed conceptions which with clear conception it could not do. Those who believe that nothing can happen in the soul of which the soul is not conscious are wrong. For this reason the soul, although not realizing that it is involved in mathematical computation, still senses the effect of this unnoticeable forming of numbers either as a resultant feeling of well-being in the case of harmonies or as discomfort in the case of disharmonies."

Gottfried Wilhelm Leibniz

Rhythm is the basis of harmonic proportions and intervals, fundamental physical mechanisms. This harmonious equilibration was expounded upon by Pythagoras, father of Philosophy. Pythagorean thought formed the basis of the philosophy of Plato, and later Neo-Pythagoreans and Platonists, and greatly influenced the development of western science.

Pythagoras laid the foundation for a holistic science which integrated spiritual, ethical, and metaphysical, as well as practical techniques. Pythagoras is famous for his axiomatic viewpoint that *"there is geometry in the humming of the strings. There is music in the spacing of the spheres."* From Plotinus we hear, *"All music based upon melody and rhythm, is the earthly representative of heavenly music."* And from Sufi Hazrat Inayat Khan,

"When one looks at the cosmos, the movements of the stars and planets, the law of vibration and rhythm, all perfect and unchanging, it shows that the cosmic system is working by the law of music, the law of harmony; and whenever that harmony in the cosmic system is lacking in any way, then in proportion disaster comes to the world, and its influence is seen in the many destructive forces which are manifest there. The whole of astrological law and the science of magic and mysticism behind it, are based upon music."

Pythagoras systematized the laws which allow the creation of stringed instruments: musical scale intervals (octaves, fifths, fourths, thirds). He recognized that these fundamentally abstract relationships pervade all creation--even matter itself. In music, as in nature, a wave is a shape in motion. Each note has a wave-shape.

The octave comes from exactly doubling, or halving the string length, that is in 1:2 proportion, while the harmonious fifth has a 2:3 ratio and the fourth 3:4. There is also the less obvious 4:5 interval of the third, and even less obvious consonances.

Any tone in the overtone scale is higher than the preceding tone by precisely one whole number. These are the so-called harmonics. The lower the proportions of the numbers, the stronger the consonance, the more harmonious the sound of the two tones together. The primal polarity ratio of 1:2 is the most harmonious to our ears which are biologically geared to seven basic laws of harmony based on the primal law of whole-number quanta (which prevails in physics as well as music):

THE SEVEN LAWS OF HARMONY

1. the overtone scale

2. the interval proportions

3. the division of the octave into twelve semitones

4. the difference between consonance and dissonance, the consonance growing as the proportion of the numbers gets smaller

5. the difference between major and minor, the major proportion being the most frequent by far

6. the predominance of the 1:2 polarity, the octave

7. the law of the Lambdoma (a column of numbers written in the form of the Greek letter lambda, whose right leg consists of whole numbers going from one to infinity while the left leg contains the fractions of these same whole numbers, so that the coordinates of the open isosceles triangle follow the scale of overtones or undertones). There are correspondences in physics, acoustics, arithmetic, geometry, crystallography, cybernetics, theology and philosophy, the genetic code and I Ching.

Harmonics are fundamental to our human biology as well, according to Haase:

"It has been found that the rhythmic functions of the human organism function utterly harmonically--that is, the frequencies of pulse, breathing, blood circulation, etc., as well as their combined activities. We can observe that these rhythms are strictly coordinated, primarily in terms of the numbers one through four, which

are able to form the intervals octave (1:2), fifth (2:3), fourth (3:4), twelfth (1:3), and double octave (1:4)."

These realizations led to the contemplation of the abstract ratio of numbers and geometric figures, and were instrumental in the discovery of the harmonic mean (pitch ratio between two neighboring musical notes). In general, means and proportions have special significance as symbols of the integral order of the universe.

Ancient Greek music employed the Diatonic Scale, which progressed downward in pitch. It has weird quarter-tone modes and modalities and was used in plaintive songs of temple and church, sung as haunting chants. The Hindus, on the other hand used an unbridled scale of 22 alternative notes of variable sequence. The Arabs used various modes in quarter tones, while other cultures explored third-, sixth-, eighth-, twelfth-, and even sixteenth-tone music. Our modern, western ears prefer the tones of the "Equable Keyboard."

However, even though offering few perfect intervals and triads in keys other than its own, the diatonic scale is interesting because all its tonal differences in frequency are multiples of the prime number 11. Still, it failed utterly as a practical all-around tool of music. So much for old models. A useable scale is, after all, just a tool of music.

We will return to some of the basics of number theory in the thought of these philosophers later. First, we will show an example of music related to our theory of backactivity in the number continuum. For this, we need to visit a composer with an ear for physical theory.

The **RETROGRADE FUGE**, or **CRAB CANON**, was arguably **J.S. Bach's** most significant contribution to the science of musicology, at least in terms of Syndex. If properly understood, it makes valid the term "musiconomy" as a legitimate term, (the laws of rhythmic structure).

The parallels of nature's scenarios to the Retrograde Fuge are endless. That it took 6000 years to produce a musician they would once again use the retrograde function in designing music is incredible. Ancient cuneiform musical notation has revealed extensive use of this fundamental rhythmical format, as discovered by a Berkeley musicologist in 1979.

We can conjecture that the music of the spheres would naturally be an example of a point at which the orbiting planets would unfold in a perfect reversal of cyclic patterning. Otherwise, what rhythm would be significant at all?

The structures of number behavior in the so-called baseten system reveals a retrograde function in itself. This has been demonstrated in the synchrographic representation of Holotome E which is a geonumerical picture of the number 2520, the first and lowest number divisible by all eight base digits (one is not a number).

Base ten, then, is actually an octave with a 9th null event which occurs between nine and eleven or at number ten where the zero first comes into effect, by enspiraling the number continuum.

Since nine times eleven equals 99 and 49.5 is one half of 99, a perfect retrograde pattern occurs through the interaction of nine and eleven or 99 and its multiples.

What is musical notation without an instrument with a full octave range? Twelve-tone is the dominant alternative system.

(Crab Canon pages)

octave 1:2
fifth 2:3
fourth 3:4
major sixth 3:5
major third 4:5
minor third 5:6
minor sixth 5:8
minor seventh 5:9
major second 8:9
major seventh 8:15
minor second 15:16
tritone 32:45

NUMBER AND JUNG'S TRANSFORMATIONAL PROCESS

"Psychologically, the rotundum or mandala is a symbol of the self. The self is the archetype of order par excellence. The structure of the mandala is arithmetical, for "whole" numbers are likewise archetypes of order. This is true particularly of the number 4, the Pythagorean tetraktys. Since a state of confusion is generally the result of a psychic conflict, we find in practice that the dyad, the conjoined two, is also associated with the mandala."

C. G. Jung
Collected Works, Vol. 10, pp. 805

"A frequency of four events provides the three intervals that also form the base triangle of the tetrahedron apexed by the initially unpaired, angularly finite event. The insideness and outsideness of this primitively evolved tetrahedron constitute the minimum macrocosm-microcosm-differentiating system of the Universe. This tetrahedron has six angularly directional interrelationship lines interconnecting its four finite events."

Fuller, *Cosmography*, p. 45

In Pythagorean thought, number is considered the common ordering factor of both psyche and matter. Thus, the study of the inherent rhythms of the natural number

sequence was of paramount importance. There were specific numbers which were considered divine manifestations, and in fact corresponded with various gods. The studies of geometry, music, astronomy, and color were therefore sacred arts, as shown in the **Prayer to the Tetractys:**

"Bless us divine number, Thou who generatest gods and men! O Holy, Holy Tetractys, thou that containest the root and the source of the eternally flowing creation! For the divine number begins with the profound, pure unity until it comes to the holy four; then it begets the mother of all, the all-comprising, the all-bounding, the first born, the never-swerving, the never-tiring holy ten, the keyholder of all."

Plato and Pythagoras both dealt with geometry as an aspect of number, (triangles, squares, oblongs, rectangles, etc.). Plato, of course, has his series of ideal regular and irregular forms which naturally had a plurality (number) of faces and vertices.

The kernal of Pythagorean wisdom is contained in a primal BASE TEN ARRAY, the divine TETRACTYS, a pyramidal array of 10 points which contain a great mystery of universal nature. The TETRACTYS is made up of the numbers 1, 2, 3, 4, which add up to 10, arrayed in the form of a perfect triangle. This figure is also reflected in slightly different form as the qabalistic Tree of Life.

The four levels of the array contain not only the basic intervals--fourth, fifth, octave, and double octave--but also point, line, plane, and solid. The unequal numbers of this cryptic formula may be incomprehensible except to the initiated.

Psychologists such as Carl Jung and Edward Edinger have explicated its psychological meaning and symbolism as an expression of the epitome of the process of personality development, with four stages and three steps of transition.

(Insert graphic of TETRACTYS containing VECTOR EQUILIBRIUM)

The matrix of the Tetractys represents a qualitative field--dynamic internal structure. In it the ontological and logical ordering of numbers is translated into rhythmical and geometric images. There is no need to invoke the numerals as elements of an infinite series, but rather we imagine them as the "ensemble" of a finite series.

According to Jungian analyst Marie Louise vonFranz in NUMBER AND TIME (19), *"The preconscious aspect of natural numbers points to the idea of a numerical field in which individual numbers figure as energetic phenomena or rhythmical configurations. This 'field,' which we take to represent the structural outlines of the collective unconscious, is organized around the central archetype of the Self.*

For this reason historical mandala structures deserve particular attention. In corresponding "cosmic models" and mathematical representations of God, the first four natural numbers predominate to an exceptional degree, just as they did in the systematic divinatory techniques of the past."

Plato and Pythagoras both dealt with geometry as an aspect of number. Plato's series of regular and irregular forms naturally had a plurality (number) of faces and vertices. In

PQM terms, "the forms" of Plato are, perhaps, robust attractors in the super quantum gravity potential of the three-geometry of our actual expanding universe. They represent "eternal values," whose content can theoretically be imprinted upon and influence the quantum mind field.

Jung found a vast psychological significance in the number four. Jungians conclude that *"mankind's repeated attempts to establish an orientation toward wholeness possess a quaternary structure, and appears to correspond to an archetypal psychic predisposition in man."* vonFranz, Number and Time, p. 115.

We can equate four disciplines with four modes of being: physics = physical; music = emotional; psychology = thinking; metaphysics = intuition. They equate with Jung's four functions of cognition: sensation, feeling, thinking, and intuition.

It is a cross-cultural phenomenon from sources as widely separated as the Chinese, Native Americans, Asiatic Indians, Incan and Mayan, and pre-Christian Mediterranean--this tendency to cleave to fourness in modelling reality. Some of the Pythagoreans regarded four as the essence of justice, being four-square in one's dealings.

According to Edinger, *"One of Jung's major discoveries is the psychological significance of the number four as it relates to the symbolism of psychic wholeness and the four functions. The significance of the quaternity is basic to his whole theory of the psyche, both as regards its structure and its developmental goal, the individuation process. We are thus particularly alert to quaternity symbolism as it appears in dreams and in the imagery of myth and folklore. However, there are other numerical motifs which are commonly encountered."*

"Jung describes Pythagorean number symbolism which is pertinent here. THE NUMBER ONE AS THE FIRST AND ORIGINAL NUMBER IS, STRICTLY SPEAKING, NOT A NUMBER AT ALL. One as unity and totality exists prior to the awareness of numbers which requires a capacity to distinguish between separate, discrete entities. Thus, "one" symbolically corresponds to the uroboric state prior to the creation and separation of things. Two is the first real number since with it is born the possibility of discriminating one thing from another. Two symbolizes the act of creation, the emergence of the ego from the original state of unity."

The Tetractys is inherent in our biology:

"The entire microcosm is replete with harmonic occurrences. The long strings of nucleic acid in DNA are structured precisely according to the Pythagorean Tetractys, the fourfold subdivision of the octave (octave, fifth, fourth and major second). The Pythagoreans attributed magic power to the Tetractys and called it sacred. This same structure is almost ubiquitous in those mysterious processes whereby inorganic structures are transformed into organic life," according to Berendt, p. 69.

The four-fold structure holds sway in physics as Minkowski and Einstein's four-dimensional model of the universe, and the four forces of nature (nuclear, electrical, weak interaction, and gravitational). It reminds of Fuller's notion that nature operates in +4, -4 event octaves.

Sometimes psychic and physical events coincide as synchronicities, revealing a "common meaning." In this case the nature of the psyche is revealed as the transcendent unity of existence using the rhythms of natural numbers. VonFranz tells us that, "*These numbers illustrated some of the most primitive and basic forms of the spirit. When we take into account the individual characteristics of natural numbers, we can actually demonstrate that they produce the same ordering effects in the physical and psychic realms; they therefore appear to constitute the most basic constants of nature expressing unitary psychophysical reality.*"

Number and Time, p. 303.

So, there is a common basis between numbers and the psyche. Numbers apparently order both the physical and psychic worlds.

Building on the diagram of the Tetractys, Edward Edinger imagines a +4 descent and a -4 ascent, a movement of the differentiating ego separating from undifferentiated objective wholeness into subjective experiential development, and then moving back toward the One in a recursive reunification. This echoed in the old alchemical axiom of Maria Prophetessa:

"One becomes two: two becomes three: and out of the third comes the One as the fourth."

Or another version:

"One, and it is two: two, and it is three: and three, and it is four: and four, and its is three, and three, and it is two, and two, and it is one."

These stages symbolize the transformational process:

"This first stage of the coniunctio...brings about the union of soul and spirit over and against the body; they link up as partners against the body. In the second stage, united spirit and soul reunite with the body. In the third stage, the previously united spirit-soul-body is now united with the world, and conversely (recursively) the Self, or source. This is characterized by independent autonomous being. Original unity has been differentiated into a fourfold multiplicity. After living fully in the world the task of individuation becomes the ascent back up through the number series of the Tetractys."

(insert diagram Edinger, *Mysterium Lectures*, p.282)

The Diamond Body:

Buckminster Fuller and The Qabala

by Iona R. Miller, copyright, 1992

IO [I/O] is the cry of the lower as OI [O/I] of the higher. In figures they are 1001, in Joy. For when all is equilibrated, when all is beheld without all, there is joy, joy, joy that is but one facet of a diamond, every other facet whereof is more joyful than joy itself.

Aleister Crowley, The Dragon-Flies

SACRED GEOMETRY:

According to most creation stories, out of primal Nothingness, the All or Everything emerges or emanates. Paradoxically, everything seems to come from nothing. How does nothing become something? Energy "crystallizes" into matter in the womb of empty space, a dynamic Void. Mass is simply a form of energy. This process is structured by an underlying, invisible, geometrical lattice. Actually, it is pre-geometric. Because it has no true physical existence, it is metaphysical (beyond physics). This threshold of matter, where nothing becomes something, is of great philosophical interest.

Actually, materialism (a natural philosophy) is a theory of metaphysics. It is metaphysical thinking to consider static matter as a primary reality. In fact, any attempt to describe reality is metaphysical speculation. In its dynamic form matter cannot be separated from energy. Energy is a property of matter, which can be considered potential energy. The mystic believes in matter, but believes it is more than science has yet discovered. Even before Western science began, mystics believed that mind, consciousness, or spirit is a property of matter. It hardly matters, philosophically, if you consider it as manifesting force or manifesting spirit.

The nature of reality is that matter-energy must be taken together. The theory of relativity conceives of this single substance as a distortion of the structure of space. Physicist Ian Barbour writes that, "...in quantum theory, separate particles seem to be temporary and partial manifestations of a shifting pattern of waves that combine at one point, dissolve again, and recombine elsewhere; a particle begins to look like a local outcropping of a continuous substratum of vibrational energy." That vibrational energy is governed by the laws of probability.

But what subtle forces underlie matter-energy and space-time? All form and power are latent within the void. *The Heart Sutra* tells us that, "Form is not other than

Void, Void is not other than Form." This implies that our human form is not other than void, and biophysics shows this to be true. Our physical makeup is largely emptiness. If we conceive of humans as being most fundamentally electromagnetic entities, instead of chemical beings, we can imagine our finer existence as wave-fronts in space. Our personal "space" is not utterly empty, but cannot be conceived apart from our matter exhibiting itself in particular ways, i.e. as "waves."

Yet, the void state, or primal matrix, is "cosmic zero," and proportionately our most fundamental reality. It is part of the surrealistic quantum realm. It lies within us all, for the relative space between our atoms is astronomical. This is the ground state of existence which mystics seek in their meditation, moving beyond mind and *maya*. It is that state of consciousness where outer perceptions cease, and consciousness is free to simply *be*.

Throughout the centuries, various geometrical forms have been revered as expressions or metaphors of higher spiritual truths. These sacred forms and symbols are a natural part of the collective consciousness which emerges in every generation. We project them outwardly from within our psyche because they are so fundamental to our existence. That apprehension is intuitive. Certain typical forms recur in meditation and ceremonial practice, worldwide.

When something emerges from nothing, it does so via non-Euclidean geometry, coming to occupy space/time. Einstein used non-Euclidean geometry to explain the relativity of time and space as the geometry that is produced by matter or matter by geometry. The perception of the transcendental or metaphysical aspects of geometry is intuitive. There are examples of philosophical geometry or geometrical philosophy from around the world. These traditions are found in India, China, Egypt, and Great Britain, to name a few.

Plato, Archimedes, and the Pythagoreans based much of their philosophical speculation around the nature of geometrical form, suggesting that mathematics and structural forms had ultimate status. Our modern science has never forsaken the tradition of seeking the understanding of forms that provide shape and meaning to physical reality. Euclidean geometry describes the nature of the human scale, but non-Euclidean models the cosmos and microcosm. More and more intricate forms of measurement became the basis of the scientific method. Eventually, this led to modern topology--the study of those properties of geometric figures or solid bodies that remain invariant under certain transformations.

Heisenberg explained that, "The elementary particles of modern physics can be transformed into each other exactly as in the philosophy of Plato." In "sacred topology", the relationships are more than metaphorical. Metaphysical and physical reality coincide. This is abundantly illustrated in R. Buckminster Fuller's geometrical *tour de force*, *SYNERGETICS I & II*. Fuller demonstrates, via synergetics, that the whole is greater than the sum of its parts, because of the relativity of forces. In our universe, as more complex systems are built up, new properties appear that were not foreshadowed by the parts alone. These emergent properties include life, conscious awareness, and beauty.

Plato's Academy in Athens had a policy: "You are not allowed to enter here, unless you know geometry." In the dialogue, *Meno*, Plato describes Socrates teaching geometry to a slave. In true Socratic form, he does not instruct him directly. Rather, he elicits knowledge from the slave which he did not know he possessed. The diagrams themselves elicit the buried intuitive knowledge of a world inhabited by the gods and by the divine "Forms."

In Plato's view, before birth we were familiar with purely mathematical "objects" and relations, as well as moral ideals or values. He alleged that we lost this knowledge at birth, but can recover it through revelation. For Plato, the virtues paled in comparison with the highest capacity of the soul, which is the mystical beholding of the eternal. Mystics tell us the divine is formless.

Actual space is not empty, but the possibility has always been a controversial problem in philosophy. Aristotle found the concept of a total void unacceptable. Scientists still cannot make a perfect experimental vacuum. Astronomy shows us that matter is averagely distributed, with roughly as much matter between the stars as there is within them. Yet, there are large voids in space, with stars clustered on the outer edges of these bubbles of void. The preponderance is of volumes of empty space over volumes of matter. So, the characteristic feature of the universe is not matter, but empty space.

Again, most of the interior of the atom is empty, as is the space occupied by the galaxies, and the vast regions which separate them. Stars, atoms, and the vacuum are a seamless whole.

The notion of the eternal nature of sacred emptiness is echoed in modern quantum theory. This is not ordinary, but dynamic and receptive emptiness. The central concept in Quantum Field Theory is that of the *field*, which exists everywhere and everywhen. It is a field of curved space/time. Matter is not separate from its surrounding space. The field can take the form of quanta or particles. It is the fundamental physical entity, the *only* physical reality.

The field contains the potentiality of all possible states or conditions in the universe. Of these states, the most fundamental is the Ground State, (or "vacuum state"). Matter is rare in the universe. Most of it consists of a very volatile, excited, ionic plasma. Only 5% of matter is neither too hot, nor too dilute, to congeal as a solid, liquid, or gas. This form of matter is so rare it has been described as 'trace contaminants.'

Yet, some form of matter is essential to all activity. All matter is in motion. Activity is the essence of being. From the "cosmic zero", everything -- the totality of "excited states" -- arises by creative processes. It is also the state into which everything subsides by absorption processes. The ground state is characterized by the fact that it stretches to infinity, uniform and changeless. It is the same everywhere and everywhen because of the identity of space/time. Within the universal field the values of the ground state and excited states are all one. An unlimited amount of

particles come into being and vanish endlessly. Matter is thus a temporary manifestation of the Void.

The so-called "cosmic zero" was modeled by geometer/philosopher Fuller in the figure he called Vector Equilibrium, (V.E.). It might actually claim to be the first "Buckyball," the one Fuller himself described. This geometry is the precursor of the new elemental 'Fullerenes.' The V.E. geometry has been recognized for a long time. It was one of the thirteen Archimedean solids, the cuboctahedron.

But the Greeks were fascinated with regular forms whose faces were all the same, such as the cube. They failed to understand the delicate balancing act the cuboctahedron symbolizes. They simply did not notice that Vector Equilibrium is pristine equanimity because they were looking elsewhere. The Greeks never really comprehended the energetic or energetic properties of Vector Equilibrium, i.e. dynamic stability. They had a static, non-relativistic view of natural philosophy.

It remained for Fuller to assert that, "zero pulsation in the Vector Equilibrium is the nearest approach we will ever know to eternity and god." The conceptual model is the closest our minds and senses can come to that cosmic realization, short of mystical revelation. Mind alone cannot fathom the depth of this Void. Geometry is a construct of the intellect.

The V.E. center is primal "emptiness." It is a mathematical anomaly where the normal laws of the space/time continuum break down. It is not a symbol of ultimate order. It looks like a very rational, orderly system, but it is ultimately irrational. It defies logic. V.E. is the breeder of wave-particle duality, the uncertainty principle, and non-locality at the quantum level. It is a zone of neutral resonance where waves can pass through waves without interference, according to Fuller. Yet, it never physically exists as a structure, since nature abhors a vacuum.

In quantum mechanics a system can never have an energy of exactly zero. There is no such thing as absolute emptiness. However, the minimal motion of the ground state is called zero point energy, or zero point motion. Cosmic zero exists, paradoxically, in the realm of the psyche (our conceptualization) and in quantum reality in the atomic nucleus expressed as force. It is the form of formlessness, the root metaphor. It also forms the roots of the cosmic Tree of Life, since there is a fine-to-non-existent line between organic and inorganic matter on the quantum scale.

Physics is the patterns of organic energy, all of which are dynamic, alive. Mass is energy, so the subatomic world is always restlessly in motion. Inert matter is full of motion when we look closely at it . The activity of matter is its essence.

Vector Equilibrium emanates/condenses from a center in twelve fundamental directions. This emergent energy moves outward through space/time in the form of a cuboctahedron, alternating with its mathematical reciprocal, an octahedron-within-a-cube. It is a truncated cube with 50 symmetrically positioned topological

features. Vector Equilibrium has the same surface area as a sphere, yet contains no volume, i.e. it contains "nothing."

The Vector Equilibrium system has 12 vertices, 8 triangular faces, 24 edges, and 32 planes. It is omnidirectional equilibrium, symbolically and physically speaking. As such, it is a perfect symbol for "holding the tension of the opposites," or "uniting the opposites." Yet, it is more than a metaphor. It is an archetypal image which bridges the macrocosm with the microcosm. It is a living example of the Hermetic Axiom, "As Above, So Below," uniting spiritual and literal reality. V.E. makes it possible to make conceptual models of other dimensions (hyperspace), mathematically and mystically.

In the V.E. figure, equilibrium between positive and negative is zero. It is the equalization of the forces of push/pull, radiation/gravitation, or tension/compression. Fuller alleged it "represents the limits of the mind's ability to conceptualize 'in'." For Fuller, all of space/time is undergird with a pre-geometric matrix, which is an infinite field of vector equilibria. An entire universe can be seeded from one V.E., self-generating to fill all space/time. There may be no ultimate physical building-block of matter, but there is one single entity that undergirds and composes everything in the universe, according to Fuller. The basic element of the universe is dynamic patterns.

This field constitutes a "cosmic blueprint" which Fuller called the Isotropic Vector Matrix (I.V.M.), a living continuum. The allocation of divinity to this "mother of all fields" marks its archetypal character. As a variation on the theme of Celestial Goddess, it symbolizes the embodiment of nature. Like a modern Isis, it iterates the theme of the underlying, inseparable cosmic web or net, connecting all. The living Void gives birth to all phenomenal forms. It pulsates with the rhythm of creation and destruction of material particles. Another goddess, Nuit, is the essence of Infinite Space. She is infinite energy density pervading the entire cosmos. She is the receptivity of the void to the wavelength of radiation. Adjusting the geometry of the void influences the propagation of radiation. The goddess Ma-at, or Balance, is another expression of the same universal V.E. energy.

The *Upanishads* identifies Brahman with the void:

Brahman is life. Brahman is joy. Brahman is the Void. Joy, verily, that is the same as the Void. The Void, verily, that is the same as joy.

The geometry of Vector Equilibrium is inferred from that of closest-packed spheres of equal radius. It just happens to be the geometry which underlies all matter since it is found in the nucleus of all atoms as sub-atomic force. Here, in the interior of the atoms, Newtonian physics does not apply. This is a probabilistic, acausal world. Here synchronicity prevails over chronicity.

This uniform geometrical field, with the property of Divine consciousness, is the basis for a geometrical model of reality spanning the abyss between the metaphysical and the physical. It is not the first model in history to attempt to do so.

There is an ancient geometrical model which shares a common framework with the Vector Equilibrium.

THE GEOMETRY OF THE QABALA

The ancient mystical system of the Qabala is formulated around the geometrical glyph known as the Tree of Life. This sacred geometry system came down to us through Judaism and Hermetic Philosophy. It is one of the main currents of thought in the Western Occult Tradition. A mathematically accurate image of the Tree of Life can be constructed by dividing a vertical line into four equal lengths and filling in four intersecting circles, using a fourth of the line as radius. The nexus points are the positions of the 10 spheres, and connecting paths join the centers of the spheres.

GEOMETRIC CONSTRUCTION OF THE TREE OF LIFE

1. Begin by imagining a vertical line, A-Z
 2. Divide the line into four equal segments.
 3. Using the segment length for a radius, inscribe four interpenetrating circles whose centers lie along the vertical line. These represent the Four Worlds, or Planes of existence.
 4. The points-of-intersection are related to the numbers of Spheres on the Tree of Life as diagramed 1 - 10.
 5. With vertical lines (Red) join 3-5-8 for Left-Handed *Pillar of Severity*; join points 2-4-7 for the *Pillar of Mercy*. Line 1-6-9-10 forms *THE MIDDLE PILLAR*.
 6. The blue lines mark the paths between the Spheres.
-

The spheres represent states of consciousness or ways of being, while the paths are ways of transition or change. It symbolizes all ways of being and becoming. Like the quantum field, it contains the potentiality of all possible states or conditions in the universe. It is just the ancient way of saying it, and it turns out to be physically provable. The ancient model coincides with state-of-the-art physics. The 10 spheres and 22 paths yield a total of 32 planes of reference, like the Vector Equilibrium.

This "tree" was first described in writing in the *Sephir Yetzirah*, or *The Book of Formation*. Legend says the book came to Abraham, from God, through an angel. Today, we might say it was "channeled" from a divine source. Jewish scholar, Gershom Scholem dates the work around the third to sixth century. However, there is some astronomical evidence that the system does date from the time of Abraham, approximately 4,000 years ago.

Whether the patriarch was the first to receive the revelation, or not, this archetypal consciousness map encodes a system of spiritual wisdom and growth in geometrical form. It describes the nature of the universe, consciousness, and the creation. It seems to have intuitively anticipated the discovery of the physical nature of reality. The glyph itself was used as a meditation device by students of the Qabala, an oral wisdom tradition. One aim of the qabalists was to see the Tree always, everywhere, in everything. Another essential doctrine of Qabala is that humans possess a "spirit body" that can detach itself from the physical body and ascend to higher planes.

Most modern students of Qabala are familiar with the standard 2-dimensional representation of the Tree, which is drawn "flat," even though the circles are always conceived of as spheres. There is also a long tradition of a so-called 4-dimensional Tree of Life diagram, based on *The Book of Formation*. This geometrical figure consists of two interfacing pyramids surrounding a central core, within an enclosing cube.

This octahedron-within-a-cube happens to be the crystal structure of diamond, a face-centered-cubic lattice. Recalling that Abraham is also the patriarch of the Moslems, it is interesting to note reference to a spiritual body, a "diamond body", in the writing of Shaikh Amad Ahsa'i from the 13th century. Speaking of a substance akin to that of the medieval Philosopher's Stone, he equated the "diamond body" with the "Resurrection Body" of the faithful believer in the Paradise of the future Aeon.

For the Qabalists, meditation on this figure provided a mystical body as a vehicle for consciousness in imaginal space. This diamond body was used during meditation to enter the inner court of Divinity, symbolized by the center of the figure. Here the Beginning and End of time are co-temporaneous, space ceases to be a hindrance, and the mystic beheld the ecstatic vision of the Lord on His Throne. The geometry was a "gateway" to another dimension of experience.

This Alpha-Omega point has all the physical qualities of VectorEquilibrium. The ancient meditation practice was known as Merkabah mysticism, and those who practiced it called themselves, "Riders in the Chariot." They claimed to see into the future. This insinuates that the figure is a "vehicle" for moving consciousness through imaginal time and space. It seems to be a metaphysical "time machine," or inter-dimensional gateway.

As in most design or mandala meditations, the aspirant pictures him or herself at the center of the figure through visualization, contemplation, and identification. Through this process of centering, these mystics came to know themselves and God.

Perhaps they learned, as Fuller later discovered, of the unusual anomalous conditions of perfect equilibrium. This meditation provided a specific technique for escaping from time. Its realization meant instantaneous enlightenment, a paradoxical leap out of Time. It yields transcendence.

Occultist, Paul Foster Case published an array of this type in his book, *The Tarot* (1947). Aware of the ancient mystic practice, he included the figure in his study of Qabala, calling it alternately the Key of the Cosmos and Numbers, or the Cube of Space. Again, we have the form of the octahedron-within-a-cube. Vector Equilibrium and the Cube of Space are mathematical duals, or reciprocals of one another. They "jitterbug" back and forth as the figure grows outward to fill all space. They are two ways of looking at the same geometrical phenomena.

Case pointed out that its construction was based on the six-pointed Star of David, (or Shield of David), also known as "The Star of the Macrocosm." His descriptors of zero as a sacred, empty, consciousness field reiterate the qualities of Vector Equilibrium.

Zero is a symbol of the absence of quality, quantity, or mass. Thus it denotes absolute freedom from every limitation whatever. It is a sign of the infinite and eternal Conscious Energy, itself No-Thing, though manifest in everything. It is That which was, is, and shall be forever; but it is nothing we can name. Boundless infinitely potential, living light, it is the rootless root of all things, of all activities, of all modes of consciousness. In it are included all imaginable and unimaginable possibilities, but it transcends them all. The Qabalists call it: (a) No-Thing; (b) The Boundless; (c) Limitless Light. Pure Conscious Energy, above and beyond thought, to us it is Superconsciousness.

With their fascination for completely regular figures, the Greeks devised a way of establishing XYZ coordinates within a cube. Our science and method of orientation has been stuck with that model ever since. However, nature's own most economical coordination is in triangles and tetrahedra, rather than squares or cubes. VectorEquilibrium is more in line with modern Quantum Mechanical models than the Newtonian XYZ. It expresses more degrees of freedom.

So, close examination of the underlying geometry of the Tree of Life reveals that the ancients were not lacking a very deep intuitive awareness of the true structure of matter and the universe. The underlying geometrical matrix of the multi-dimensional Tree is, in fact, Vector Equilibrium. To find the commonality -- the harmony --the figure of the V.E. must be subjected to a transformation process, i.e. rotation.

To bring the two figures into synch, simply rotate the V.E. to any edge of its containing cube. If the 3-dimensional V.E. is drawn flat, the inherent geometry of the Tree of Life is immediately revealed, including some of the so-called "hidden" paths.

A symbolic representation of the optimal union of opposites, it means in psychological terms, "holding the tension of the opposites." This is the essence of the Tree of Life. The theme of union of opposites has reverberated down through the ages. It was the process/goal of alchemy, creation of the Philosopher's Stone.

Now, Jungian psychology carries the torch of this philosophical pursuit. Both Vector Equilibrium and the Tree of Life express this most elegantly and economically in terms of minimal graphic elements.

Diagram of Tree of Life nested within a Vector Equilibrium.

By combining the vectors of a V.E. nested within a cube, it is possible to derive the nexus points on which to construct the entire Tree of Life. In *The Anatomy of the Body of God*, (1925), Frater Achad, (magickal name of Charles Stansfield Jones), revealed an amplified Tree of Life projecting from a center in six directions.

Rather than a flat depiction, his revelation showed Trees radiating in the four cardinal directions, plus up and down. This is another variation on the theme of XYZ coordinates. Yet, V.E. can be shown, once again, to be the skeletal matrix on which the figure congeals. The geometrical duals yield all the necessary nexus points to form the entire Tree of Life, including the 11th mystery sphere, Daath. Achad's advice for modern Qabalists says,

...since the "Tree" is everywhere the same in every part of space, once its general attributions are fixed in the mind, it is not well to confuse ourselves by too much attempt at progressed expansion of the idea. Rather we would return and contemplate the Centre from which All proceeds, thus obtaining the Pure Essence Here and Now.

This concept of a self-generating, self-iterating, all-space filling, crystalline system seems to herald the modern discovery of the fractal nature of the universe. Whether we look at the macrocosmic, mesocosmic, or microcosmic level, we find the same principle operating. By following any portion of the consciousness map "backwards" and "downwards" to the center, we have a conceptual means of entering that most pristine state of consciousness where All becomes No-Thing.

GEOMETRICAL IN-SIGHT:

These systems are virtually pre-geometrical. They don't really exist in nature, per se. Yet they are the invisible lattice, or barebones, of our physical and spiritual life, of all life and manifestations. In this pre-geometry we have a blueprint for the formation of all matter, all form. This is the geometry of closest-packed spheres in the nucleus of the atom.

Yet, Vector Equilibrium is more than an expression of nuclear forces. It is "an endlessly interlinked chain of atomically self-renewing links of omni-equal strength or of an omni-directionally interlinked chain matrix of ever renewed atomic links, "according to Fuller. No single configuration of matter persists indefinitely. All is change and recombination. V.E. describes the most economical lines of movement within the atomic nucleus. And, it also is the structural matrix of a very ancient and sophisticated consciousness-changing technology. Through it we remember deep knowledge of our true nature.

Noting the metaphysical aspect of physics, physicist Wolfgang Pauli said, "We should now proceed to find a neutral, or unitarian, language in which every concept we use is applicable as well to the unconscious as to matter, in order to overcome this wrong view that the unconscious psyche and matter are two things. "

We have, in the V.E. model, a language or information transfer system that bridges both the physical and the spiritual, Fuller says, "In this model the physical and metaphysical share the same design." The mundane and supernatural share the same design: "As Above, So Below." It creates a mystical revelation described as ecstatic, blissful, joyful, transcendental.

Goethe's Faust opens with the mage contemplating the qabalistic, geometric design of the Macrocosm:

*What jubilation bursts out of this sight
Into my senses--now I feel it flowing,
Youthful, a sacred fountain of delight,
Through every nerve, my veins are glowing.
Was it a god that made these symbols be
That sooth my feverish unrest,
Filling with joy my anxious breast,
And with mysterious potency
Make nature's hidden powers around me, manifest?*

*Am I a god? Light grows this page--
In these pure lines my eye can see
Creative nature spread in front of me.
But now I grasp the meaning of the sage:
"The realm of spirits is not far away;
Your mind is closed, your heart is dead.*

*Rise student, bathe without dismay
In heaven's dawn your mortal head."*

(He contemplates the symbol.)

*All weaves itself into the whole,
Each living in the other's soul.
How heaven's powers climb up and descend.
Passing the golden pails from hand to hand!
Bliss-scented, they are winging
Through sky and earth--their singing
Is ringing through the world.*

In Aion, psychologist Carl Jung reiterates the identity of psyche and matter:

Psyche cannot be totally different from matter, for how otherwise could it move matter? And matter cannot be alien to psyche, for how else could matter produce psyche? Psyche and matter exist in the same world, and each partakes of the other, otherwise any reciprocal action would be impossible.

To know ourselves is to know the nature of cosmos. The yogis and masters tell us that matter is mind or consciousness at its most fundamental or gross level. From the dawn of history mankind has employed sacred geometries for metaphysical orientation and creating consciousness maps. Most maps of the psyche imply a "journey" either to the heights or depths of experience. Long ago Heraclitus alleged, and mystic artist William Blake agreed, that the way up and the way down are one and the same.

Metaphysical models usually speak of an ascent to utopian heights or "inner planes." Psychological models are usually concerned with descents into the subconscious depths and use subterranean imagery. These depths were the familiar territory of shamans for millennia. Both the occult and transpersonal psychology models include heights and depths of human experience. Maslow introduced the concept of "peak experiences" to psychology.

We may have the erroneous idea that peaks, or heights, or "highs" are "good." This is mainly because we are enculturated to strive upward. This is only one of a myriad of states of consciousness, and it belongs to manically over-achieving heroic ego. Negatively directed, this same energy can produce an all-time high in a sociopath or criminally insane personality, during a heinous act. All that is "up" is not "good"; and, all that is "down" is not "evil." This misapprehension is the root of the notion of a spirit/matter duality, where all matter is inherently "evil". In this belief system, "we exist: therefore we are sinful." Yet, our heights and depths contain the first-hand experiential knowledge that 'we are one.'

This old system of orientation and modeling the universe, with its ascents and descents of the soul, was adequate for many years. However, for the modern individual, with a consciousness that is not earth-bound, the old hierarchical model

is no longer the best metaphor. Today we are not confined to the spectrum of reality dictated solely by our finite senses.

We are directly aware of physical realities ranging from the sub-atomic to the cosmic. Our perceptions are amplified with technology. New ways of seeing lead to new philosophical perspectives. We can align our mystical worldview with physical reality. The true nature of physical reality remains a mystery. Even for physicists, it has an elusive quality. No one really knows just what a quantum, a photon, or an atom "really is" or what it is doing when we're not looking at it.

Physics is another interpretation of reality. We have become aware of a vast physical dimension without and an equally vast realm of psyche within. They are available for exploration. And there are ancient and modern technologies which aid us here. In terms of modern orientation and consciousness models, an omnidirectional system allows more degrees of freedom. This freedom is a conceptual, imaginal, and physical reality.

Buckminster Fuller said that in whole systems the directions are always out and in. "In and out are the relevant directions, not up and down." Models or maps based on "in and out", rather than "up and down", allow us to conceive of particular states or conditions. As a metaphor, "in and out" is a typical characteristic of the phase states of matter. It is either in or out of phase or synchronization. During observation, matter is either in solid physical existence (particle) or out of solid physical existence (wave).

This wave-particle duality exists within us all. This uncertainty surrounding substantive existence leads to paradox. We cannot grasp one part of nature without another part slipping through our fingers. Photons, neutrons, and even atoms have no definite form until they are measured. Wave-particle duality is a mystery. However, this primal characteristic of atoms, and the energy exchange in their cores, is the basis of our physical existence. The emergence of stable matter requires the balancing of tendencies toward implosion and explosion. This is the function of Vector Equilibrium.

Physicist David Bohm modeled an "in and out" universe of implicate (in) and explicate (out) order. Yogis focus on the in and outbreath during *pranayama*, and the experience connects them with cosmic time. The psychological tendencies, introversion and extroversion, express the polarity in ways of being. In cybernetics there is input (I) and output (O), the direction of the signal determining if it is I/O or O/I. Vector Equilibrium is the most economical model using geometry to express the ultimate union of the opposites. It creates the paradoxical state that is neither in nor out, up nor down, neither this nor that.

For Fuller, the balancing of the tension of the opposites was achieved in his *tensegrity sphere*. It is stabilized dynamically to neither explode nor collapse. This original "Buckyball" is a tangible example of Vector Equilibrium. According to Fuller, "matter" itself is a contained explosion, and the Vector Equilibrium is its

austere image. It is a system not a structure. It underlies structure or formation of something from apparent "nothingness."

Vector Equilibrium is the lattice or invisible framework, and its blueprint is the cuboctahedron. Its explicit form can enfold on itself until it compacts down into an octahedron, then a tetrahedron, the prime geometrical form. This is accomplished by doubling up on the vectors on the edges. This creates the difference, for example, between carbon, diamond, and silicon atomic structures. They are all face-centered cubic crystals. Coincidentally these elements are symbolic icons in our culture. They are the hallmarks of technology.

A simple way to visualize the Vector Equilibrium is through the closest packing of spheres which underlies the geometry of crystal formation. Imagine a cluster of ping pong balls glued together, 12 around 1, then building out further and further. If you imagine vectors connecting the centers of each ball, **IN THE THIRD LAYER** you can find the Vector Equilibrium.

The vectors that radiate out from the center are exactly equal to the vectors that bond the faces. No other structure can make this claim. This is the symmetry the Greeks missed, because it is an *energetic* process, manifesting force, not a thing. Vectors are not points in space traveling through time. Vectors map energy events. Time determines a vector's length -- the time it takes an energy event to happen. There must be time for wave functions to propagate. We know a musical note requires time to exist, because a note is nothing in an instant.

Time is a duration. If we ask ourselves "a duration of what?", we can only answer "...of nothing, or something." All "somethings" are composed of matter, and the nature of matter is consciousness. So time becomes a duration of consciousness. Energy is substance. Substance is energy at the quantum level. Our substance is energy, and consciousness is fully capable of quantum leaps.

Fuller's energy mapping uses energetic triangles, in which three lines are not just lying there but are busy stabilizing the angles opposite them. Fuller describes the dynamic domain of "reality" as a broad spectrum of energy events, across a small portion of which our senses can "tune." Vector Equilibrium allows us to conceptually, metaphorically, and spiritually bridge the abyss between the mystical and scientific perspectives through sacred geometry. It is a key to the implicate and explicate order.

Picture of The Macrocosmic Snowflake within a Vector Equilibrium grid.

*The Preceding Article is an excerpt from the book, **The Diamond Body**, by Iona R. Miller, copyright 1984.*

N = 50, V = 6: A 56-FACET STONEHENGE MANDALOG

by Iona Miller, c1981

24. I am Nuit, and my word is six and fifty.

25. Divide, add, multiply, and understand.

Aleister Crowley, *The Book of the Law*

In ancient times, and in modern metaphysics (such as qabala), letters were also numbers. Language was alphanumeric, so words carried symbolic numerical values. The ancient Egyptian sky goddess, Nu or Nuit, represents infinite space or cosmic zero, the universal source. HAD, or Hadit represents the microcosmic inner being--the Self, the still point of the axis, the center of the circle.

The Philosopher's Stone is circular unity and its inherent dynamic +4, -4 octave wavecycle.

In the same year that Einstein discovered his famous equation $E = mc^2$, magician Crowley channelled an occult treatise called **THE BOOK OF THE LAW**. We are not recommending nor endorsing such material, but it does reveal some alphanumeric qualities of the number field, and this is of interest.

56 radii form a circular unity--a mandalog which reveals interesting properties of number dynamics, and relates to the geometric construction of Stonehenge in a very empirical, demonstrable way that does not force the numbers onto the structure, but rather illuminates it.

Magician and Qabalist, Aleister Crowley, in **LIBER NV**, proceeded to divide, add, multiply and understand, disclosing relationships of 50 and 6 to one another:

4. Consider of six and fifty that $6 - 50 = 0.12$

0 the circumference, Nuit.

. the center, Hadit

1 the unity proceeding, Ra-Hoor-Khuit

2 the world of illusion.

Nuit thus comprehends All in None.

Also $50 + 6 = 56 = 5 + 6 = 11$, the key of all Rituals.

And $50 \times 6 = 300$, the Spirit of the Child within.

In the **Commentaries of AI**, Crowley corresponds Nuit with matter and Hadit with motion "in their full physical sense". If we pursue this correspondence in physics, Nuit and Hadit seem to disclose the relationship of a field to radiant wave propagation. Wave mechanics is an important fundamental from cosmological levels (Cult of the Infinite Without) to sub-atomic levels (Cult of the Infinite Within).

Matter is usually described as varying states of fluidity, going from a particle state to a wave, and then back again. **David Bohm**, in *Wholeness and the Implicate Order*, states that "Every physical situation is now characterized by a wave function." Since motion can be described as a complex wave interaction (or interference pattern), an

understanding of wave phenomena in a field is fundamental for a contemporary view of the Universe.

This understanding is critical for establishing one's world-view, or conception of "things-as-they-are." Thus, we remain consistent with current scientific research. Toward this end, we may examine the natural number sequence (integers) as a qualitative field, not merely as a quantitative series.

Nuit, as the number 56, has a relationship with *all* numbers: "*Nuit comprehends All...*"

Further amplification of this relationship may be graphically represented by a spiral array of numbers along 56 radii to form a mandala. Joining the 56 equidistant points on the circumference yields a 56-facet circularity.

6. Meditate upon Nuit as the Continuous One resolved into None and Two as the phases of her being.

This quote from Crowley's **Liber XI (Liber NV)** could be related to a circle or "zero"-figure (Continuous One); "Two" could be connected to an emergent, self-organizing reflection sequence where the halves of the circle mirror one another.

Had is self-defined as motion by the statement "*...for it is I that go.*" Had is all-pervasive in the number field.

Mass is neither wave nor particle in that it is continually moving from one state into the other. Hadit, then, should not be symbolized as a static point (Crowley), but rather as a dynamic, Motion. This viewpoint is more consistent with current models of Quantum Mechanics.

Hadit should not be visualized as a "point" in space because how can one pin down in space something which, by definition, occupies no space? Therefore, Crowley's attribution of the decimal point to Hadit as the center is somewhat antiquated, metaphorically.

Hadit and Nuit are inseparable. Nuit is the underlying field through which Hadit moves. If the field potential were non-existent, Hadit could not move. There would be no matrix.

Examination of the process described from **The Book of the Law** yields several important relationships between numbers, which may be seen as forming a "living body" of Nuit:

I. "**DIVIDE**": Divide a circle into 56 equal parts, the 56 radii of the proposed mandala. The reciprocal operation divides

$$56 - 360 = 0.1555555 \times 2 = 3.111111 \text{ (polygonal pi)}$$

A circle with 56 equal units to its faceted circumference has a diameter of 18 equal units, yielding rational pi:

$$56 - 18 = 3.1111111 = \text{'rational pi'}$$

Rational pi makes the perimeter of the circle an integral number of times the length of the radii. Rational pi is involved in the essential structure of number.

$$3.1111111 - 2520 = 0.001234567$$

II. "ADD": Adding the sum of the first nine multiples of 56 yields the first number divisible by all base digits--2520.

56
112
168
224
280
336
392
448
504

equals 2520

The equation $7 \times 360 = 2520$ shows an important relationship of seven to the circumference of a circle and to the inherent structure of number. There are numbers with interesting properties which may be found by adding columns from the table of sevens, to form reflective numbers or palindromes. The sums of the columns of multiples of seven, when added to their reversal, form such reflective numbers. For example, $315 + 513 = 828$; $630 + 036 = 666$; $1260 + 0621 = 1881$; $2520 + 0252 = 2772$; $5040 + 0405 = 5445$.

These products, which read the same forward and backward, are part of the binomial reflection sequence. That these numbers have peculiar qualities has been known since ancient times. Buckminster Fuller refers to them as Scheherezade numbers as they figured prominently in the 1001 tales of the Arabian Nights.

These mathematical operations demonstrate certain rhythmical configurations inherent in the natural number sequence. Movement through them may be viewed as a wave or pulse. The reflective numbers themselves may be seen as a particle phase as the wave/particle moves in quantum leaps.

Examination of these numbers shows some interesting integers recurrent in QBL. These numbers are considered significant in many of the world's philosophical systems. As the universses of philosophy and mathematics coincide, one begins to perceive the field underlying them. A pattern is becoming recognizable.

III. "MULTIPLY": The binomial reflection sequence is also shown by multiples of 56. This reflection sequence is bounded by the number 2520. When numbers, spiralled along 56 radii are graphically represented, they form a visual example of how the Formula of Nuit, $0 = 2$ works out in a beautiful mandala. The coded pattern reverses itself at the midpoint, 1260, and forms its perfect reciprocal reflection, or mirror image--the circle yields two conjoined reflective sides. The graphic design mirrors itself precisely.

(Binomial reflection sequence table, here)

We may examine $NV = 56$ by the equation $7 \times 8 = 56$. This equation is important in the magickal tradition because:

- (a). Connecting every 7th radii forms the 8-pointed Star of Regeneration, a symbol of the unity of the Spirit. It also forms an octagon, the symbol for the central shrine of the transformed self.
- (b). Connecting every 8th radii forms the 7-pointed star, whose interlacing lines generate the Seal of Babylon in its center.

$45 \text{ degrees of arc} \times 56 = 2520 - 7 = 360 \text{ degrees}$

IV. "And Understand". This archetypal order shown by the reflection sequence has been the object of philosophical speculation since the time of Plato. Plato spoke of the number 5040 (2520×2) in his last work, *The Republic*, Book 5. In fact, this number comes at the end of a passage long considered to be a fragment of unfinished work. It may be viewed, however, as a cryptic insight which left room for one to discover "understanding." Five times in the Book of Revelations, 1260 ($2520 - 2$) is alluded to cabalistically. It also figured prominently in the works of Ptolemy and Hipparchus.

Commenting on Eastern philosophical systems in **The Myth of Invariance**, Ernest McClain states:

"1260 = 2² x 3² x 5 x 7 shows a musical theorist how the sacred number 7 generates along with the 'human' 5 and the 'divine' 3; thus it reveals a basic lesson in mathematical harmonics suppressed in the Rig Veda except by allusion, yet essential to the understanding of 'Teness' in all ancient cosmology."

The ten spheres of the Tree of Life show QBL as a base-10 system. Remember also that Had ($h = 4, a = 1, d = 5$) = 10.

2520 is a special number since it accomodates or synchronizes the maximum possible amount of consecutive numbers from 1 onwards. There are larger numbers, but none with as high a degree of factors of divisibility.

We can conjecture that Crowley was presented this concept in a very abstruse, symbolic form through channelling. Despite this arcane source, it is clear that precisely what the passage from *The Book of the Law* requires from us is a process of deciphering. This offers the possibility of understanding the symbolic on the conceptual level, and taking up a relationship to it. Practical knowledge of later generations often presents itself in intuitive, symbolic form to earlier generations. For example the relationships of the metaphors, imagery and symbolism of alchemy to chemistry, and natural science to physics.

V. THE AURIC KEY: Current work in graphic representation of this ancient understanding of relationships among numbers is being researched under the name SYNDEX, by Robert Marshall, et al. The first concern of synchrographics is the maximum information expressed via minimal graphic elements. As in QBL, correspondences, such as those between geometry, numbers and colors, form an integral part of the system.

Graphic representation with a 56-facet mandala discloses ordered matrices inherent in the relationships among rational numbers. They are self-organizing. For instance, the 12 "synchrostats," (numbers divisible by 5,6 and 7), fall into perfect quadric symmetry along the axes of the circle. This division of the circle into four parts is analogous to the four-directional orientation of the Banishing Ritual, for creating sacred space. The synchrostats are multiples of 210 and correspond with the 12 zodiacal signs: $12 \times 210 = 2520$.

210 = Aries
420 = Taurus
etc., through
2520 = Pisces, completing the zodiacal circle

Thus, we see that the 'mandala of Nuit,' the 56-facet circularity, discloses and encloses the profound patterns of relationship inherent in the natural number sequence and can display it as a field, graphically. It gives us a feeling for "number as Field." Numbers have a frequency of modulation, and a type of pervading wave phenomena. We could visualize this mandala as a 'philosophical eye'. Or, alternatively, we might view it as a matrix, the all-containing 'womb of Nuit.'

A mandala is the empirical equivalent of the alchemical concept of the **Unus Mundus** ("One World"). The Unus Mundus is one of the many ways of referring to the experience of unification of body/soul/spirit also known as the creation of the Philosopher's Stone.

Synchronistic phenomena are the parapsychological equivalent of the Stone. Jungian psychologist, Marie-Louise von Franz recounts in Number and Time how "...attempts have been made in the past to combine these equivalents into a unitary reality" and to construct mandalas, which via synchronicity, would yield parapsychological "knowledge." This mandala, used as a magical tool, creates the possibility of an altered state of consciousness known as an "access state."

Zosimos and Bruno, Hermetic magicians, used mandalas as tools for magically acquiring "information" about the rationally unknowable. By means of this tool, the individual confronts the continuum to produce intuitive, qualitative experiences, from an otherwise latent potentiality.

Number essentially pertains to the behavior of archetypal dynamics, or "ordered sequences." The 56-radii spiral-arrangement to 2520 is the minimum necessary to disclose patterns of relationship in the qualitative field. Total archetypal order of the Unus Mundus and all its contents may be represented this way as there is an equation between archetypal images or ideas, and numbers. This is the foundation of QBL and its

correspondence system. All patterns are mathematically ordered and there is rhythm in the natural number sequence..

Buckminster Fuller refers to this rhythm in Synergetics when he speaks of the pulsative octave. He states that the interaction of all numbers other than 9 creates wave phenomena, i.e. "self-invertable, self inside-outable octave increasing and decreasing pulsatively, fourfoldly, and tetrahedronally IS ALL THAT EVER HAPPENS!" This is Fuller's peculiar geometric lingo for speaking of carrier-wave order phenomena.

While this concept is fairly simple to grasp mathematically or graphically, it is difficult to express in words. Consequently, the importance of fields and wave phenomena have been understood by only a few. This is why the graphic mandala is such an important tool. It is a visual aid for understanding the relationship formed between field (Nuit) and carrier-wave order (Hadit).

In the field or manifold of psychic contents, the nucleus of the field is the most imperceptible aspect -- this is the circle, Naught. The preconscious aspect of natural numbers points to the idea of a numerical field in which individual numbers figure as energetic phenomena or rhythmical configurations.

This field, which we take to represent the structural outlines of the collective unconscious, is organized around the central archetype of the Self or Transcendent Function. This function is represented in Magic as the Holy Guardian Angel, another analogy for the experience of the Philosopher's Stone.

A very literal example of "**number as field**" may be found on a meadow in England at **Stonehenge**. Here we find a striking example of the use of a 56-radii mandala as a magical tool. The geometry of Stonehenge is a remarkable verification from the neolithic past and an ancient spiritual tradition which reiterates the importance of this arrangement.

To make the perimeter of the circle an integral number of times the length of the radii, the Stonehenge programmer used the array of 56 equidistant points. The remnants of these points are still visible and are termed "Aubrey Holes" in literature about Stonehenge. That a realization of the essence of 'circular unity' was necessary to decode the message of Stonehenge is indicated by certain key features.

1. There are 56 Aubrey Holes in the circumference of Stonehenge.
2. Joining every seventh Aubrey Hole generates the outer diameter of the circle of Sarcen stones. $7 \times 8 = 8$ -pointed star.
3. Joining every 8th hole generates the 7-pointed star and the Star of Babylon, and determines the thickness of the Sarcen stones.
4. Joining every 6 holes equals an equilateral triangle whose apex touches the center of the Sarcen stones.

Bob Marshall refers to these properties of Stonehenge as a "Mandalog" or "Mandalometer."

In all of these operations, 56 or $5 + 6 = 11$ is indeed the "Key" to decoding the Rituals.
...to Nuit

PART ONE

SYNCHROGRAPHICS

&

THE AURIC KEY

The Auric Key

Prelude to Terms and Procedures of the Auric Key

Sequence of Discovery

The Structure of Numbers

The Study of Synchrographics

The Auric Key: A Poemgraph

The Auric Key as an Outgrowth of Synchrographics

SYNCHROGRAPHICS

and

THE AURIC KEY

"Beauty--art is largely a matter of the unification of contrasts. Variety is essential to the concept of beauty. The supreme beauty, the height of finite art, is the drama of the unification of the vastness of the cosmic extremes of Creator and creature."

Author Unknown

That which we call Truth, or Reality is metaphysically dependent on whose truth and which reality. Quantitative notation and geometry are the conceptual tools by which we formulate our standard of physical description and dialogue, i.e. systematic science.

The first concern of synchrographics is maximum information expressed via minimal graphic elements. Correspondences, such as those between geometry, number, and color, and frequency of divisibility form an integral part of the system.

There is some agreement among astro-archaeological historians that the earliest evidence of technological civilization is a mere 6000 years old. The author is concerned here with the original metrological formula (founded upon measurements of the earth and precession of the equinoxes). Our present technological situation is founded on these systems of measurement and their geodesic bases..

Reflecting on his thirty year study of the synergetic interaction of number and geometry via synchrographics, Marshall (as author of the Auric Key) realized that the system of number regard he had investigated for half his lifetime produced the exact same system of metrology that had initiated and proliferated industrial technology, during the historical era.

THE AURIC KEY is the rediscovery of the original program of the alphanumeric system of notation and the fundamental platform of general science.

Whether the Auric Key is of local or extraterrestrial origin (as Zecharia Sitchin might argue for Mesopotamian number wisdom and astronomical knowledge), is open for further inquiry. Radical discoveries are a source of continual reevaluation of historical opinion.

The Auric Key is a remedy for verbal deficiency in describing how a cyclic base evolves to cyclic accumulation of quantitative notation, in a +4, -4 octave wavecycle.

The scientifically systematic principle which synchrographics rests upon is of such simplistic design that we cannot help but wonder why such an obvious psychological tool was not used through the centuries for teaching. All of the individual elements that comprise this discipline were well known from deepest antiquity.

What we call numbers are a continuum of a finite set of graphic signs which form a cycle which is determined by the quantitative amount of the base set or primary individual signs. Inasmuch as neither zero nor one are numbers in themselves divisible, that which we call baseten is actually an octave set of actual numbers (members). Pythagoras also did not consider the duad (dyad) a true number.

In regards to the cyclation of number, only an octave can progress in what would be termed an exemplary cycle or a cycle that may progress in an unbroken compounding of cycles. The exemplary wave is an escalation of null event lapping of each cycle to the next.

In our usual regard of the base ten number we see the addition of each digit as the point at which the cycle begins anew.

It is at this very point where serious confusion occurs in that this "point" is being counted as a member. It is merely a position upon which the cycle revolves and therefore may not be included in any terminal tally of quantitative magnitudes, i.e. 100 equals 99.

R. Buckminster Fuller treated this problem by calling base ten an octave with a ninth null event. The null event was regarded as nine being the proxy of the one that he counted as a legitimate number.

I show this octave cycle in a very different way: when one considers the multiples of nine and disregards the initial none, the octave cyclation becomes quite clear:

Between 45 and 54 a reversal occurs and the four following multiples are retrograde companions of the prior four multiples, i.e. four forward and four reverse event octaves.

This shows that base ten is actually base eight, an octave loop.

In view of the foregoing, the nave or turnaround point of the octave is at 49.5. It is NOT 50, as claimed by Fuller, and never subsequently corrected in SYNERGETICS III, as he would have liked.

The symmetrical perfection of synchrographics results from the expedient of reversing the octave between numbers, instead of upon a number. Turnaround is at 50, between 49 and 50.

THE AURIC KEY

2520 is the first and lowest numerical sum which is divisible by all eight basic numbers.

By the simple expedient of de-strapolation by the first 4 prime numbers, we discover the Holotomic Sequence:

$$2520 - 7 = 360 - 5 = 72 - 3 = 24 - 2 = 12$$

E D C B A

By extrapolation of the Zodiac (#12) by the prime numbers in their natural order of appearance, we produce the sequence of discrete quantities that are the minimal sums to accommodate the maximum amount of consecutive factors of division.

This presents the maximum data in a graphic context with minimum elements of informational referencia.

Each subsequent Holotome retains all of the data of its father plus one added degree of data content, retaining coherency of the interrelationships existing in and between the members of the primary series.

This natural system of coherent number behavior/structure was know to those who programmed the infrastructure of the Sumerian culture 6000+ years ago.

The most direct association of the work of Zecharia Sitchin and the Auric Key is his notation (translated from cuneiform) of the Sumerian knowledge of the exact duration of the precession of the equinoxes as only recently confirmed by state-of-the-art astronomical tooling. It indicates a source in prehistory for all the key numbers of the Auric Key: $72 (C) \times 360 (D) = 25920$

Prelude to Terms and Procedures of the Auric Key

The term **AURIC KEY**, chosen for the prefix AU which in Latin forms the word audio as in sound, while in Greek forms the word aura as in light, suggests the relationship between the eyes and the ears or seeing and hearing. It also derives from *aurum*, or gold, implying a golden key.

The term Numeronomy derives from a concept requiring a trifle more explanation: as a term of scientific validity, it refers to the interdependence of

geometrical and numerical notation, neither of which could produce valid equations without the existence of each other.

These two disciplines, quantitative notation and qualitative notation are in essence two sides of the same coin. The first Pythagorean rectangle, 3 measures by 4 measures, produces a hypotenuse (diagonal) of 5 measures which affirms a synchronicity of the quantities 3, 4, and 5 with the quality of rectangularity, which in effect produces a synchronetic unity of number and geometry.

$3 + 4 + 5$ produces the quantity of twelveness, which is so fundamental in Syndex Theory, as Holotome A. There are many ways to describe the synchronetic quality of a circle divided into 12 thirty degree sectors. For the purpose at hand, we prefer to draw attention to a square divided into a grid of sixteen subsquares which when enclosing a circle of 12 thirty degree sectors shows the grid lines intersecting the circle at exactly thirty degree intervals.

Sequence of Discovery

The semi-arbitrary answer to the question of why some unknown and ancient geometer selected 360 degrees for equating a circle has been that 360 has more than the usual amount of divisors for its size. This is far from a complete, specific, and logical answer.

As a matter of fact 360 is divisible by all base digits except prime number seven and when we multiply 360 by prime number seven, we produce 2520 which is the first and lowest number divisible by all base digits.

This odd result might make us stop and think:

Since by multiplying 2520 by the next prime we receive another palindrome followed by a zero, i.e. 27720, we naturally decide to destrapolate this sequence to see where it begins:

$$27720 - 11 = 2520 - 7 = 360 - 5 = 72 - 3 = 24 - 2 = 12$$

Since these are the exactly most often cited numbers of ancient metrology, we have arguably discovered the long lost key to the basis of ancient metrology or numeronomy.

To amplify this claim, we have only to note that 12, 24, 72, 360, 2520, 27720, etc. are the exact sequence of minimal sums that accomodate the maximum amount of consecutive divisors (factors of division). Because to my knowledge, no one else has discovered the complete and rational answer to the selection of 360 degree circular unity, I claimed the right to entitle this the **Holotomic Sequence**.

In the Holotomes and Holotomic Sequence we see that the more-than-the-sum-of-its- parts quality of natural numbers emerges. They reveal the higher complexity integrity of the newly emerging system. This complexity system preserves in its integrity-memory a complete history of self-organizational instruction. Its success

and longevity can be anticipated by the great degree of economy which it expresses with the least of resources.

In synergetics, the components and aspects of synergy do not work separately, but function together as a single systemic event: The Auric Key. Thus, the Auric Key functions as quasi-intelligence informing rational number; this holonomic instruction gives any system its inherent intelligence to find its place and function in continued self-organization of its evolution.

Shortly after this revolutionary observation, I realized that #6 is exactly half of the first true Holotome. This makes the first perfect number the nave of Holotome A (i.e. 12).

The complete role of geometry and numbers in our grasp of reality and nature has been for centuries only partially acknowledged. A comprehensive system that coherently reveals the transdisciplinary relationships between music, ancient pyramids, esoteric numerology, astronomy, chemistry, physics, and architecture has until recently remained virtually ignored.

Marshall's vision provides the basis for a common vision: a key that unlocks conceptual doors and enables us to regain the vantage point our ancient ancestors presumably once possessed.

The Structure of Number

The Auric Key excavates many vital properties of numbers. The frequency of synchronicity is any whole number factor and factors of divisibility within the limiting range determined by the base digits. One (1 = singularity) is regarded as a special case.

Number One is an indivisible integrity. Singularity is operationally irreversible. Number Two is an affinity-evolvable informational duality; self-generated reciprocity.

In our investigation of the creation of matter during the birth of the Universe, we have begun at singularity. While at singularity, the point of integrity has no physical dimension, it has metaphysical dimension and content of potentiality. In other words, we can consider potentiality as the content of integrity-singularity in the metaphysical dimension once-removed from physical reality.

The number field is holonomic, containing all things, encoded in the simplest and purest metaphysical pattern of informational potentiality. Numbers are a projection of evolving, expanding potentiality. We can go backwards toward the point of integrity/singularity into the evolution of its potentiality, which has no physical properties, but which is a seed potential. This is relatively easy to illustrate with tetrahedral geometry.

Singularity is irreversible. The sign, *[insert symbol]*, represents a reflectional transaction, or the reversing of a function that passes through the infinitesimal, yet omnipervasive site between every numerically relative symbolic event. In the empirical sense, it means the inversion or reversal of the image; that transaction which occurs to images reflected from a mirror or the surface of a dark pool of still water.

In respect to the behavior of numbers, we know that reversal is a basic element to any system employing zero as a null state between plus and minus, for plus and minus are essentially the opposite or reversal of each other.

, then, is the zero with an extra quality decreed by Syndex routine. That quality is the direction of positive quantity. For even though zero is void of quantity itself, it still contains which way the quantity/unquality is relayed through its situation. That is, where zero is merely a location, is a situation for it incorporates direction.

Thus, as a mathematical entity, (incorporates and) involves aspects of number structure that are otherwise not considered by the classical definition of the zero expression.

Our usual regard for one (1) as a number also creates a logical omission. This is likewise considered in the use of the Syndex character .

Two (2), then, is the minimum element of reflectivity for each side (site); it is the essential twin as it can be divided and multiplied by itself, whereas one (1) cannot.

Example: $2 \times 2 = 4$

$1 \times 1 = 1$

Meaning plus two (2) is the first full positive, divisible and multiplicable unit and minus two (2), its reverse mate.

In view of the foregoing considerations, we must allow that singularity is not reversible and polarity (2) is the minimum experience of numericity.

Thus, frequency is the amount of base digits that evenly divide any given number, (1 excluded). Synchronicity is the specific combination (array) of base digits that dictate the frequency. The higher the frequency, the greater the universality of the number. The term "fold" indicates the specific incidence of divisibility.

On the right hand side of the composite graph is a coded strip that shows visually the frequency of synchronicity of numbers 2 through 144. To the right of the number column are the eight color-coded tracks isolating the synchronicity of these numbers. For example, the number 72 is evenly divisible by 2, 3, 4, 6, 8, and 9. It thus has a six-fold frequency of synchronicity and has six white spaces to

its right in the corresponding number tracks, which start at the base of the coded grid.

Note that since every other number is evenly divisible by 2, there is a white space in every other position in the 2 (red) track. The same principle applies to subsequent tracks; there is a white space every third position in the three (orange) track, etc. The term "null frequency" is used in conjunction with the incomplete concept of a prime number.

The colors chosen to represent the right frequencies are of two kinds: chromatic and metallic. The first six refer to the natural chromatic spectrum, while the seventh and eighth refer to the metallic colors of silver and gold. One, (singularity, not an operational number at all), is white and has no set frequency since it is a special case. It can, in fact, be said to occupy all positions.

To the immediate left of each number on the column is a corresponding horizontal tag that is coded to show the frequency of that particular number. The frequency of numbers is regarded essentially as their degree of primeness and... "non-primeness." A null-frequency number, 23 is designated with a black bar to its left (11, 13, 23, 97, 121, 137) and generally those numbers classically referred to as prime. Notice that 121 is not prime, as such, being divisible by 11.

There is a crucial distinction between the null frequency and the prime, one of conceptual essence. By standard definition, a prime number is divisible evenly by itself and one only. On the other hand, a null frequency number is divisible evenly by itself, one, and a limited set of primes that exceed the range of the base digits.

To the left of the strip is a series of horizontal bars whose color and length correspond to the frequency of a given number. A mono-frequency number is designated with a red bar to its left, a two-fold orange, three-fold yellow, four green, five blue, six violet, seven silver, and eight gold. All of the primes collectively constitute a subset of null frequency numbers, where the set of "nulls" is determined by the base.

The higher the base, the closer the set of nulls is to becoming identical with the set of primes, though they never totally coincide. In this context, the Auric Key shows the spectral relationship between high and low frequency numbers, and between null frequency and prime numbers. This eliminates a deeply rooted "either /or " dichotomy prevalent in the current notion of prime numbers, and basic assumptions regarding (or disregarding) the structure of number.

The first number that is evenly divisible by all nine base digits is 2520. This is the auric (golden) node (knot) that ties ancient wisdom with modern data. The pyramids, standing stones of Stonehenge and calendars of the Mayan and Egyptian civilizations are with us no less than our personal computers and atomic clocks.

2520 is exactly twice the number 1260, a number referred to cabalistically five times in the **Book of Revelations** (12:6 and 12:4). It is half of the number 5040,

which figures prominently in Plato's "Laws" regarding the architectural implications of his ideal city-state (and/or Atlantis).

These and other key sacred numbers (identified with intervals along the coded strip) reveal the unifying elements of the major religions. They frequently recur throughout diverse sacred literature, music and architecture. **Stonehenge** is a very special example containing a comprehensive collection of these special numerical ratios in a supereconomic context. All convey similar information that relates words with numbers, and numbers with the operation of the cosmos. Another example of this is the Hebrew Qabala.

The specially coveted numbers of each religion are crucial to the understanding of their esoteric teachings. They come from a time when guild secrets were defended to the death. More important, however, is the perception of the matrix from which they derive, the OMNIT.

If we spiral the nine tracks forming the coded strip, (extended to 2520), into seven bands of 360 places each, significant patterns inherent in numeric structure are clearly revealed. This is the prime form and function of Synchrograph A (Holotome E, 2520), the prime reference key to the lost doctrines of the neolithic and pre-classical eras.

The synchrograph A shows a split pentacle in the center. It is an extended translation of the coded strip in that each of the 360 places of each band (rotation) are designated with color where there would be voids in the coded strip. In spiraling the coded strip, both the coded number column and frequency codification were deleted.

Notice that at the midpoint of 1260, the configuration of digital formation begins to reverse, or mirror itself until it is perfected at 2520, the last number of the seventh band, and the first omnit of the base ten system. This, in addition to 2520 being the exact product of 360 and 7, strongly indicates that the selection of 360 by ancient geometers and metrologists as a basic circular system of reference was neither arbitrary nor the result of bad astronomy, as some have suggested.

The nine tracks, which the numbers make as they spiral outward in the synchrograph, form a pattern that visibly divides itself into **twelve sections (termed synchrostats) of 210 numbers each** (indicative of the criteria of 12 zodiacal signs). Common to the synchrostats is that they alone are divisible by 5, 6, and 7 (see chart regarding these) and these numbers are at the core of the twelveness that informed the ancient world of law, religion, commerce, etc.

When Fuller saw the hexagonal court at Baalbek, he remarked that the ancient Phoenicians had recognized his principles of tetrahedral synergetics.

Relationships with astrology (planets whose position lie in "trine," "square," "opposition," etc.) and chemistry are shown by meditation on the auric key. Spiralling the chemical elements of the periodic table shows some interesting

groupings. A version of this table is included in the composite graph. (insert THE CHEMISTRY PAGE).

Many common spacetime measurements (Metrology) that people take for granted, such as the division of space into miles, feet and inches, and time into hours, minutes and seconds, derive from unknown antiquity. Yet these unite into place within the seven-banded spiral, creating a symmetrical and satisfying sense of harmony.

To elucidate, when the second band ending number is added to 144, 864 is derived. Odd, indeed, that there are 86,400 seconds in a day and that the current astronomical measurement of the sun's diameter is 864,000 miles! 2160, the sixth band ending number, has long been taken to denote an "age of years," i.e. the Age of Aquarius, Pisces, etc., and is likewise close measurement of the moon's diameter in miles. Thus, space and time become equilibrated in a most mysterious, yet pleasing, fashion.

The Auric Key reveals discrete levels of finitude, a series of holistic, circular unities within the number field. Infinity, an often misunderstood word, cannot be classified. Lord Bertrand Russel pointed out the great paradox of analytical systems when he said: *"That class which includes all classes cannot be considered a class inasmuch as it is the only member."*

As a compliment alternative to infinity, the Auric Key points to the omnisynchronistic module, a crucial concept dealing with the expansive limitations of any finite quantitative system. It can briefly be defined as the number that accomodates (synchronizes) the maximum amount of consecutive numbers from one onward possible. It is thus the most universal number of all (a common denominator to all real numbers). There are larger numbers, but none with as high a factor of divisibility.

So, to repeat, the Auric Key shows relationships of finite, discrete levels of relationship as they are signified by numbers. Synergetics prefers the maximum information containment with the greatest economy of terms, and the Auric Key

fills this requirement.

The Study of Synchrographics

Synchrographics emerged from the notion that geometry and numbers are interwoven disciplines emerging from a mysterious but unified source. By isolating basic relations between number and geometry something may be learned about that source.

Holotome E (2520) may be considered the cornerstone to the various mandalogs that comprise the Auric Key and reveals the pattern of compound

synchronicities that occur in behavior of the base digits in all their permutations, which end at 2520. It begins near the center and spirals outwards, a process which reveals even more inherent symmetry and produces tantalizing rays. There are seven spiral bands, each divided into 360 subsections.

The conceptual discipline of synchrographics is both simple and complex. The many levels of graphing the relationships that exist between interdependent events and functions are possible.

A simple biaxial grid consisting of vertical and horizontal rows qualifies as a synchrograph of the initial order. Gregor Johann Mendel is noted as employing this graphic technique, extensively in his botanical investigations concerning hereditary transmission, which actually laid the groundwork for the modern scientific theory of heredity. This work formed the first step to the DNA logic.

What might be called the second order of synchrographics consists of a TRIAXIAL GRID or radial/axial configuration of three axes of interreference. This mode consists of a finite 360 degree radial quantum (Circular Unity). We cover it fully in PART FOUR as its own chapter.

Here it is enough to say that it is a finite axial extension that represents an ambidirectional continuum of reference. It is a tridirectional continuum in the form of an ambidirectional or counter-spiral that formulates the triaxial web of interdependent geometry of data which is otherwise referred to as the sunflower matrix, which encodes 618034.

(insert GRAPHIC OF SUNFLOWER)

By the simple addition of spiralic axes all of which share a whole number comensurate synchronicity, we explicate the full band continuum of synchrographics, in two dimensions.

The present investigations (of Neil Sloane at Bell Labs) that deal with the ideal distribution of points on the surface of a sphere is an intuitively misguided idea. His idea of multiplexing axes of interreference with the intention of creating additional axes of rational interaction only serves to protect intelligence by antiquated Euclidean absurdities based purely on Greek mythography.

A serious review of SYNERGETICS II shows that Fuller clearly discredits the idea of perfection of the sphere. Fuller has clearly demonstrated through various expressions of geodesic rationality that Nature does not provide us with even one example of a perfect sphere. The only exception is the idea of a perfect circle or sphere suggested by Plato.

Let us examine the seemingly perfect glassine soap bubble in terms of the surface "skin" on a colloidal level. Since triangular deployment of colloids cannot closepack on a curved surface only on a surface that is flat, our perfect bubble will by nature of space be a geodesic deployment of hexagons and pentagons .

In view of this, and Fuller's "twelve universal degrees of freedom" (which determine the perfect interaction of triangle-square interface of the dodecahedron and Vector Equilibrium Matrix.) we are forced by the laws of number/geometry to disregard ideal sphericity on any cosmic level other than imagination.

So quasi-sphericity is what we and nature have to deal with. Since we can deal with that in terms of quantitative notation, which does not and will not lie, we have what is required of super science. Some might contend that such science is a religion.

THE AURIC KEY

(A Poemgraph on the Nature of Number)

All SYNDEX **mandalogs (or number wheels)** are instrumental in the description of a system of number regard that is here termed Numeronomy. Links in ancient texts, sacred geometry, architecture, and the use of precessional “divine” numbers indicate that the use of such a system may have been known in ancient times, perhaps even before the dawn of written history in Sumeria. After all, mankind had already been surveying the heavens for some 50,000 years.

Syn dex reveals the nature of number, which nature reveals so beautifully in the synergetic structure of the natural world, which is based on the tetrahedron as the minimal structural form in nature and the Universe.

The primary tool of inquiry into this system is the synchrograph or mandalog. Mandalogs are composed of the graphic enspirament of numbers about circles divided into differing axial allotments. A few discrete examples of the synchrograph have been selected as the most prolific in exhibiting special data arrays displaying the geometrical nature of number. Primary among these number wheels are the **spiral of 2520**, known as the Auric Key; and the **spiral wheel of 108**, the **Hindu number of the universe, the number of Om and the numerical basis of the Yugas and Ages**. Scientific process depends upon numbers as legitimate tools regardless of what is recognized about their nature.

Synchrographics emerged from the notion that geometry and number are separate yet interwoven disciplines emerging from an essentially unified source. By isolating basic relations between them something may be learned about the nature of the source. Fuller discovered that, in synergetics, number is not an abstraction: each number has a geometrical identity as well as an inter-transformative numerical identity. This means that the number measurement of areas and volumes always comes out even, in whole rational numbers, without fractions or odd numbers left over.

Attending synchrographics is a formal discipline resulting from the requirement to simplify an otherwise too complex model. The model employs a color code index

to redefine numbers graphically. Any given number has a “frequency of synchronicity” which is determined by how many of the base digits will evenly divide a given number. And this is color coded in the number wheels.

Synchrograph A (#2520) consists of a nine-banded spiral that progresses seven times around a disc divided into 360 axial increments. Each of these nine bands are coded to show the occurrence of a base digit which is assigned a color in the place of the numerical figure itself.

Thus, the first band, representing base digit two has a red space at every second position and the second band has an orange space at every third space, etc.

Red 2
Orange 3
Yellow 4
Green 5
Blue 6
Iron/Violet 7
Copper 8
Silver 9
Gold Synch

Once this color code is assimilated, one may easily refer to any number and visually determine the frequency of synchronicity of the numbers by merely noting how many spaces are filled with a color. If no space is filled then the number is null frequency and has a black label.

0 space = null frequency Black
1 space = mono frequency Red
2 2 fold Orange
3 3 fold Yellow
4 4 fold Green
5 5 fold Blue
6 6 fold Violet/iron
7 7 fold Copper
8 8 fold Silver
9 9 fold Gold

Synchrograph A, 2520, ends at 2520 and has all nine spaces filled at that final station, completing a module of circular unity, a mandalog or holotome. Note that at 1260 (3 1/2 turns, or the **auric nave**) all spaces are filled except the one (number 8) and at this location the sequence reverses and begins to mirror itself.

(insert color graphic of 2520)

Synchrograph B consists of enspiraling 108 labels around a circle divided into six axial stations. By regarding these labels as numbers, we find that the multiples of six always fall on the sixth spoke, but the multiples of five and seven fall into counter-rotational spirals that synchronize at 35, 70, and 105. By extrapolating

beyond number 108, we find how these spirals will only synchronize with the number six spoke at 210.

This (210) is the first synchrostat, i.e. the first number divisible by 5, 6, and 7 (12 synchrostats comprise the auric node (12 x 210 + 2520). Or, if we regard the 108 labels as the chemical signs, we find that the inert gases always lie in trine, as will the best electrical and thermal conductors, etc. In effect, this arrangement is symmetrically consistent in its graphic regard of chemical classification.

(insert color graphic of wheel 108)

Synchrograph C consists of enspiraling numbers around a circle divided into 108 axial positions for 60 turns - or to number 6480, an ancient Hindu divine number derived from the Precession of the Equinox. This mandalog, like synchrograph B has two counterrotating spirals. A red spiral denoting multiples of 105 (multiples of 35) and a green spiral that denotes multiples of 111 (multiple of 37) and the engulfing number 108, is the third multiple of number 36. It has been found that the red spiral and green spiral will not meet at the engulfing axis until number 279720 is reached. This number is the key to the hypersynchronetic series.

$$\begin{aligned} 279720 - 105 &= 2664 \\ 108 &= 2590 \\ 111 &= 2520 \text{ Auric Node} \\ 279720 - 35 &= 7992 \\ 36 &= 7770 \\ 37 &= 7560 \\ 279720 - 5 &= 55944 \\ 6 &= 46620 \\ 7 &= 39960 \end{aligned}$$

Synchrograph D is a combination mandalog and synchrograph. Its configuration is result of comparing and analyzing the **Stonehenge** ground plan with the proven results of the synchrograph's mechanism. Thus **synchrograph D is a radial array of 56**, keyed to the 56 "Aubrey Holes" at Stonehenge.

When numbers are enspiralled around 56 axial positions, we find that the synchrostats fall only in the perfect axial quadrants, or east, west, south and north.

(Stonehenge groundplan, annotated)

The Auric Key as an Outgrowth of Synchrographics

As discovered by Robert Marshall, the Auric Key began as a modern day effort to illustrate the unique symmetry of numbers themselves. The graphic "rituals" culminated in the synchrograph we now know as **Holotome E (2520)**. In this graph every second square of the inmost spiral is highlighted, as compared to every third in the next, and fourth in the next, and so on.

Viewing the spirals additively (from inside outwards), the formation begins at one and continues until a number is reached where an additional track synchronizes, producing a number of higher frequency than any previous one.

For example, three tracks synchronize at #6, four tracks at 12, 5, and 24, and six tracks synchronize at 72. Close inspection of these positions, called synchronostats, show a reflective pattern that pivots at half the number being considered. These numbers already cited are, in fact called Holotomes. The only exception is the first, 6, which is the nave of the first Holotome (A).

The next synchrograph (Holotome F: 27720) has an 11 band spiral divided into 2520 sections. The pattern then perfects at 27720, a binomially reflective number which is the next Holotome after 2520. This pattern could be despiralated and extended vertically, but in so doing it would stretch to more than thirty feet! This shows the usefulness and economy of Synchrographics, which condenses otherwise extensive patterns while having other obvious advantages over row and column configurations.

As an alternate to infinity, the Auric Key points to the omni-synchronistic module. It depicts a crucial concept dealing with the expansive limitations of any finite quantitative system. It can be briefly defined as the number with the greatest amount of consecutive divisors from one onward and is the most "universal" number of all.

The omni-synchronistic module is a web of relationships that exist in the first 28 Holotomes. A compounding of the relationships that occur, for instance in Holotome E (which deals with the permutation possible with the eight base digits), is shown by the fact that 2520 is the smallest number divisible by all eight base digits. The number 2520 is a common denominator of several religio-mathematical systems.

The following is a list of historically important numbers prevalent in the Auric Key:

5040 - found in Plato's "Laws" describing the dimensions of his ideal city/state.

1260 - referred to five times in the Book of Revelations and prevalent in ancient music theory.

360 - the number of degrees in a circle; $360 \times 7 = 2520$

60 - basis of the Babylonian number system; is evenly divisible by 2, 3, 4, 5, and 6.

12 - the twelve signs of the Zodiac, months in the years, hours on the clockface, etc.

The Auric Key unites these seemingly disparate entities under a single graphic theory.

In a letter to Robert Marshall, Buckminster Fuller comments on Plato's use of the

number 2520:

"Plato does not say why he is concerned with the number 2520, but it is easy to discover as the product of the conventional 360 degrees of a circle being multiplied by the prime number seven, the circle's 360 degrees having included the first three primes to wit, two, three, and five, wherefore omission of the seven in the inherently octaved Pythagorean physical demonstrations of musical note progressing of tensed strings rendered inherently all irrational. The cyclic calculating referenced to the Babylonianaly adopted 360 degrees as the comprehensive quotient of nature's cyclic behaviors..."

Also prevalent in the Auric Key is the number 56. The architecture of Stonehenge is based on a circle divided into 56 sections. $56 \times 45 = 2520$, and 45 and 56 appear in the exact middle of a list of the factors of 2520 (Holotome E).

Could it be that those unknown architects who built Stonehenge used 56 as a practical reduction from an ideal circle of 2520 subsections? The relationship between the Auric Key and Stonehenge does not appear to be coincidental. That Stonehenge probably served as a gauge of celestial phenomenon is well known.

But is there yet another element pertaining to this megalithic structure? Because of its ruined state, it is difficult to know what the exact dimensions of Stonehenge were when it was built. As a result, different theories have arisen as to its possible uses. The discrepancies in its dimensions allow for varying interpretations. Questions arise as to just how precise a celestial gauge Stonehenge was. Its configuration has an elegance which rules out its inadvertent construction.

In light of Synchrographics, Marshall has propounded a basic theory which states essentially that Stonehenge was a device for optimally expressing several mathematical relationships, as such.

The distinct possibility exists that the Stonehenge architects purposely sacrificed a certain degree of accuracy in describing specific phenomena, in order to accommodate the expression of several unique phenomena and relationships. Were this the case, and there is supporting evidence, then the Stonehenge architects were concerned as is Synchrographics, with the optimum expression of information within a given confine.

The geometry of Stonehenge consists of whole numbers. The description of nature and the cosmos in terms of whole numbers was a concern not only of the Stonehenge builders and Pythagoras and his followers. Syndex has rediscovered a comprehensive system which shows numbers as they truly appear in nature, apart from our useful but somewhat arbitrary mathematical practices.

SYNERGETICS, the revolutionary system of mathematics, formulated by the late Buckminster Fuller, emerges directly from the geometry and numbers employed by nature. Fuller contends that nature uses only whole rational numbers, and his

geodesic modelling never requires resorting to irrational, unresolvable sums, such as pi. Synergetics deals only with experientially demonstrable phenomena.

"Synergetics uses simple geometrical models based on a few basic modules that fit together in the most logical possible ways. Synergetics uses whole numbers, completely eliminating all irrational, imaginary, and irresolvable numbers and complex formulae...Synergetics, alone among general systems theories, models Universe using only frequency and angle."

After Marshall's conception of Synchrographics, certain interesting correlations arose between these two disciplines.

One common feature of both systems is the definition of large multi-divisible numbers. These include the super-Scheherazade number of Synergetics and the omni-synchronistic module of Synchrographics.

In reference to numerical structure, and particularly to the super-Scheherazade number, Fuller states:

"There is a basic wave running through the second powering of all number up to 50 and returning to zero. The wave series is 24 integers long. I'm confident that the circle consisting of the 71 integer number

616,494,535,0,868,49,2,48,0,51,88,27,49,49,00,6996,185,494,27,898,13,35,17,0,2
5,22,73,66,0,
864,000,000

is the number employed by universe as the comprehensive circular unity by virtue of which all interoperation of all numbers will always come out in whole rational results."

Elsewhere (**Cosmography**, 1992), Fuller tells us that this number can be used as the number of divisions of circular unity.

"This number embraces a minimum n number of all the prime numbers involved in evolving all trigonometric functions and all the surface and volumetric spherical system intertransformings of synergetics."

Multiplying the fourth, fifth, and sixth prime numbers-- 7, 11, 13, which superstition labelled "bad-luck" numbers--produces the 1001 Nights.

As Dr. Fuller suggests, the occurrence of a basic wave is significant. It shows that despite their discrete nature numbers-as-integers have wave-like properties. Not only is there a basic wave running through the second powering of numbers, but there is an abundance of waves occurring on all levels of numbers. **The super-Scheherazade number in it's finite aspect shares identical properties with the Holotomes previously described. What they share precisely is that both represent discrete levels of finitude.**

As previously stated, Bertrand Russell spoke of the paradox of referring to infinity:

"That class which includes all classes cannot be considered a class inasmuch as it is the only member."

The omni-synchronistic module helps resolve this deeply embedded paradox. It allows us to graphically, and directly perceive the number behavior of the universe.

As Dr. Fuller continues in a letter to Marshall, ***"Nature is always operating in her own modular system of four progressively additive then progressively subtractive event octaves, with a ninth null event altogether constituting an octave nine system, all of which relate physically to two, four-vertexed each tetrahedra, as the tuned in tuned out, minimal structural experience of universe."***

To understand this more thoroughly, bear in mind that the tetrahedron is a solid made up of four equilateral triangle faces. It contains the least amount of volume per unit of surface area and is considered by Fuller to be the basic building block of universe.

The Auric Key excavates many vital properties of numbers. It's very existence and ultimate form hinges on numbers which occupy space. By arranging numbers in synchrographs, a number matrix or field is formed. Regarding numbers in terms of matrices and fields is important, and acknowledging that numbers have spatial qualities is vital to fully appreciate their significance.

Each track in a synchrograph depicts the occurrence of certain events, i.e. the dividing of any given number by specific base digits. These events are not causally related to each other; the repetitious patterns of each track occur independently of each other. Nonetheless, important relations between them occur. Synchronicity as herein described stems from a numerical context. However, it closely parallels synchronicity as first propounded by the late Dr. Carl Jung, an acausal connecting principle.

Jung sought to account for people's collective behavior and perceptions which could neither be explained by causation or purposivism. Causation explains behaviors as caused by past events, while purposivism explains behavior as determined by seeking future goals.

To these Jung added a third principle called synchronicity for explaining those events which occur together in time, but do not cause each other. They are events which are nonetheless related. Jung realized the physical significance of synchronicity and concurrently renowned physicist Wolfgang Pauli was developing comparable ideas in his theories. In the mid fifties, they collaborated in an effort to describe their mutual concept of synchronicity.

In light of their results, and in light of the specific nature of synchronicity we describe, it appears that the Auric Key constitutes a precise mathematical model of synchronicity, as described by Jung and Pauli. Their work together centered around finding a unified view of psyche and matter.

A desirable feature of synchrographics in general is that their very configuration allows one to cognize several different patterns and relationships concurrently if not simultaneously.

This is conducive to a far greater understanding of numbers and their over-all implications. By spiraling the periodic table into differing axes forming synchrographs, specific relationships between the various elements are accentuated. For example, the inert gases will lie only in trine or opposition to each other. This has precedent in modern chemistry and shows another application of synchrographics.

Prime numbers play a vital role in the construction of geometric forms, and in turn of structures. These structures range from the microscopic to the macroscopic. They comprise our physical reality. In classical mathematics, the order of prime number occurrence is submerged by the orderly progression of cyclical nine and predictable squares.

Here again is the classical example of how context determines coherency. The way we have been looking at numbers has scrambled our vision of how they ultimately behave. In the graphic rituals of syndex numeronomy, the order of prime number distribution is for the first time described in an intelligent manner.

The frequency of numbers is essentially their degree of "primeness" or "non-primeness" with respect to the base numbers. The true set of primes is a subset of the "nulls" where the set of nulls is determined by the amount of columns under consideration (base numbers).

In this context, the frequency graph shows the spectral relationship between high and low frequency numbers such as 2520 and 26 respectively. This extends beyond a deeply rooted "either/or" dichotomy prevalent in the current notions of number and basic assumptions regarding (or disregarding) the structure of number.

The myriad implicate patterns in the synchrographic rituals are staggering. Chief among them is the perfectly symmetrical arrangement of marked squares which occurs regardless of how many columns are considered. Halfway between zero and every holotome is a mirror; a location where every marked position on one side is replicated on the other, only reversed; an exact reflection.

For example, Holotome A is evenly divisible by the base digits 2, 3, 4, and 6. Notice how this elegantly simple pattern progresses to the mid-point (or nave) at 6, and is perfected at 12. This general pattern recurs throughout all of the true holotomes, which are all divisible by 12.

In fact, Holotome E, at its mid-point of 1260, symmetrically reverses direction and is perfected at 2520. It is divided into 12 synchrostats. The number 210 happens to be the lowest number divisible by 5, 6, and 7, and $5 \times 6 \times 7 = 210$. This symmetry reveals the structure of number, which in its utter simplicity and clarity can serve as a valuable and stimulating educational aid in mathematics.

Synchrographics can also be explained in terms of Modulo Functions, which have widespread application in computer science. Readers familiar with the modulo (MOD) function will notice that each track is counting in MOD X, where X is the number associated with that track. Since even divisibility is what is being stressed, highlighting those segments of the track which correspond to a zero remainder (or modulo result) displays the juxtaposition of even divisibility.

To be sure, holotomes are simple mathematical entities, for 2520 is nothing more than the smallest number to be evenly divisible by all base digits. To the ancients, numbers such as 60 and 2520 possessed seemingly mystical abilities to describe the exact order and limits of their universe. Perhaps the Auric Key will help us appreciate more the role of astrology, numerology, etc. as the evolutionary predecessors to our contemporary science and mathematics.

The highlighted tracks in the Auric Key can be translated into corresponding sounds or notes showing the numerical basis of music. The coded strip in itself is an inverse representation of the harmonic series which is basic to all music and physical vibrations in general.

The numbers 2520 and its half, 1260, permeated music theory long before Pythagoras. The reflective patterns of which these two numbers are a vital element, closely parallel the reflective patterns in J.S. Bach's Retrograde Fugue. Fellow musicians and musicologists may find these correlations worth investigating.

Using both colors (light) and music (sound), the Auric Key clearly approaches a universal language, synthesizing these into a coherent non-arbitrary mathematical structure. The Auric Key is an outgrowth of synchrographics.

Synchrographics is a methodology which can be successfully employed in broad areas of study and merges with general systems theory, which finds common patterns of methods with a wide range of theories. Interdisciplinary exchange is vital to fully integrate, synthesize, and use our accumulated knowledge and information. Synchrographics represents an important application of general systems theory.

The Auric Key is among the first applications of modern synchrographics. Apart from its parallels to many specific sciences, the Auric Key is a visual reminder of the on-going search for a synthesis of our ever-increasing specializations and stands for the basic methodology with which we seek to close the arbitrary lacunae between psychology and physics, indeed between science and religion.

The Auric Key is a genuinely interdisciplinary unifier, one whose power is at once startlingly elegant and harmonizing.

SYNCHROGRAPH C:

#108, OM, THE NUMBER OF THE UNIVERSE

In a gestalt approach to the study of the concept of number or the field analysis of number behavior, any specific number is considered in terms of the neighborhood in which it dwells, instead of by some individual feature which it may share with some other family member.

Graphic aesthetics are useful in revealing certain features of the number behavior which remain couched in linguistic terms. There are certain typical elements which constitute elegance in graphic depiction.

Number Mysticism reached a zenith in ancient Greece, since the Greeks were fascinated with the essence of the integers themselves to the point of worshipful devotion. etc. But after the burning and plundering of the Library at Alexandria, Egypt (the repository of all extant knowledge at the time), the exact science of ancient mathematics was lost to the west.

We attribute our present system of so-called Arabic numerals to those near-eastern cultures which preserved them through Europe's Dark Ages. However, this system of numeration originated in India and was one of the many kinds of knowledge translated into Arabic during the cultural flowering of that area. The numerical characters and such notions as the zero came directly from India.

Yogananda and other Hindu sources cite #108 as a divine number, "the number of the Universe." It is said to be the number of Om, the universal sound which underlies all creation. It is fundamental in two Hindu astro-calendaric systems, the Ages and Yugas. Both the so-called Ages and Yugas are all multiples of #108 (see tables which follow).

The Hindu religion is a vast ocean of religious thought, springing as it does from the earliest times, long before the dawn of history, and comprises in its multi-colored texture shade after shade, an endless variety of design and pattern as it grew in the human mind; from animism to Nature worship.

The worship of the sun was common in antiquity. There is a famous sun temple in Konark in South India, and in the historic town of Mooltan or the land of the Sun, in the North. And #108 has to do with the numbers of revolutions of sun in the various epochs.

Not only sacred to the Hindus, this number also reappears in Tibetan Buddhism, where it is considered highly auspicious, being the number of beads on each

strand of the *malla*,
or Tibetan roasary beads. Therefore, it reveals its character as an ancient form of circular unity.

The Hindu calendar is of an amazing antiquity. Its starting point is the divine beginning of Brahma, the first one of the Holy Triad of Brahma, Vishnu, and Shiva. Its unit is the Kalpa, equivalent to one day of Brahma's life (4,320,000,000 years). Brahma's allotted life span is 100 years of 365 Kalpas each. The present epoch is the Kali Yuga and this Hindu year exceeds the figure 155,521,972,849,000 and counting...

In most Hindu systems, certain points of time back are fixed on as epochs. They each begin when the planets are assumed to fall into a line of mean conjunction with the Sun in the beginning of Aries.

In the *Surya Siddhanta* (the classic text of Indian astronomy), the least cycle of years in which the Sun, Moon, and planets are supposed to return to a line of mean conjunction at the beginning of Aries is 1080,000 years, of a fourth of a Maha Yug of 4320,000,000 years or revolutions of the Sun (Surya). The revolutions given in the Surya Siddhanta must always be divisible by four, or no mean conjunction could take place at the beginning of the Kali Yuga.

The Holotomic Sequence was discovered through a systematic graphic analysis of the enspirament of number 108 or 3 x 36.

There are two primary astrocalendaric systems in India: Yugas and Ages denoted by metals:

FOUR YUGAS
Kali 432 (108 x 4)
Dvapara 864 x 8)
Treta 1296 x 12)
Krita 1728 x 16)
Maha 4320 x40)
FOUR AGES
Iron 648 (108 x 6)
Copper 1296 x 12)
Silver 1944 x 18
Gold 2592 x 24
sum 6480 x 60

The synchrographic structure of these two ancient Hindu modules of circular unity disclose that the Yugas fall into a perfect tertiary symmetry. The Ages assume a perfect quadric symmetry when spiralled along 108 axes of a number field, array, or matrix. The final number of this synchrograph is 6480. The glyph unifies the two ancient systems.

These high factorial number arrays preceeded modern forms of circular unity, even perhaps the Babylonian adoption of 360 as circular unity in that 108 is 3 x 36.

The number wheel, Synchrograph C, enspirals the natural number series around a field divided into 108 radial increments from zero to 6480. Since #108 is 3×36 , and both systems mutually include the square of 36 (1296), it becomes evident that the classic 360 degree circular unity is the common denominator of these two separate systems. Note also that the numbers that represent these two systems all fall in the same zero axis. Also note, the sum of the Yugas (4320) end at two thirds of this axis: $(6480 - 3 = 2160$: Platonic month: $12 \times 2160 = 25920$).

In the configuration of this mandalog, the four-digit palindromic sequence "1881, 2772, 3663, 4554, 5445," etc. fall in a quadric array, and the turnaround or nave of transpalindromicity (49.5) synchronizes the corner of the square with the side of the triangle, i.e. the nave between 45 and 54 (which added together equals 99).

Contemplation of this wheel discloses the complete menagery of "sacred numbers," the key numbers of ancient metrology and the Holotomic Sequence in positions that yield a perfect symmetry where only chaos exists in classical number theory.

Nature's behaviors coincide with the most crucial divisions of the continuum of base ten number. This wheel reveals a rhythmic series of revelations that are otherwise not available for contemplation.

(Editor's Note: See the entire text of SYNDEX II (A Revisioning of Number Dynamics in Light of Ancient Metrology and Modern Cosmography) for a complete explication of this Synchrograph based on #108. This work includes ancient milestones in the history and development of the alphabet and number concepts: Number Mysticism & Alphanumeric Writing (the Origin of Divine Number Words); Cosmic Cycles of Creation & Destruction (The Hindu Doctrine of Yugas); The Hindu Concept of Number; The Surya Siddhanta, History of the Development of Indian Mathematics, the Sumerian Legacy, etc.)

PART TWO: HOLOTOMES & THE HOLOTOMIC SEQUENCE

**Syndex Number Theory
Holotomes A, B, C, D, E
Definition of Mathematics with Description of Holotomic Sequence**

SYNDEX NUMBER THEORY

A. Universe is inherently resonant. Resonance is a complex of intertransformative frequencies of miniintertensioned systems.

B. The inherent resonance of Universe is caused by nature's never pausing at, and only forever transiting, exact equilibrium.

C. The union of Universe is a differentially complementary regenerative-production wedding of inherently, uniquely prime numbers 1, 2, 3, 5, 7, 11, 13, and all of their successive primes. The prime numbers are numbers divisible only by themselves and by 1, representing in synergetics unique system behaviors.

D. The prime numbers impose an eternal disquietude--transformative adjustments and omniintertensional resonances eternally interaccelerating.

Fuller, Cosmography (1992)

Eliciting the structural profile of the "BASETEN" system of quantitative notation naturally comes under the jurisdiction of geometrical display. Since an enfoldment occurs at the end of the base digits when numbers start to be empowered by the occurrence of the second digit (ten), we are inclined to enspiral number about a circle of ten radial increments, but this strategy does not work. We are left with a radial array that is void of any significant pattern: 10 - 20 -30 - 40 - etc.

This uneventful cyclation of numbers produces nothing remotely suggestive of a "base wave" that would manifest a synchronicity between number of a mutual class such as primes or square numbers which, when played out in a linear sequence show no interactive relationship of any significance.

The same goes for the enspiraling of nine except that when we look at the axis representing 9, we note that numbers reverse between 45 and 54 and go backwards. Until 81 is reached that is the reverse of 18 the first multiple of 9. This is a solid clue and one that leads to the first and genuine synchrograph, or a graph that synchronizes the fundamental classes of number in a highly meaningful context.

When we use the 12-fold clock face or zodiac forms, we are overwhelmed with a series of synchronicities that deal with primes, composites and squares.

First we discover that the primes fall in only four of the 12 possible axial locations: it means that eight axes are prime free. We've taken our first step to numeracy, the scientific discipline that we call synchrographics. This, in turn, legitimizes the term numeronomy as a genuine scientific discipline in that it has produced a systematic quality.

The synchronicity of quality and quantity (number and form) is the gist of numeronomy, which is the proliferation of the Holotomes, or symmetrical circular unities which are also the series of minimal sums which accommodate the maximum amount of consecutive factors of division.

The sequence of all sequences is the series of circular unities that are generated by doubling twelve, then by multiplying the sum by three, and then by multiplying each resultant sum by the next prime as the primes occur in their natural order:

[Insert:THE NUTSHELL DOCUMENT]

This sequence, aptly designated as the Holotomic Sequence, represents the minimal plural quantities that accommodate the maximum amount of consecutive factors.

Anyone who has ever pondered the source of 12 and 360 by ancient metrologists will investigate the total rationality and serious implications of the foregoing statement.

Dr. Fuller's superscheherizade number of 71 integers is vastly superceded by the holotomic sequence whose 16th member is divisible by all of the first 16 primes with merely 19 integers: 7378677391061900000, (52 less).

And I am not a fraction of the mathematician that Bucky was -- just a better numeronomist.

This is the primary member of an exemplary pattern of finite (or transfinite) moduals of circular unity that each contain all of the informational data of the preceding modual plus one additional information datic identity. They retain original information while adding new information into the original context without sacrificing any of its significance or meaning.

NUMBER 12: Holotome A contains four base digits: 2, 3, 4, and 6. (One, singularity is not a number in the same sense that 2, 3, 4, 5, 6, 7, 8, and 9 are numbers. These base digits are componentational unifications of the magnitudinal identity of singularity (One).

NUMBER 24: Holotome B contains five base digits: 2, 3, 4, 6, and 8, which increases its permutational capacity by one more degree...

NUMBER 72: Holotome C contains six base digits: 2, 3, 4, 6, 8, and 9 which again increases its permutational capacity by another degree...

NUMBER 360: Holotome D contains seven base digits: 2, 3, 4, 5, 6, 8, and 9, which still again increases its permutational capacity by another degree...

NUMBER 2520: Holotome E contains eight base digits: 2, 3, 4, 5, 6, 7, 8, and 9. This raises its permutational capacity to the limit of the base. In that one, singularity is not a number, Holotome E is regarded as the Auric Node. This is, in every sense of the term, a full octave, and totally synchronetic with the

NINELEVEN RETROGRADE OCTAVE, which also being of an exemplary nature, synchronizes via 4 forward and 4 reverse event octaves with a 9th null event.

Definition of Mathematics with Description of the Holotomic Sequence

Ordinary number, the psychological mechanism which we commonly refer to as the base ten concept of qualitative notation, is the ultimate foundation of science and technology. In order to state this proposition in the proper perspective, we must understand that number and geometry are two interdependent aspects of a singular mechanism and that the four fundamental operations of arithmetic are also an intrinsic component of these interactive disciplines. They cannot possess an independent existence of their own without the presence of each other in a totally unified context.

This is to suggest that base ten number, which also involves the zero, geometry and the fundamental operations of arithmetic are a structural complex of interactive functions. Taken all together, they are a premathematical compound multiplex. Through the interactive mechanisms of their interdependent composition, they permit those secondary operations that we refer to as mathematics.

The extensive realm of mathematical disciplines cannot occur without the complete aforementioned complex of synchronetic functions that operate as a holistic system of geonumerical mechanisms.

It is precisely through this descriptive syntax that we draw the line between the tools we call number/geometry/arithmetic and the secondary operations we refer to as mathematics.

The common definition of arithmetic calls for four fundamental operations: addition, subtraction, multiplication, and division. A more exact regard tells us that only two fundamental operations exist, since addition is reverse subtraction, and no multiplication can occur without division.

This perspective reduces the actual complexity of the componentry of the basic numerical and mathematical tools.

We note that a triangle is a qualitative expression of the quantitative number THREE, and likewise a square is a qualitative example of the quantitative number FOUR. Number and geometry are two aspects of the very same physiomathematical function. One cannot exist independent of the other.

In practice, however, in the discipline of mathematical operations, these distinctions merge in such a way that the line between the geonumerical tools and the mathematical products of those tools become merged in such a manner that number, geometry, and mathematics appear to be inextricably united in a common

field of inseparable fusion. With such a perspective, it is nearly impossible to analyze their actual interrelations.

For the sake of a dialectical analysis, we will suppose that number and geometry, the two ambidirectional operations of arithmetic, are premathematical. All of the varied operations of mathematics are the secondary products of the geonumerical operations of arithmetic.

In consideration of the foregoing suggestions, we have engendered a syntactical format. We have a clearly finite array of terminological componentry of physiomathematical epistemography. It successfully avoids the unspoken levels of distinction that confuse the dichotomy of quality and quantity that emerge in the descriptions of all mathematical definitions. They involve the separation of number, geometry, and the operations of mathematics.

The primary confusion that occurs in the synchronization of number and geometry is due to the fact that the first three signs for plurality (one, two, and three) do not represent spatial geometry at all. It is not until we reach number four that spatial geometry becomes involved in the form of a tetrahedron, as the ideal example.

In the first place, one is not even a number in the sense of the other eight digits. One is not unity, having no componentry to unite -- it must be deemed as singularity.

Number two may, at best, represent a line which cannot involve volumetric space.

Three, on the other hand, may only represent a plane, its ideal form being a triangle.

Four, then, is the first of the base digits that can represent spatial geometry with the ideal form being a tetrahedron.

This means that only six of the base digits can deal with spatial geometry: 4, 5, 6, 7, 8, and 9. They are points of reference in geometrical space.

SIX is the first perfect number in that one plus two plus three represents the harmonious interaction of the first three number signs. Six also represents the three ambidirectional axes of the TRI which denotes the six directions of spatial geometry.

It is through this logic that we begin the true synchronicity of number and geometry.

The **T.R.I.** is the cornerstone of real numbers that formulate the geonumerical series of spatial forms that produce an exemplary series of geometrical forms that synchronize numerical values with geometrical forms that involve numerically synchronous spatial integrity.

The Holotomic Sequence begins with the dodecahedron or twelve spheres that surround a 13th nuclear sphere, producing the first quasi-spheroid of six square windows and eight triangle windows.

The Holotomic Sequence begins by doubling the first perfect number and then multiplying each resultant sum by the series of prime numbers as they naturally occur.

$$\mathbf{1 \times 2 \times 3 = 6}$$

$$\mathbf{A \times 2 = 12}$$

$$\mathbf{B \times 2 = 24}$$

$$\mathbf{C \times 3 = 72}$$

$$\mathbf{D \times 5 = 360}$$

$$\mathbf{E \times 7 = 2520}$$

$$\mathbf{F \times 11 = 27720}$$

$$\mathbf{G \times 13 = 360360}$$

$$\mathbf{H \times 17 = 6126120}$$

In this way the minimal sums with the maximum amount of consecutive factors are produced. Each represents both a planar and cubic mode of a harmonious and symmetrical retrograde octave unity which synchronizes number and geometry in a qualitative and quantitative geonumeric modular (dual module).

No other sequence can accommodate these aspects in an order of mathematical exactitude.

The Holotomic Sequence represents the series of minimal numerical sums that accommodate the maximum amount of consecutive factors of division.

The science of mathematics, the alphanumeric system of notation and industrial civilization, in general, has resulted from the metrological functions derived from this sequence.

The transpalindromal function of the exemplary 99 retrograde octave wavecycle accounts for the synch/desynch mechanism of the continuity of the baseten system of quantitative notion of which the discipline of geometry is an interdependent ambifunctional unification of number and form.

To recap, spatial geometry does not play a role in number until the number four is involved. Three can only represent a surface or plane with the triangle as the minimal regular form.

Number four may represent spatial volume in the form of a tetrahedron as its minimal regular form: 4 windows and 4 vertices. So, already we have a half positive and half negative octave situation: windows opposed to vertices.

This means that only six of the basic numbers can involve spatial volumetric geometry.

The next important number in spatial geometry is twelve. This occurs through the dodecahedron (an irregular solid by Platonic description), which evolves from the closepacking of 12 spheres about a 13th nucleus sphere. This produces six square windows and eight vertices. This also produces #14 as a geometrical factor (2 x 7).

The dodecahedron, then, can represent a quasi-sphere. In contrast to the tetrahedron, (which is the most surface for the least volume), the step to the dodecahedron is a great volumetric increase.

Ignoring the regular solids of Plato and considering the whole range of Fullerean geodesic configurations with a distribution of pentagons and hexagons we find a series of quasi-spheres, which become more spherelike as they grow in size/number. Still, they will never achieve perfect sphericity, in nature or the abstract.

When we consider this sequence of geodesic spheroids, (or quasi spheres), we are struck by an analogy that occurs in number sequencing.

The **Fibonacci Series** grows irrationally until the 17th member (6180339), then stabilizes for the first eight digits and continues on. It is at that point where, when represented as a spiral, it grows in size but does not change in shape.

Number sequences that are deficient shrink faster than they grow, reaching a sort of circularity while their counterpart proficient goes wild into an arch that approaches linearity, (but never quite attains it).

The Holotomic Sequence is totally different than all the other sequences. It becomes somewhat erratic in its initial phase especially the first three members which are two digit: 12, 24, and 72. Then it grows one digit at a time until its 8th member: 6126120, which is seven numbers long, then it skips to a nine digit number, (omitting an 8 digit Holotome) From then on, the series is very slightly deficient and skips over an integer length every so often..

The remarkable thing about the Holotomic Sequence is that the hard digits quit at fourteen positions and continue to build on with accumulative zerosity. That is, after 14 hard numbers, we get nothing but zeros.

The Holotomic Sequence is more representative of geometrical space than planal geometry. Like the polygons - the 56 Aubrey Holes of Stonehenge give us a pi

value of 3.111, repeating-- that means a polygon of 56 circumference is commensurate with a diameter of 18 of the same units.

$$3.11111108280 - 2520 = 0.123456789$$

We find an association here with Holotome E: 2520. Inasmuch as $45 \times 56 = 2520$, the 45 representing also a right angle (1/2 of 90 degrees) to 360 circular unity.

At this point, the question to Neil J. Sloane is just what logic is there in finding the ideal distribution of points on the surface of a sphere, when (as Fuller asserts) there is no ideal sphere to be found in nature? Only quasi (geodesic) sphere, which can never reach a finite sphericity, even though they come close. Using pi, we never come up with an end to an irrational sequence, and nature simply doesn't operate this way.

The geodesic is the *modus operandi* of nature herself, and by regarding the sequence of holotomes as a series of rational (finite) steps, we have a genuine logical dialogue with nature.

The Platonic solids were an attempt to find ideal forms, but some of these have never been found in nature, but only in the abstractions of the imaginations of mathematicians and geometers.

The Fullerean geodesic quasi-spheres, on the other hand, are prominent in nature's scenarios and structural forms. Even viruses have recently been discovered, through high magnification, of geodesic design. Dodecahedral seed pods are also prevalent topological formations in biological stereotypes of nature. Even the apparent sphericity of soap bubbles is geodesic.

Fuller's geodesic modelling works on the atomic and molecular level. Extending these spherical models into chains is what led to the architecture of the D.N.A. spiral.

Fuller presented a model of DNA with the chain of tetrahedrons that requires 22 to make a full revolution. Qabalist, Stan Tenen discovered a correspondence with the Hebrew alphabet with these 22 tetrahedrons (tetrahelix). Actually, it was the Akkadians who first used the 22 letter alphabet by adding Aleph to the Sumerian 21 letter alphabet (six of which were vowels). It is my opinion that the Akkadians were the first to corrupt a perfect alphabet of 21 letters--an alphabet capable of producing an ideal syntax.

The infrastructure of such an ideal syntax can be seen in the proposition:

THE SYNDEX PRETZEL

$$12^2 : 144$$

$$+108 = 9 \times 12$$

$$12 \times 21 = 252 \text{ palindrome}$$

$$+189 = 9 \times 21$$

$$21^2 : 441$$

Transpalindromic composite roots producing transpalindromic composite squares.

This is the means whereby transpalindromic squares are derived from transpalindromic roots...with a palindromic nave 252.

2520 or Holotome E is the first and lowest number divisible by all eight base numbers:

$$12 \times 2 \times 3 \times 5 \times 7 = 2520$$

The interrelationship of number and geometry begins by doubling the first perfect number: 6, then multiplying the primes in their natural order of occurrence. This produces the series of minimal sums that accomodate the maximum amount of consecutive factors.

Having studied the nature of this sequence for the past 30 years, I am totally confident that the Sumerians were programmed by this system in order to produce the metrology that created not only the alphanumeric system of notation, but the whole mathematical foundation of industrial civilization or civilized culture itself.

The first regression of this perfect system was the Akkadians addition of Aleph.

The second regression was when the ancient Hindus divided the astrocalendric aspects of the original Sumerian plan into two systems by the introduction of :
OM:
#108 (3 x 36).

**THE YUGAS 4320
THE AGES 6480
(and an undetermined amount of zeros)**

Then the Greeks came along with their improper geometry from the sequence of "ideal" solids and cut us off from the last traces of the ancient wisdom which paved the way for the social chaos of the dark ages.

Later, Sir Issaac Newton formulated the laws of motion, the most significant of which is the retrocity involved in action vs. reaction. This put us on the track to modern industrialization. His mind could not deal with the triangle, but he made the most of dualism.

The return to valid numeronomy did not recur until 1980, when Marshall discovered the Holotomic Sequence through an innovative discipline termed Synchronographics.

It was because I was not programmed by mainstream scholasticism that I had to disbelieve the fiction that prime numbers were an example of chaos. In my semi-literate way, I knew better and set about developing a method of rediscovering the truth which is that geometry and number, quality and quantity are two sides of the same coin. But to find the key to their synchronicity, I had to realize that only six of the base digits could involve spatial geometry.

That I have discovered a strange and wondrous aspect of the natural sequence of number there can be no doubt. And that these patterns of the continuum of number were responsible in extreme antiquity for formulating the basic metrology that established and proliferated industrial culture is beyond dispute.

The question that recurs in my mind with great regularity is this: Of what use is this knowledge or how can it be further employed in the realm of science in a world where metrology is as natural as our breathing and for the operations of technology just as essential, like correcting the ways that technology is misused.

The Holotomic Sequence is physically interrelated with these geometrical geodesic forms that look like perfect or ideal spheres. On certain levels we have some legitimate questions that require talented answers.

Vieta used a polygon of 393216 sides to obtain pi within 10 correct decimals. Whether these polygonal sides are ideally straight is inconsequential.

Einstein did away with the ideal straight line, but it had no effect on the practicality of the ideal straight line. Bucky Fuller did away with the ideal sphere, but its purpose still remains as a useful element in our conceptual process.

It therefore seems that the rediscovery of Numeronomy and the Holotomic Sequence might be applied as a unifying field of reference that in its ideal non-existence was here before the beginning, and so it shall remain, even in a world of erroneous thinking.

(Editorial Note: There are several pages of as-yet-unscanned number tables which support these allegations. We will post them as they become available in a presentable form besides xeroxed snail mail. They include graphics of the first Holotomes; Respective Divisors of the Holotomic Sequence; Reflexive Nature of Holotomes; Extended List of Holotomes; Anatomy of the Syndex Pretzel Sequence; In Consideration of Boxcars; Brief Clarification of Grid Sixteen as 2-D Basis of Holotome A; Nature's Key Ratio, etc.)

THE HOLOTOMIC SEQUENCE OF CIRCULAR UNITIES

$$1 \times 2 \times 3 = 6$$

$$A \times 2 = 12$$

$$B \times 2 = 24$$

$$C \times 3 = 72$$

$$D \times 5 = 360$$

$$E \times 7 = 2520$$

$$F \times 11 = 27720$$

$$G \times 13 = 360360$$

$$H \times 17 = 6126120$$

PART THREE

99 CYCLOFLEX

or

NINELEVEN RETROGRADE OCTAVE WAVECYCLE

Base of Number System
Palindromes and Transpalindromes
Number Behavior and Structure
Formulation of Fundamental Syntax
Basis of the Syndex Glyphs
The Archetypal Alphabet of Number Class
Classification of Number in General
Aladdin's Window

The 99 Wavecycle

The Base of Number System

Mathematicians and number theorists alike have met with much confusion when speaking of the "base" of a number system. The system now in almost universal use is generally referred to as "BASE TEN." To my way of thinking, even though

I use the expression often myself, it is totally improper. R.B.F. is the first of modern numeronomists to address this problem in a more appropriate way by pointing out that nature is operating in an octave nine system -- that is, an octave with a ninth null event.

Echoing from the ancient past, we find the words of Zoroaster, "*The number 9 is sacred, and attains the summits of philosophy.*"

The problem I am referring to comes about by regarding one as a number whereas one represents singularity, which is not a number in the sense that 2, 3, 4, 5, 6, 7, 8, and nine are numbers.

Psychologically and symbolically speaking, one is not a number. In **Ego and Archetype**, (p.184), **Edward Edinger** informs us that, "*The number one as the first and original number is, strictly speaking not a number at all. One as unity and totality exists prior to the awareness of numbers which require a capacity to distinguish between separate discrete entities. Thus, one symbolically corresponds to the uroboros state prior to creation and the separation of things. Thus, two is the first real number...*"

Since zero is also not a number, we are left with only eight genuine numbers.

Therefore, in reality our number system is rightfully base eight, not base ten.

This confusion has been around forever, if we discount the idea that everything started at some discrete instant in time, which is no more absurd than the idea that somethingness came out of nothingness.

Aleph was the initial letter of the Akkadian or Hebrew alphabet. It is also the first Trump of the Tarot. Tradition says it does not count, yet is able to take any position, like the Joker in the modern deck.

The retrograde octave wavecycle cannot exceed a transpalindromic octave, because of the fact that only 8 signs numerate.

33² 1089
2178
3267 +4
4356
5445
6534
7623 -4
8712
99² 9801

Terms, Process, and Special Notations

The term transpalindromic, which recurs often in the Syndex descriptions of number behavior, is both a very simple and complex concept.

The term palindrome, of course, denotes any number that reads the same in both directions, such as 11, 101, 666 or 3663. But the term transpalindrome refers specifically to any number which is the reverse of a preceding or following number, such as 3168 and 8613.

3168 and 8613

A good example of a transpalindromic couplet, and an example that demonstrates the structural significance of such terminology can be determined in the following numerical context:

(12 and 13 square syndex pretzels)

To extrapolate this sequence, one must take into consideration the accumulative complexity of the palindromic/transpalindromic octave loop cycle. It is a function that becomes apparent through the progressive understanding of numerical behaviorisms.

Original Clue to the Order of the Primes Rediscovered, 1981

For those number theorists who wish to contemplate the original key that unlocked the enigma or mystery of the rational order of prime number distribution:

The exemplary nineleven octave cycloflex or 99 wavecycle described in this introduction acts as a number modular that reveals the retrograde octave of four forward and four reverse event octaves with a 9th null event.

Superimposed on the totally symmetrical 99 cycle are the four pairs of reversible near-prime composites that act as a loophitch which completes the symmetry:

9
18
27
36
45
54
63
72
81
90
99

Eleven

13 + 31 = 44 : 11 x 4
17 + 71 = 88 : 11 x 8
37 + 73 = 110 : 11 x 10
39 + 93 = 132 : 11 x 12
79 + 97 = 176 : 11 x 16

11
13
17
31

39
71
73
79
93
97
99

The Formulation of Fundamental Syntax in Terms of Quantity and Quality, Number and Form

The term number behavior, rather than the term number structure, would imply a kinetic function to a general language, describing the complex cyclic and reflexive interactions peculiar to the numeric continuum. Geometrical modes of expression become integrated with the static aspects of quantitative or plural detail.

The dynamic or kinetic picture supercedes the implicate rigidity suggested by the term structure. To hyphenate behavior-structure in the attempt to rescue this semantic impasse becomes a gesture of redundance serving only to confuse an issue already unclear.

Since geometry and number are two aspects of the same series of interrelationships that begin with the quality of triangularity denoting the quantity of number three, we give birth to the idea of a synchrograph. We have synchronized quantity and quality on an initial level. With this in mind, we may state that sequence is plural and at minimum threefold. Sequence is the key to the idea of behavior, and triangularity the key to the idea of structure.

By the doubling or foldment of triangularity we produce (synthesize) both the quality we call hexagonity and the qualities inherent in the first perfect example of quantity. With it, we give rise to the idea of harmony inasmuch as one plus two plus three equals six, i.e. the harmonious interaction of a unification of whole number components.

By enclosing the hexagon within the perimeter of a circle, we give credibility to the concept of circular unity. This could be a far-reaching and important concept to industrial intellectuality despite its most mundane and simplistic nature.

Circular unity is responsible for the synchronicity of more basic and therefore crucial concepts than any other single idea. It is also the most disregarded conceptual idea entity of all.

A comprehensive formula for physiomathematical epistemography begins with a clear notion of the synchronetic profile between the ideas of quantity and quality. This profile is founded upon the web of terms surrounding the notion of number six.

Since circular unity in terms of quantity six is limited to a planar format, we must double this phase of plurality to deal with spatiality in a volumetric sense. This is expressed in terms of a referential format properly termed the Triaxial Retrograde Interface. By intersecting three ambidirectional lines of direction at a common loci, we produce the minimal spatial mapping of the six-sided cube, which may also designate the external parameters of a sphere which could be seen to enclose that sphere within its six imaginary faces.

The T.R.I. demonstrates the interreferential labeling of up/down, right/left, fore/aft. It lends itself to the metrological dimensions of any spatial configuration as the minimal graphic system of spatial description in terms of quantitative and qualitative mechanisms, the most fundamental elements of descriptive language.

Fuller's statement that unity is plural and at minimum sixfold can then be considered the fundamental key to the mechanism of linguistic description in terms of common empirical practice (irregardless of the language involved).

This semantic representation of sixfold unity as the minimal frame of reference is less elegant than the graphic depiction. The ideal form of syntax is crucial to any scenario of space-time formulation, the denial of which would lead to absurdity, paradox, and general descriptive error.

Thus, number and geometry, plurality and form begin their synchronetic unity in the unification of plural six and hexic form as the common denominator of all rational description. By doubling the cornerstone of logic we produce the 12 spheres of the dodecahedron with its 13th nucleus sphere as the first instance of spherical unity, (the fundamental basis of physiomathematical epistemography).

Neologisms are required by this dynamic process to define new terms and concepts. They exceed the descriptive capacity of extant lexicons. The prefix syn-, as in synthesis, syntax, synopsis, synthesize, synthetic, synonym, synergism, and synchronicity have all arrived on the scene of descriptive terminology in recent times. This is due to a significant increase in technological insights. New terminologies help us cope with ideas that exceed the boundaries of valid syntax.

Synergetics could not have achieved its impact on modern thought processes were it not for the invocation of the prefix syn-. It is a prefix which is impressively responsible for the correction of prominent errors in the syntax of the descriptive mechanism of general linguistic expression.

The key to the prefix syn- is with, together, at the same time. It has direct affinity with the term relativity, the term which carried Einstein into preeminence in the realm of scientific thought.

The synthetic aim of this present document is threefold:

#1: to investigate the relationships of synchronetic events in general space-time scenarios,

#2: to investigate the relationship of geometry to number in terms of synchronetic behaviors of space-time.

#3: to employ the graphic language of geometry in the behavior of number through an innovative mapping procedure, called Synchrographics.

BASIS OF THE SYNDEX GLYPHS

In the mid-sixties, I chanced on the notation, description, and general explanation of a glyph purported to be a "null-A" sign (not Aristotelian), which considered ideas beyond the traditional capacity of Grecian/Roman syntax.

The very general and simple significance suggested by the writer who brought this sign to my attention, (it could have been Isaac Asimov?), implied that it referred to the idea that any function that passed through infinity reverses itself: .

I eventually adopted this symbolized idea to act as a mechanism to synchronetically involve the 12 possible combinations (of palindromic, transpalindromic and all other possible classes of square, composite, and prime number permutations of trirelational retrocity). It presented itself as an ideal context with which to amplify the coherency of the ideas concerned with the minimal amount of symbolic componentry. Whether this strategy of notational invention will survive the test of time, only time itself can judge.

The simplistic statement that each level of finitude is the reverse of its prior is demonstrated through the observation that minimal unity is sixfold and by its essential linear or circular context demonstrates that we are always dealing with a specified quantity of discrete levels of finitude.

Infinity as a notion of singularity is totally devoid of rational significance. By virtue of this notion--for the most part, intuitive--prominent experts in the field of mathematics concede the existence of a diversity of classes of "infinity."

In practice, physicists often correct equations to eliminate the absurdity of infinity.

"Just because equations produce an infinity does not mean that an infinity exists in any practical sense. In fact, physicists quite often 'renormalize' equations to get rid of infinities, so that they can ascribe physical meaning to their numbers. An example is the calculation of the electron's mass from theoretical principles, which at face value leads to an unrealistic, infinite mass. The same kind of mathematical sleight of hand might need to be done for vacuum energy calculations," according to Phillip Yam, SciAmer, Dec. 97, p82, "Exploiting Zero Point Energy."

To sum up the ideas involved in the foregoing preamble, I will simply assert that the term infinity is but one case of a plethora of totally meaningless terms.

Only through the complex nature of syntax can any word conform to a definition generated through the absurd notion of "dictionary" as having some sort of static meaning.

The Classification of Number in General

Like the stars, numbers cannot be counted but they can be properly classified and identified accordingly.

There are twelve glyphs which comprize the full constellation of number classification.

Palindromic prime; retroprime composite; transpalindromic composite; retrocomposite square; palindromic square; retroprime square; transpalindromic prime; retrocomposite prime; palindromic composite; retrosquare composite; transpalindromic square; retrosquare prime.

Of the countless numbers that seem to exist, at least to the human mind, there are but twelve classes that will identify any particular number that will ever come to your attention.

The structural profile of the sequential progression is characterized by the interaction of these twelve discrete kinds of numbers. The omission of any one of these classes is enough to disrupt the continuity of the order which they represent. The fact that most of these classes have never been considered at all is reason enough that prime number behavior has remained a mystery to modern number theorists.

Out of the 90 two-digit numbers, there is but one square number that is a prime when turned around backwards. Such a number is rare, no matter how many digits compose it. This number is already recognized as special to modern electronic technology. However, no one else at the moment knows the real reason why this number is so special. The number in question is SIXTEEN. It is the sole 2-digit square that is a prime in reverse -- 61, its reverse, is a prime.

According to the nomenclature of the syndex routines, number sixteen is designated as a retroprime square. The glyph that represents this class is . And, of course, the glyph that represents 61 is , its exact reversal.

In order that one can follow the logic of these glyphs, it is not necessary to memorize all twelve, which cover the complete classification of all number. It is necessary, however, to have a fair grasp on the square numbers. Especially pay attention to the glyphs that represent the palindromic primes like 11 and 101. The glyph that represents their class is .

It is by virtue of the transpalindromic nature of the numerical continuum that these classification markers are necessary. The complexity of the continuum can not be understood without them.

It has become my confident opinion that the full system of number classification was acknowledged in prehistoric time. Of course, they didn't use the glyphs we are adopting, but that does not matter. Any sign that we wish to use can serve the function. Or any word, that we wish to use to represent the idea would yield the same result.

The written letter, sign, number, or glyph is only a symbol of the word which, in turn, is only an audio symbol of the idea. It must be clearly understood that the only reason for writing and numbering on stone, clay, metal, paper, or electronics is for the purpose of storing and transmitting ideas across space and time. Otherwise, any information or data can be communicated between two minds with nothing more than articulated sounds or gestures. An idea is an idea is an idea, and how it may be transmitted is inconsequential, so long as there is consensus.

For most of my life, I have formulated a personal written language--a thinking language for myself, to record personal ideas for transtemporal self dialogue. Since people who talk to themselves are considered peculiar, I have never bothered to share my language with anyone.

In fact, I have a habit of burning my notes after putting certain ideas aside. However, some of these esoteric, personal signs and symbols are now being used and explained in the Syndex Theory. In standard English, I have finally found something worthwhile to divulge to whoever wishes to understand things not generally known even to the inquisitive.

The twelve glyphs that comprise the complete classification of number are an important part of my thinging language. The central catalytic element for this twelve sign alphabet of number is an inverted : . To me, this represents the universe of plurality, which in turn represents both the inside and outside, much like the Hebrew sign for Beth or house. It is merely an empty container, a cup upside down.

When I draw a line through this cup: , it signifies a function that passes through. It goes in, then out. When I put an arrowhead on one side: , it means that the function has a specific direction. It is as simple as that. When applied to a number like 13, I write: . Because 13 is a reversible prime, inasmuch as 31 is also a prime.

Thus, by applying the C: , for composites and the w: to represent squares, I have given the proper identity to any number in regards to its reverse and forward nature. In this way the palindromes become more than an oddity. They are a very discrete and important class of number.

Thus, by reviewing the continuum of number ambidirectionally, I have unlocked the enigma of why the palindromes occur where they do, which is the key to the mystery of prime number occurrence or distribution.

For example, here we have a full octave of retrograde number profile, by taking a palindrome: 555 and subtracting 99, then adding 99 in precessive and successive steps.

159
+ 99
258
99
357
99
456
99
555
99
654
99
753
99
852
99
951

Since there are only eight base digits that are comprized of componentry (2, 3, 4, 5, 6, 7, 8, and 9) you can never produce a transpalindromic sequence that goes further than eight positions--an octave. The center number, 555, which I call the nave (from navel) doesn't count because it, itself is a palindrome.

99 and its multiples are the only numbers that will produce such a sequence, ($9 \times 11 = 99$).

It is the interaction of square number nine and palindromic prime number eleven which produces this exemplary wavecycle. I call this the exemplary nineleven cycloflex.

Number graphs supplied with this text amplify the epochal significance of this crucial aspect of number behavior. Without this critical insight, the enigma of prime number deployment would remain a mystery.

It seems as if number theorists have always regarded the reverse of number only in terms of the minus or negative numbers, and not the reversal of the individual numbers themselves.

That addition is reverse subtraction and multiplication only occurs through division is not generally recognized due to the idea that in the operations of

arithmetic they occur in conjunction without conscious regard. Therefore, we say "the four fundamental operations of arithmetic" instead of the two ambidirectional operations.

Retrocity is an easy thing to ignore, because it is something that must be ignored in order for the operations to function within the discipline.

But, ignoring the whole reverse nature of the number continuum itself, permits the symmetry of number to be submerged in the non-symmetrical quasi-chaos of how and when prime numbers occur in relation to non-primes.

Number symmetry requires another aspect which is that you must have a finite group of numbers in order to have symmetry. This is where circular unity comes into play in the form of the Holotomes.

Each Holotome is a half positive, half negative (retrograde) circular unity, comprized of the minimal sums that accomodate the maximum amount of consecutive factors.

As a special case, Holotome E, or 2520, which is the first sum to accomodate all eight base numbers. The midpoint (1260), goes into retrograde. It is divisible by all the bases except 8.

We nurture the opinion that knowledge evolves and that things understood 2,000 years ago are not worth considering. The opposite is true, certain aspects of knowledge evolve due to this very attitude about modernity.

I found this piece of information in, of all places, **The Book of Revelations:** Chapter 12 : 6 and 14:

360 "Time"

720 "Time"

+180 "Half a Time"

**"Two wings of 1260 Divides by all base, except 8
a Great Eagle" 1260 (The Serpent Cannot Enter)**

2520 Divides by all base digits

It was from the proper interpretation of these verses that I drew the eight-banded spiral cascade about a circle divided into 360 segments that give visual recognition of the transpalindromic or retrograde function of that particular graphic modual.

By the simple destrapolation of that Holotome via the primes in their reverse order that I rediscovered the Holotomic Sequence or Auric Key.

And then I found the nave of twelve was number 6, or the first perfect number. Each of these sums when mapped out in the manner of Holotome E produce the same half positive, half negative, symmetrical retrograde unity.

The next important breakthrough occurred in 1981 when I discovered the four pairs of reversible, two-digit primes that clicked into a perfect symmetrical bridge that fit the octave occurring in the exemplary nineleven wave cycle. Their symmetry was made perfect by a fifth pair of near-prime composites composed of the 1st pair:

13 31 17 71 37 73 39 93 79 97

11
13
17
31
37
39 3 x 13
71
73
79
93 3 x 31
97
99

This is much more evocative when viewed in conjunction with the fully notated column of the first 99 numbers which are rendered in a three column collation entitled the anatomy of the nineleven cycloflex: EXEMPLARY BASE WAVECYCLE.

The synchronization of the Holotomes with the wavecycle is a matter somewhat difficult to describe even with the usual number constructions. The transpalindromic squares with their transpalindromic composite roots are the place to begin, especially since the first root number is the first Holotome, (A).

Any Holotome added to its own reversal produces one third, or two thirds of 99, exactly 99, or a high factorial multiple of 99.

Holotome A: 12 + 21 = 33 : 1/3 of 99
B: 24 + 42 = 66 : 2/3 of 99
C: 72 + 27 = 99 : 3/3 of 99

The introduction of the zero produces an element of confusion in regards to how the reversal is presented in terms of where the zero is placed.

D: 360 + 630 = 990 : 10 x 99

Inasmuch as 252 is a palindrome, the same element of confusion occurs in the placement of the zero:

E: 2520
+0252

2772 = 28 x 99 (28 is the second perfect number)

F: 27720 = 280 x 99

G: 360360 = 3640 x 99

It may be said then that the Holotomes represent a discrete finite unity each in themselves. They reserve a transfinite connection with the continuum of number through their synch/desynch relation with the exemplary 99 wavecycle through the elusive function of retrocity.

My wording on this issue may leave much to be desired because the whole issue suggests a paradox. The term transfinite, if we consider it carefully, is a term that suggests a warranted paradox since going beyond the bounds of finitude is to be unfinite, but not necessarily infinite, which is a word I've not much use for.

"Discrete levels of finitude" is a phrase I used in some notes many years ago, and I guess this will still serve to describe the Holotomes as they relate to the wavecycle, which is shown to be an unbroken sequence of cyclooscillations.

In full confidence this is the last comment I wish to make on the matter, until such time as I see things from some unexpected perspective.

SUMMARY: IN THE SPIRIT OF ALADDIN'S WINDOW

Fuller was the only person in recent time who came close to eradicating the theory of number with a totally rational, logical and comprehensive analysis of the behavior and/or structure of the so-called base ten system of quantitative notation. He formulated a most coherent definition of the familiar but misunderstood term, unity:

#1: "Unity is plural and at minimum twofold..."

#2: "Unity is plural and at minimum sixfold..."

In the first instance, I interpret the twofold unity to merely mean the unification of a pair of singularities. No geometrical involvement can occur in number two other than a line which might demarcate each from other. This line is the vector joining the centers of two spheres of equal radius.

Since one is not a number but an instance of singularity, it may be said to represent a point (as a geometrical aspect).

Number three is the quantitative expression of the quality of triangularity; geometrically, it is the first instance of a plane.

Number four is the first digit to represent geometrical space in the four window or four vertices of the tetrahedron.

Skipping five, for the moment, to his sixfold minimal plural unity, we can understand his statement of "two four-vertexed each tetrahedra as the minimum experience of universe.

In this context we have a fully spatial, geometrical and harmonious unification of plural unity. One plus two plus three equals six. The so-called first perfect number is the harmonious whole number synchronetic unity minimal in the spatial sense.

Since the two four-vertexed each tetrahedra may be seen to have six windows but only five vertices, we have accommodated the five frequently "skipped over" non-symmetrical or harmonious unification of componentry.

It is on the logic of Fuller's definition that I define circular unity as a symmetrical and harmonious interaction of both numerical and geometrical events. I signify this in the quantitative and qualitative geonumerical graphic entity designated as the TRIAXIAL RETROGRADE INTERFACE.

The two dimensional representations of this T.R.I. space coordinate structure can be seen in the classic color wheel with three classes of duality.

The confusion of one with unity probably began with the geometry of the Greeks who totally ignored the age old and much reiterated question of whether or not to count Aleph. The very expression "Number One" is a self-contradiction since one is in essence a singularity. It has no componentry to unite.

Since neither zero nor one are numbers in the same sense as 2, 3, 4, 5, 6, 7, 8, and 9, the title baseten only refers to the amount of signs that make up the system, which only consists of eight true numbers, i.e. signs that represent a plurality of components.

In one place, Bucky refers to number as "an octave system with a 9th null event." I interpret this statement as the transposition of one still being regarded as a number, to nine as the null event. The German word for no (nien, null, nothing, nada) could have influenced this attitude, plus the fact that the cyclic lap in the retrograde octave occurs there:

No transpalindromic series can exceed eight positions because only eight true numbers (or members) exist. The multiples of nine reverse between 45 and 54, or precisely at 49.5.

Bucky wrongfully cited the "turnaround" at fifty, which is exactly one half off...

The multiples of 99 turn around between 495 and 594 or, at precisely 544.5.

The multiples of 1089 at 5445, a whole number nave or location of the retrograde second half octave.

Thus the exemplary octave wavecycle occurs through the continuous interaction of nine and eleven:

$$\begin{aligned}9 \times 11 &= 99 \\99 \times 11 &= 1089 \\999 \times 11 &= 10989 \\9999 \times 11 &= 109989 \\99999 \times 11 &= 1099989 \\999999 \times 11 &= 10999989 \text{ octave}\end{aligned}$$

(Editorial Note: As for the other sections, this one contains many unscanned number graphs including a 9-axis spiral to 108; mapping the 9/11 cycloflex; prime/square interface; comments on #41; Fibonacci sequencing beginning with first two holotomes; list of retroprime squares; first five-digit palindromic prime; nine repeating digits divided by the sum of those digits produces the nine base digits in their original sequential order; graphic comment on number/behavior structure; crab mantra; exemplary 9/11/ retrograde octave wavecycle; continuity of 9/11 wavecycle; Biaxial Synch. A, etc.)

PART FOUR

TRIAxIAL RETROGRADE INTERFACE

SYNDEX AXIS = SYNTAX

**Frame of Reference
Six as the First Perfect Number
Circular Unity
T.R.I. as a Model of Sacred Space
Critique of Euclidean Geometry**

Toward an Ideal Syntax

CIRCULAR UNITY & THE TRIAXIAL RETROGRADE INTERFACE

*"There is no such phenomenon in Universe as 'One,' the lone observer."
"There are no indivisible points."*

Fuller, Cosmography

FRAME OF REFERENCE

Any experience, event modelling, or orientation in spacetime requires a frame of reference to distinguish the event or scenario from irrelevant factors.

Traditionally, the rectilinear XYZ system of defining points in 3D space has been used since ancient Greece. But what is a point?

Since the birth of quantum mechanics the meaning of the supposed three-dimensionality of space has come into question. The best answer to what a point is in physical terms is the elementary atomic particle such as an electron. But on closer examination, it has no discernable physical structure and exhibits wave-like properties. Three coordinates are too few to describe the state of the electron.

However, Fuller reminds us that *"nature is not using the strictly imaginal, awkward and unrealistic coordinate system adopted by and taught by present-day academic science."*

Synergetic modelling is fundamentally different in its entire approach: *"The synergetic hierarchy provides a description of all omnitriangulated polyhedral systems exclusively in terms of points and prime numbers."*

Fuller's critique of Euclidean geometry comes from its deficiency in modelling holistic and energetic processes: *"The XYZ coordinates of parallels and perpendiculars have nothing to do with the way the Universe is operating. Universe is operating in radiational-divergence and gravitational convergence. Events in parallel never get resolved; convergent events become exquisitely resolved. You cannot have a nucleus in a perpendicular or a parallel system. You can have nuclei only when you have symmetrical tetrahedral convergence."*

He outlines the self-organization inherent in nature: *"Nature's continuous self-regeneration is 100 per cent efficient, neither gaining nor losing any energy. She grows outwardly by omnitriangulated structuring from nuclei."*

As a frame of reference, the cube or hypercube is inherently unstable. A vectorially-edged cube collapses without triangulation. Six end-interconnected diagonals form the six edges of a tetrahedron. The most efficiently stabilized cubical form is accomplished with the prime structural system of Universe, the tetrahedron.

Squares and cubes may have been fine for dividing up fields after floods or carving stone. But they are not the best model for curvilinear reality. Without diagonal stabilization, a nonstructurally triangulated cube is a topological self-deception. XYZ as a frame of reference or orientation is obsolete.

Fuller clued us in that, *"Synergetics is not a frame at all, but a pattern of most omnieconomical (ergo, spontaneous) interaccommodation of all observed self-and-otherness interexperiencing, (ergo, geodesic--geodesic being the most economical interrelationship of a plurality of events)."*

He further states again that, *"All structures are tetrahedrally based."*

Six vectors provide minimum stability, therefore the synergetic model far exceeds the simple cube in defining a volumetric, energetic entity. The cube is still part of the intertransformations. It can contain or be contained by a sphere, and is part of the reciprocation of the vector equilibrium (cuboctahedron) with its geometric dual--the octahedron within a cube.

Therefore, it is infinitely superior as a frame of reference, even though it is no frame at all, but an energetic system.

CIRCULAR UNITY

The full definition/description of circular unity begins first with the definition of the word unity. As defined by Fuller in Synergetics II: ***"Unity is plural and at minimum sixfold."***

Drawing from a variety of Fuller's sources, we find that, *"A point is not a relationship...for every point in Universe, there are six uniquely and exclusively operating vectors...There are six vectors or none."*

"Every event is six-vectored. Six unique vectors constitute a tetrahedral event. Each vector is reversible, having its negative alternate. There are no straight lines, physical or metaphysical. There are only geodesic, i.e. most economical, interrelationships (vectors)."

"It takes a minimum of six interweaving trajectories to isolate insideness from outsideness, ergo, to divide all Universe systematically into two parts--macrocosm and microcosm...Unity, as represented by the internuclear vector modules, is of necessity always of the value of two; that is, unity is inherently two, for it represents union of a minimum of two energy centers."

Imagine two ping pong balls kissing. Imagine a line connecting their centers (vector). Half of the vector forms the radius of one sphere, while the other half forms the radius of the other sphere. Unity is dualistic in this sense, of uniting two singularities.

"There may be no absolute division of energetic Universe into isolated or noncommunicable parts. There is no absolutely enclosed surface, and there is no absolute enclosed volume. Universe means 'toward one-ness' and implies a minimum of twoness....Our modern concept of Universe is a comprehensive system of energy processes. Universe is a non-simultaneous potential vector equilibrium...The vector equilibrium is the minimum operational model of happenings."

Vector Equilibrium is a sublime state which energetic processes constantly pass through, but never stop at. It is where interference patterns can pass through one another in energetic changes, without interference.

Vector Equilibrium is the common denominator of tetrahedron, octahedron and cube. It is the prime nucleated system. It is omnidirectional equilibrium based on the closest packing of spheres of equal radius. The nuclei of atoms are based on this close packing. In this model, physical and metaphysical reality share the same ideal design.

*"All experiences are omnidirectionally oriented. Omnidirectional experiences resolve themselves scientifically into discrete angle and frequency patterns. That is life! Relations are local to pattern. Patterns are comprehensive to relationships...In considering a total inventory of the relative abundance of different patterns, it becomes apparent that patterns are **reciprocal**."*

*"There are six positive and six negative degrees of fundamental transformation freedoms, which provide 12 alternative ways in which nature can behave most economically upon each and every energy-event occurrence. You have six vectors or none for every energy event ... For every event-fixed locus in Universe, there are six uniquely and exclusively operative vectors. **Every vector is reversible**. Every event is six-vectored. There are six vectors or none."*

In sections 537.10 and 537.14 of SYNERGETICS I, Fuller reiterates these basic truths:

"Each of the six positive and six negative energy lines impinging on every nonpolarized point ("focal event") in Universe has a unique and symmetrical continuation beyond that point. The six positive and six negative vectors are symmetrically arrayed around the point. Consequently, all points in Universe are inherently center of a local and unique isotropic vector matrix domain containing 12 vertexes as the corresponding centers of 12 closest-packed spheres around a nuclear sphere."

Hopefully, these reiterations of the geometry are helping the reader to visualize this system more clearly, and energetically.

"Experiments show that there are six positive and six negative degrees of fundamental transformation freedoms, which provide 12 alternate ways in which nature can behave most economically upon each and every energy-event occurrence. Ergo, there is not just one "other"; there are always at least 12 "others... We find that in the 12 degrees of freedom, the freedoms are all equal and they are all realizable with equal 'minimum effort'."

"The six vectors represent the fundamental six, and only six, degrees of freedom in Universe. Each of these six, however, has a positive and a negative direction, and we can therefore speak of a total of 12 degrees of freedom."

In 2D, circular unity can be graphically demonstrated by a circle divided into six individual but interdependent sections. The color wheel is a good graphic example of circular unity, and represents six discrete qualities of six individual but interdependent quantities represented by each section of the wheel. A circle can be divided into six distinct quantities, each with individual but interdependent qualities, i.e. unification of number and geometry.

In that six is the sum and/or product of the first three numbers, $1 + 2 + 3$ or $1 \times 2 \times 3$, it contains a harmonious whole number relationship with them, and is thus called the first "perfect number". The first instance of the harmonic synchronization of number and geometry (quantity and quality) occurs in the number six.

However, this prescription for circular unity is two-dimensional. The three pairs are each separated by the centerpoint which has no dimension. In order to formulate a spatial abstraction of circular unity, we draw three lines that interconnect the six face centers of a cube and enclose that cube within a sphere.

Doubling this two dimensional circular unity produces the first true Holotome (A), which is predicated on number twelve. This three dimensional holotome of six positive, and six negative symmetrical retrograde event identity axes is then also represented by the closepacking of twelve spheres about a thirteenth nucleus sphere. This produces the dodecahedron, (the primitive non-pi spherical module).

Synergetics modelling of space has radically departed from the XYZ models of Cartesian description. As we have pointed out, though it has been the standard in science, the cubic model does not model the architecture of creation nor the energetics within systems. In **COSMOGRAPHY**, Fuller restates his premise:

"There is no such thing as a primitive cube, because it is impossible to find any position in which the three edges convergent at each of eight corners will interstabilize themselves at an omni 90 degree position. The way in which human society became academically hooked on the cube was by carving out rectilinearly dimensioned wall building blocks of marble while misassuming an inherent solidness to be demonstrated by the marble."

"Despite its universality and elegant economy, the tetrahedron has been all but ignored on planet Earth. Academic science references all its physical mensuration to the XYZ-three-dimensional coordinate system and all of its energetic phenomena to the c-g-s system, which represents the amount of energy required to lift 1 cubic centimeter of water to a given temperature 1 centimeter in 1 second of time. The cube is the chosen geometrical unit of volume measure, and the square is the geometrical unit of areal measure in all of today's world-around, state-of-th-art scientific activity, not to mention everyday use."

The Triaxial Retrograde Interface, however, contains the graphic capability to represent a virtual spacetime object. Nature's rules for assembly are based

around the principle of tensegrity, tensional integrity. Every geometrical structure is a tensegrity. According to Ingber (SciAmer, Jan. 98, p. 48):

That nature applies common assembly rules is implied by the recurrence--at scales from molecular to macroscopic--of certain patterns, such as spirals, pentagons, and triangulated forms. These patterns appear in structures ranging from highly regular crystals to relatively irregular proteins and in organisms as diverse as viruses, plankton, and humans. After all, organic and inorganic matter are made of the same building blocks of carbon, hydrogen, oxygen, nitrogen, and phosphorus. The only difference is how the atoms are arranged in three-dimensional space.

Geodesic structure is the guiding universal pattern, the building code of nature. We invoke Dr. Fuller's entire body of work to clarify the preceding remarks.

Ingber is still arguing against the old paradigm for acceptance of his theories about geodesic forms in biological systems, even though they are readily visible. He states:

"The geodesic structure found within the cytoskeleton is a classic example of a pattern that is found everywhere in nature, at many different scales. Spherical groups of carbon atoms called buckminsterfullerenes or buckyballs, along with viruses, enzymes, organelles, cells and even small organisms, all exhibit geodesic forms. Strangely, few researchers seem to have asked why this is so. My view is that this recurrent pattern is visual evidence of the existence of common rules for self-assembly. In particular, all these entities stabilize themselves in three dimensions in a similar way: by arranging their parts to minimize energy and mass through continuous tension and local compression--that is, through tensegrity.

...More broadly, all matter is subject to the same spatial constraints, regardless of scale or position. Thus, given these constraints, tensegrity is the most economical and efficient way to build--at the molecular scale, at the macroscopic scale and at all scales in between. It is possible that fully triangulated tensegrity structures may have been selected through evolution because of their structural efficiency--their high mechanical strength using a minimum of materials. ...geodesic forms, such as hexagons, pentagons and spirals, predominate in natural systems."

The basis of geodesics is circular unity. Circular unity is conserved through the fundamental increments of the Holotomic Sequence. Circular unity is conserved by the employment of prime numbers only. No redundant multiplexing is required by numbers that contains factors of division, as is the case of the factorials. Thus, the holotomes are the minimal numerical magnitudes to accomodate the maximum amount of consecutive factors of division.

When mapped out in a circular array, each of these mathematical entities produce a half-positive, half-negative, symmetrical retrograde mandalog. This is the direct,

visual, **graphic syntax** of a Holotome. The Holotomes are non-arbitrary numerical moduals (dualistic unities). They coherently describe the interrelationships between numbers, particularly the primes. Ideal syntax has been hidden from view due to unconscious disregard of retrocity in at least one of the three primary axes of qualification.

"Ideal syntax" becomes possible through the concept of word contexts that derive from a rational correlation between quantitative notation and geometrical notation. This graphic syntax is embodied in the Holotomes as rational arrangements of numbers, words, and geometry. By them, we can access or convey information not available within our imperfect literary syntax. As whole systems, the Holotomes contain a definite structure which may be described in words, geometrical structures, graphs, diagrams, etc.

The Triaxial Retrograde Interface is the basic imaginary foundation for the descriptive mechanism of human language. All languages have this fundamental idea event in common, but this has yet to be fully explored through physiomathematical epistemography. Even though words fail to fully explain the many scenarios that abound in nature, they do point to possibilities and potentials. This is perhaps the archetypal basis of alphanumerics in protolanguages and ancient, classical languages.

Models of Sacred Space

We have shown how six was considered the first perfect number. The results of multiplying or adding the first three integers produces six.

In the scientifically systematic discipline of numeronomy, the step from the first perfect number of six (which also represents the second form of unity as sixfold plurality) to the second form of plural unity (twelvefold), represents a step from a plane to a 3D volume.

Even though the T.R.I. is presented on a flat 2D surface, it can rationally represent or model the equation of a cube or sphere with its three ambidirectional axes, representing the six directions of spatial orientation.

Archetypally six represents spatial orientation in spacetime (four cardinal direction, plus a vertical dimension). In ancient times, this comprehension of one's position in spatial reality was essential to survival and renewal by contact with the spiritual dimension. Thus, many rituals and conceptual ideas arose around this recurrent theme. Geometry was always fundamental in this process.

The oldest models of this so-called sacred space were cubic, (quadratic magic circles and abstract cubes). The energetic component of geometry was not understood. The crux of the Syndex perspective centers on an energetic version of the cubic model and its geometrical duals, the octahedron and vector equilibrium. We might refer to this model as a cubic non-linearity.

Creation of such models revives the archetypal notion of primal creation, the emergence of something from "nothingness." Jungian, **Mircea Eliade** spoke of such creation myths in his book **The Sacred and the Profane**, stating:

"The creation of the world becomes the archetype of every human gesture, whatever its plane of reference may be. Every construction or fabrication has the cosmogony as paradigmatic model."

Even in our modern scientific thinking, this archetypal background is fundamental to our paradigmatic notions about reality. We cannot escape it, even if we try, since it is intrinsic to our being. Techniques of orientation, (aligning oneself to the directions), are designed for the construction of sacred space. The model for the creation of sacred space always begins from a center and projects horizons in the four cardinal directions. Psychologically, we always reside at the center of "our world."

The quadrated circle sets up the conditions necessary for us to enter into sacred time. Then, traditionally, we may contact higher forces through the medium of the sacred pole or cosmic pillar, the vertical dimension. Eliade points out the great importance of the notion of retrocity in this process.

"Sacred time appears under the paradoxical aspect of circular time, reversible and recoverable, a sort of mythical eternal present that is periodically reintegrated by means of rites."

When we enter this space, in a ritual or even in a thought-experiment, we experience the feeling of immortality, the sense of the presence of Truth, we feel "centered". Sacred space is equivalent psychologically to the "beginning."

The principle characteristics of sacred space are:

- 1). A break in the homogeneity of space;**
- 2). This break is symbolized by an opening where passage from one cosmic region to another is facilitated (i.e. between heaven and earth; earth and the underworld);**
- 3). Communication with heaven is expressed by variants of the Cosmic Pillar, which stands at the Center of the World.**

In Ego and Archetype, Jungian, Edward Edinger has identified this Pillar as a useful symbol for what he terms the Ego-Self Axis. It forms the link between ego-consciousness (or personality) and the Higher Self, or cosmic Truth. This represents both the conscious and subconscious mind working together in harmony on the transpersonal level. It is true perception of nature and reality in the timeless sense, or insight.

The old mythic models helped establish our relationship to the cosmos and our conscious relationship to totality. It is fundamental to our way of thinking, and

explains why metaphor is an important aspect of scientific discovery. Our modern myths are couched in scientific language, mathematics, and geometry. Science has become our most believable "religion."

We therefore suggest the T.R.I. as a modern, paradigmatic representation of this ancient means of apprehending Reality. If, as Jung and Pauli have suggested, there is unity between psychological and physical realities, they share the same underpinnings. This commonality between psyche and matter (physics) can be expressed geometrically much better than through words alone.

An example from Physics is a six-vectored model for discovering Truth and manipulating alternative realities. This is a scientific, practical application of the cosmic model. For the first time, we can violate Heisenberg's Uncertainty Principle, regarding position and velocity of subatomic particles. By condensing atoms from photons, the quantum mechanics of the microcosm become visible in the macrocosmic. An atomic trap is created using six lasers focusing on a single point. According to **Cornell and Wieman, SciAmer., March 1998, p. 40-45:**

"The Bose-Einstein condensate [formed at the nexus point of the lasers] ...can be thought of as the matter counterpart of the laser--except that in the condensate it is atoms, rather than photons, that dance in perfect unison."

"Einstein showed that if a sample of atoms were cooled sufficiently, a large fraction of them would settle into the single lowest possible energy state in the container. In mathematical terms, their individual wave equations--which describe such physical characteristics of an atom as its position and velocity--would in effect merge, and each atom would become indistinguishable from any other...the condensate offers a macroscopic window into the strange world of quantum mechanics, the theory of matter based on the observation that elementary particles, such as electrons, have wave properties."

"But in the Bose condensation, the wave nature of each atom is precisely in phase with that of every other. Quantum-mechanical waves extend across the sample of condensate and can be observed with the naked eye. The sub-microscopic thus becomes macroscopic."

Thus, quantum physics transcends its microcosmic bounds into the classical realm of mechanics. There is a break in the homogeneity of space.

"Einstein's theory requires that the atoms in the condensate have energy that is as low as possible, whereas Heisenberg's uncertainty principle forbids them from being at the very bottom of the trap." [We can't know their position and velocity simultaneously].

*"Quantum mechanics resolves this conflict by postulating that the energy of an atom in any container, including our trap, can only be one of a set of discrete, allowable values--and the lowest of these values is not quite zero. THIS LOWEST ALLOWED ENERGY IS CALLED THE **ZERO-POINT ENERGY**, because even atoms whose temperature is exactly zero have this minimum energy. [vector*

equilibrium] *Atoms with this energy move around slowly near--but not quite at--the center of the trap. The uncertainty principle and the other laws of quantum mechanics are normally seen only in the behavior of submicroscopic objects such as a single atoms or smaller. The Bose-Einstein condensate therefore is a rare example of the uncertainty principle in action in the macroscopic world.*"

Toward an Ideal Syntax

The three ambidirectional axes of the Triaxial Retrograde Interface represent the six directions of spatial orientation: up and down; right and left; fore and aft.

On the plane, in the form of the color wheel, we may regard it as circular unity represented by the six qualities or values of red, orange, yellow, green, blue, and violet. Note the three dipoles as harmony, complementarity and concomitance.

In the volumetric or 3D mode, we can regard the 12-fold unity as spherical or cubic and refer to Fuller's model of Vector Equilibrium with its 12 universal "degrees of freedom," representing nature's most economical movements of energy. The 12 closepacked spheres around a thirteenth nucleus form the facets of a dodecahedron with its 8 triangular windows and 6 square windows, which yields 14 windows in all.

At this point we have a symmetrical and harmonizing synchronicity of quantity, quality, and form which also includes structure. These are the ingredients of a compound syntax.

The T.R.I. does not just deal with a special and isolated case of dynamic retrocity, but with the three basic pairs of opposing qualities that form the basis of generalized description. It is a graphic means of "holding the tension of the opposites," in a unified model. Such as thinking/feeling; sensation/intuition; judging/perceiving.

The Syndex perspective is not only about the intrinsic nature of number, but also the specific way in which number relates to the descriptive mechanism of human languages. The crux of the descriptive mechanism of language revolves around the Greek prefix QU as in WHO and HOW MUCH (identity and plurality) and of course, quantity and quality. This preceded the English prefix WH (as in WHO, WHAT, WHEN, WHERE, WHICH, and WHY).

This yields a sixfold coordinate system of the descriptive mechanism:

- 1 WHO Identity person A
- 2 WHAT Identity object E
- 3 WHEN Time duration I
- 4 WHERE Space extension O
- 5 WHICH Plurality number U
- 6 WHY Causality and/or HOW Y

Note also that the six vowels are all accounted for and figure qualitatively in the six primary axes of description. The fact that unity is plural and at minimum sixfold gives added credibility to the T.R.I., which is the fundamental paradigm upon which rests the symmetrical unity of the Holotomes.

The Sumerian alphabet contained exactly six vowels, three primary and three secondary, which suggests an interesting correspondence between ancient descriptive syntax and the T.R.I. in the color wheel.

In a nutshell, this is the epistemographic syntax found in the Holotomic Sequence through the multiplication of the twelvefold spherical unity of Holotome A. We multiply the higher moduals of spherical unity by the prime numbers in their natural order of occurrence.

The T.R.I. does not just deal with a special and isolated case of dynamic retrocity, but with the three basic pairs of opposing qualities that form the basis of generalized description. Keep in mind that the term WHICH is the only direction of the six that refers to plurality. The other five deal with ideas that could be seen as qualities.

WHO and WHAT are qualities that deal with identity (person, object), WHERE with space (extension), and WHEN, with time (duration). WHY refers to the quality of questioning. The first four qualities may refer to something that can be exclaimed, but the term WHY cannot be followed by anything but a question mark.

In the case of WHICHness, we mean the first instance of plurality or the number two. The second degree of plurality does not occur until the T.R.I. has itself been doubled into the form of twelveness, which involves three dimensional space, (in the form of the dodecahedron).

In other words: WHY, HOW, and WHICH are the only ones of the six that can be followed by a question mark. WHO, WHAT, WHEN, and WHERE, can be followed by an exclamation point and/or a question mark. The only exceptions are in exclamations such as: "That's why!" or "That's how!" or in any context where the WHY and HOW have been qualified.

In the case of the color wheel, we have the six qualities of visible light: Red, Orange, Yellow, Green, Blue, and Violet, which consist of three primary and three secondary colors, that is: three discrete pairs, or, a quantity of qualities.

Since the color wheel is represented on a two dimensional plane, it is not a plurality in a volumetric sense. We must fold (double the plane) in order to bring plurality into a three dimensional entity. The twelve spheres of the dodecahedron surrounding a thirteenth nucleated sphere is then a 3D representation of the Zodiac.

The most effective way to understand the quality of six is as the nave of the first holotome with 12 as the node. This also makes the node of Holotome B (24), and its nave would then be the node of Holotome A.

Each true Holotome can be represented as a circular unity, but may refer to a spatial or spherical unity. We find that this specific sequence of numerical quantities are the series of minimal magnitudes which accomodate the maximum amount of consecutive factors of division. When represented on a plane as a spiral, they are graphic depictions of symmetrical half positive, half negative retrograde octave cycles.

What may be deemed the foundation for an ideal syntax must produce a synchronetic interface between words, numbers, and geometrical forms. This graphic form of syntax which is in total synch with numerical notation produces the only valid presentation of physiomathematical epistomography. It even yields another quality of semantics, fulfilling the classical suggestion of a truly mathematical language.

All Holotomes are examples of circular unity in terms of four positive and four negative event octaves in a retrograde cycle.

The alphanumeric system of notation occupies such a closed loop cycle of 24 signs (Holotome B), 18 consonants and 6 vowels. Working alphabets may employ more or less signs but an ideal syntax requires the perfect symmetry of a Holotome.

The Sumerian cuneiform alphabet consisted of 21 letters (six of which were vowels) plus maybe 6 diphthongs making 27 letters. It was possibly formulated from information surviving the deluge, and we can speculate that its loss was involved in the confusion of the tongues (loss of ideal syntax).

Anthropologists regard language not just as vocabulary and syntax, but as a cultural phenomenon. The anthropology of rhetoric includes the social use of metaphor.

According to Colin Renfrew's theory, (SciAmer; Oct.98, pp. 106-114), the ancestral languages of the Indo-European, Afro-Asiatic and Dravidian groups originated quite close together in the Near East about 10,000 years ago.

"The people who built Stonehenge and the other great megalithic monuments of Europe were Indo-Europeans who spoke a form of Indo-European ancestral to the Celtic languages of today...In much of northern Africa the dominant linguistic group is the Afro-Asiatic, which includes ancient Egyptian and the Berber languages as well as the Semitic group. The Dravidian languages of India, and later proto-Dravidian tongue would have been displaced by the Indo-European languages that are now spoken in India."

It has been proposed that, *"a number of Eurasian language families, including among others, the Indo-European, the Afro-Asiatic, and the Dravidian, are related in a "superfamily" they called the Nostratic. The recognition of such superfamilies, which may represent a breakthrough in linguistics, is still regarded as controversial."*

These studies have indicated that there is a close genetic relationship among the speakers of the Afro-Asiatic, Indo-European and Dravidian languages, among others. In southern India, Dravidian influence still prevails, while northern India is Aryan (Indo-European) influenced.

Researchers link the coming of agriculture to the formation and distribution of present-day languages. *"Protolanguages and language groupings as far back as 10,000 B.C. may ultimately open the way to a better understanding of the whole phenomenon of human linguistic diversity."* Renfrew.

According to Berendt, *"The old concept of relationships existing solely between languages of the so-called "Indo-European family" cannot be upheld any longer. As the new science of paleolinguistics has shown, there is only one language family, the family of human languages--period. Like so many other myths, the myth of the Tower of Babel is true: In the beginning, there was only one language!"*

When linguists trace word sources back along etymological lines, they call the process "feedback," because it is a recursive movement. Linguists have also shown that many primal roots have a so-called mirror root, which does not simply negate the meaning of the primal root but rather reflects it into new dimensions. Consider the derivation of the western Amen from the eastern OM, when it moved from India to the Near East and into Europe:

"The change of sound from OM to Amen reveals two totally different kinds of existence. Amen is a subdivided OM, partitioned into O and M, with each of these parts being further embellished. This happened when OM migrated west, first to Israel and then into the Christian world of Europe. Along this route it was subdivided into its component parts--just as everything that comes to the West is divided and taken apart, analyzed and dissected. It all seems like the opening move of a truly royal game of chess, like an overture for everything that was yet to come, when one realizes that this process of taking apart and subdividing was heralded thousands of years ago--back when OM became Amen...Indeed, the change from OM to Amen in this way becomes a formula for what separates the East from the West."

Alphabet is a finite closed loop of holotomic character (numeracy preceded literacy).

Ideal syntax depends on the logic contained in the structure of the holotomic sequence. The possible restoration of prediluvial science proceeds from an understanding of number behavior in terms of geometrical form.

Graphic synchronicity of quantity and quality occurs in the context of the T.R.I. It dovetails with the Pythagorean 3:4:5 triangle as the fundamental prototyping which projects its image in an omnidirectional retrograde octave unity of harmoniously polyaxial integrity. It synchronizes geometry, number, and the two ambidirectional operations of arithmetic. As Fuller noted, addition is reverse subtraction and you cannot multiply anything without dividing something.

CONCLUSIONS

Numeronomy, or the laws governing the behavior of the continuum of quantitative notation is the natural result of numerology, the study of number, with or without the "woo-woo" number mysticism which degrades its historical reputation.

Numeronomy is the outcome of the right quality and quantity of successful cogitation and proper insight. The numbers speak for themselves through structure and behavior. Each flash that went into the discovery of this grand nexus of synchronetic complexes was beatific joy.

The six key discoveries of the Syndex Theory have always been available to everyone. However, in my own life journey, they emerged through my self-reflexive dialogue with nature and the nature of reality. On the chance I have been understood by the reader, I hope I have been able to impart some choice tidbits.

It was my truly mystical luck to meet and talk with some of the most significantly accomplished beings in the modern world. I had to go after these giants, but I wanted to get right to the source, rather than simply reading books. Kinesic sign language delivers the gist of a subject which might otherwise require tomes. Once Bucky Fuller indicated the two four-vertexed-each tetrahedra with three fingers of each hand. That graphic gesture imparted a profound insight, a preverbal communique.

When we talk about number, we are also talking about talking. Number/geometry is the fundamental cornerstone of human communication and specifically the alphanumeric principle of descriptive notation. The T.R.I. reduces thousands of words down to a principle that contains the fundamental elements of the descriptive mechanism of language in general. It simplifies the numerical/geometrical essence of language, which is primarily a way of describing the empirical scenarios of something we call nature.

Ultimately nature and universe may be unknowable. But arguably, truth is born of arithmetic because two plus two is definitely four. In itself number, the source of truth, means nothing. But how we apply it to theory is science which distinguishes us from most other creatures. But not enough to count much in the vast panorama of evolution!

The T.R.I. represents the geonumerical basis of the sequence of minimal pluralities that accommodate the maximum amount of dividing factors. This special series is terminologically designated as the Holotomic Sequence (holo- as in holistic; tome as in book or information containment module).

The holographic aspect of this sequence is that each member or tome contains all of the geometrical qualities and numerical quantities of the previous holotome, plus the added degree of data content over the previous module.

A major feature of these data modules is a retrograde symmetry in the form of a half positive and half negative octave system predicated on the octave nature of the so-called base ten system of number.

The full significance of this most simple observation has escaped the understanding of all previous number theorists. The base ten system of number is an octave system, where either one or nine can be seen as a null value event.

Furthermore, this octave can be regarded as a cyclic function. The zero, one, or nine can function as the null event which acts as the null value gap between the beginning and ending of the octave retrograde cyclation, due to its half positive and half negative symmetrical cycle (which may negate the numerical value of one or nine just as if they were of the same nature as the zero).

A good example of the symmetrical retrograde octave cycle can be seen in the multiples of nine, where the nave of the retrograde reversal occurs between 45 and 54, or precisely at 49.5:

9 18 27 36 45 54 63 72 81 90

49.5

half forward half reverse

full octave

Due to the octave nature of the eight true numbers, no transpalindromic sequence can exceed an octave cycle.

As simple as this is, the greatest math experts in modern times have totally overlooked this crucial element to the proper comprehension of number behavior. The very phrase "Number One" is self-contradictory. No wonder the ancients designated zero or one as Aleph--THE FOOL....

This overview led Marshall to the epochal rediscovery of the 99 CYCLOFLEX, an abbreviated term for octave cyclooscillation, which is the long sought exemplary base wave that continues indefinitely through the continuum of the base ten system of quantitative notation.

We have adopted this valid term to help clarify the behavior of the cyclic and reciprocating nature of the interaction of nine and eleven in the exemplary 99 wavecycle. Further abbreviation of cyclooscillation is the shorter term, cycloflex. In each cycle we have a full oscillation: one up and one down (or fore and aft). The cycle to wave ratio in the holotomes is that a whole number series of oscillations can occur in one complete 360 degree cycle.

In the 99 CYCLOFLEX, we have 49 1/2 numbers that are either palindromes or transpalindromes. There are in fact twelve discrete classes of number, determined by whether a number reversed falls in the same class or is a combination of two classes. An example is number 16, the only two-digit square that is a prime when reversed as 61.

The retrograde symmetry of the 99 CYCLOFLEX is complex and cannot be seen without the adoption of the TWELVE GLYPHS described at length elsewhere, (Part Three).

The step from circular unity described in the color wheel to the cubic or spherical unity of the T.R.I. is accomplished by doubling the first perfect number which then may be expressed as the 12 spheres all touching a thirteenth nucleus sphere producing the triangle/square surface of the dodecahedron.

Altogether, this in effect establishes the synchronicity of number and geometry on a plane and then produces the first instance of spherical and cubic synchronicity of number and geometry in 3-dimensional space.

The triangle is an expression of number three as a minimal plane synchronicity, and the tetrahedron a minimal expression of 3-D spacetime and number four. By forming the dodecahedron, we achieve a spherical symmetry which begins the sequence of homotomic close packing which can also be represented on either the surface of a plane, or the volume of 3-D space. An analogy can also be made between the point, the line, plane, and cube. Number is just another name for geometry.

Throughout recorded history, the Auric Key is manifested in myriad ways and under a wide variety of titles: THE PHILOSOPHER'S STONE; the white stone, the holy chalice, the Emerald Tablet, etc.

The esoteric traditions of the Sufi masters and the basic tenets of all major religions dealt exclusively with these universal laws of nature, which may only truly be expressed in the universal nature of number/geometry.

But for the most part, the true understanding of these laws have remained dormant in human understanding, due to the inclinations of human avarice, greed, and hate in the interpretation of the most ancient and holistic meaning contained in the original notations from deepest antiquity. In other words, at various times, they were intentionally concealed from the profane for a variety of self-serving purposes.

This is why, as we approach the Millennium, Syndex offers a radically new perspective--one open to all who would understand. This is not the threshold of the Apocalypse and destruction, but the threshold of the new Epoch, the Epochalypse, a bold new era for mankind, based on fundamental harmony and understanding of nature and nature's laws essential to our continuing survival.

(Editorial Note: Unscanned graphics include Triaxial Retrograde Interface; general alphanumeric correspondences; alphanumeric corr. with zodiac signs; corr. of colors and vowels; tables of foreign alphabets; Cube of Space, etc.)

CONCLUSION

THE FOUR BECOME ONE

SYNDEX PERSPECTIVE

Singularity to Spherical Unity
Experimental Syntax of Numeronomic Concern
Total Retrocity
Comments on the Definition of Notational Plurality
The Banishment of Ambiguity

USHERING IN THE MILLENNIUM: A NEW EPOCH FOR MANKIND

"Symmetry also exists in number theory, which concerns itself with the properties of numbers. This symmetry is violated or hidden from us, by certain habits of thought; only a small number of people, whose minds work somewhat differently, can see this symmetry."

Joe P. Buhler
Science 85, Nov.

My personal contemplation of the sequential behavior of number actually began around 1957 when I engaged myself in a translation of the biaxial Mendeleev. Table of Elements. I spiralled them in a paraphrasing which elucidated a number of very interesting coincidences regarding the positions of the inert gases, active metals, etc.

Many coincidences jumped out as valid synchronicities. I began to view and think of this compound spiralic complex of identificational events as the spectrum of atomic stability modulations which exuded a totally rational series of major interrelationships. The game was afoot...

At the time, Glenn Seaborg, then Chancellor at Berkeley University was engaged in the cyclotronic extrapolation of the transuranium elements and the half life of these quasi-

elements was approaching a brevity that suggested a mechanical problem with identifying the "new artifacts" before they vanished back down to the preceding identity. The number of the current (at that time) element being in the neighborhood of #108, which coincidentally was, according to Paramahansa Yogananda the ancient Hindu number of the Universe: OM.

At this point in my path or trajectory toward oblivion, I am 68 years dead. I view some of my struggles to elucidate these findings as rather naive. But it was all very instrumental in the development of physiomathematical insights that are totally valid and will, without doubt, produce a noticable impact on the future of valid scholasticism in the various branches of scientific inquiry and opinion.

The words science, truth, and reality have their source in number/geometry/arithmetic and mathematics. Number/geometry, (which includes two fundamental ambidirectional operations of arithmetic: addition as reverse subtraction and no multiplying without dividing), is the solitary source of industrial civilization via applied mathematics.

It has been most surprising to me how little is realized about the intrinsic nature of the base ten continuum of number by the modern physicists who use these tools with incredible results. Yet its commonly known that any tools can be used with success even though very little can be properly understood by the actual mechanic.

The line of demarcation that separates number/geometry and the fundamental operations of arithmetic from mathematics is not such a clear cut set of distinctions. To solve this problem for the sake of syntax and semantics I have found it mandatory to produce a legitimate label for the very core of the descriptive mechanism of language.

A graphic platform by which an ideal form of syntax can exhibit self-replicatory, or self-referential characteristics. Although based on what may be regarded as self-evident ideas, the very act of producing a legitimate title of self-description has proved to be a function of enhancing simplicity and also produces the no so clear courses of paradox and ambiguity that plague conventional syntax with confusion of an otherwise unclear source.

My graphic platform for all fundamental descriptive functions is the TRIAXIAL RETROGRADE INTERFACE, and since the term is most aptly to be repeated in various ways, I have abbreviated it as T.R.I.

The importance and significance of the quan/qual alphanumeric graphic scenario is beyond most of us, but lies in the realm of Fuller's "physiomathematical epistemography."

The present document removes the most serious glitch in the behavior of human mentality even though it remained undetected for the past 6000 years: the enigma of the sacred number seven, and distribution of prime numbers.

I can make this seemingly presumptuous statement with total confidence because number cannot lie. Truth cannot exist in any other arena than nature herself. I can and will be misunderstood by many, but I shall never be disproven by anything other than faulty

logic and various authorities who depend on the erroneous assumption of their most admired peers.

Paradox, ambiguity, and chaos do not exist in any reality. There are diverse forms of reality (perception and conception come in a variety of flavors). They are produced by the mismanagement of the logic produced by the systematic geonumeric production of mathematical proof.

First you need an absolutely perfect alphanumeric system of signs predicated on a perfectly symmetrical and harmonious retrograde octave circular unity that is totally immune to the wily and clever entrance of erroneous ideas that are usually spawned by the greed of human ego and self-aggrandizing motivation, i.e. wealth, recognition and power.

Fame, wealth, and longevity make up the formula for war in the name of some local representative of some higher cosmic power. This is only possible because we think with words. If the format of our syntax is in any mathematical error, our thinking is in error. The formula for an ideal syntax has been available since prehistory, but the various forms of ego hunger have with clever intention, sabotaged the right inheritance of the human mind--clear, rational thought.

The legend of the Tower of Babel -- the confusion of the tongues -- is not a myth. It is real.

The Syndex initiative is the proposition to remove the cause of human ignorance. To take a serious look at the ways that politicians and religious leaders are consciously seducing the minds of children with precepts, concepts and consequently perceptions and conceptions that threaten to destroy all living things.

The technology to do exactly this is now in place and only awaits some psychotic "authority" to push the button.

Utopia or oblivion are the options of the spirit, whose only guide is the truth invested in the numbers and forms that dictate the words with which we think.

It is time we become familiar with the source of our very imagination. Or is our imagination the product of some source beyond anything that we can even imagine?

On some matters, words are impotent puffs of wind or meaningless swiggles of ink on paper. Nothing more. On other matters they are tools of miraculous transfiguration and the mechanic skilled in their utility can change the world, or even the cosmos, or at least our perception of it.

The most frustrating situation in the world is to see something with crystal clear vision and not have the combination of terms to share that picture with somebody else. One problem is that when we emerge from diverse sources, it is difficult to rendezvous in a similar complex situation in order to compare our totally unrelated illusions? Why doesn't some big chain outlet merchandise synchronicity on a roll like scotch tape?

As much as I can, or may, I try to make a letter into a word, a word into a sentence, a sentence into a paragraph, a paragraph into a page, a page into a chapter and a chapter into a book and book into a library.

But my favorite aim is to make a page into a book and I do this by what I call graphic syntax, which I don't try to explain.

With circles, squares, triangles, numbers, and arrows (pronounced Eros, but spelled with the Greek letter phi [Eros]), I make my pagebooks to maximize information and minimize notational componentry.

I do not have a picture in my head of an ideal member of my audience. My audience is me. I write only to satisfy my sense of being, and also to have at least one valid critic who is myselfishness.

Since I deal only with numbers, I cannot lie. Maybe I make a few mistakes, but by being human I'm entitled to do that with immunity. Most considerate readers enjoy being intelligent enough to find mistakes in things good enough to be published.

However, it is number that acts as the judge of all logical proof or Truth, and without the concept of plurality there would be no science or system which is the real source of all that which we call valid or true. Take away number and its other side which we call geometry and science and descriptive language disappears and we are left drinking water out of a ditch and growling at each other whenever we don't get the biggest share of the available nutrients.

Number/geometry is my subject--not mathematics! The two ambidirectional operations of arithmetic are the tools and math is what happens when we manipulate these primary tools. This distinction between the tools and the product of their utility is a most primary concern, so try to make a special note of that.

I indulge in intentionally calculated redundancy. I think of this strategem as taking a 360 stroll around the artifact under consideration instead of viewing the object from one perspective and expecting the viewer to be in the same orientation as myself.

This is partially due to my lack of faith in dictionarity, much of which has resulted since I've concluded that the computer has virtually become the judge of which words to include and exclude.

The whole concept of lexiconography is in need of revision, but this is not possible until semantics itself can find its proper scientific niche with a solid basis in a scientifically systematized format which is based in ideal syntax.

The T.R.I. with the six vowels and six interdependent facets of description is only a step in the process of enhancing the true relationship of quantity and quality. The Holotomic Sequence is the magic crystal that produces the valid logic of the prehistoric source of 360 degree circular unity, upon which rests the metrology of our current universal industrial culture.

My source of etymological and epistemological insight was due to a collection of dictionaries lost to fire in Idaho in 1964. One was prewebster before English had 26 letters.

My number interests began when I noticed Paramahansa Yogananda mentioned that #108 was the Hindu number of the Universe: OM. I decided to do a radial version of the Mendeleyev biaxial display, and needing a limit for my array I coined a term "Infusorium." When many correspondences and synchronicities emerged, I assumed the ancient Hindus were onto something very modern in terms of number technology.

My initial attempts were somewhat naive, but now we have the T.R.I. which is the tool box. Number/geometry and the two fundamental ambidirectional operations of arithmetic are the contents of this box. We draw a line between the tools and the work performed: a rational and operable context in place of an unorganized regard for words that can change meaning through the context in which they are used.

The intrinsic nature of the number continuum has been progressively forgotten in that once we learned how to use these tools, there was not much use in understanding their fundamental nature. This does not necessarily mean that this ancient knowledge is of no present use. Time changes everything.

But this is not my concern. I am a numeronomist, not a mathematician.

TOTAL RETROCITY IS THE KEY TO RATIONAL SYNTROPY

The number one, (even though one is not a number) function of universe is retrocity.

There are three interactive axes of retrocity to be exact. These three ambidirectional axes cross each other in the center of our conscios regard for that which exists in front of us, behind us, to our right, to our left, and above and below us.

A fourth element of retrocity also seems to exist, but not in an axial sense. It is actually a synthesis of the other three. We will call this the inward and outward which are such perfect reflections of the three basic retrocities that the micro and macro universe are actually transverbal identities of such nature that no one can really know which is which.

Though there doesn't seem to be any way to prove it, the macro is the micro and visa versa. Three basic axes of retrocity cross the centrum of the fourth synesthetic retrocity in such a way that what we refer to as universe is actually a four dimensional ambisymmetriverse. Everything is the actual reversal of what it appears to be. I call this the theory of total retrocity.

This theory does away with the absurdity of the Big Bang, and accomodates a comprehensive idea of total time reversal inasmuch as you are required to ignore some specific direction in order to observe its opposite.

There are rare cases of people who have the ability to remember bits of the future. Just like it is possible for most of us to forget bits of the past.

So far I have worked out the logical mechanics of total retrocity in the realm of number. Since number is the fundamental platform of the alphanumeric system of linguistic notation, it is only a matter of turning myself wrong side out in order to clarify my vision of total retrocity to those who are totally incapable of looking in all directions simultaneously without getting dizzy.

The source of absurdity, ambiguity, and chaos can be found in the process of descriptive mechanisms that begin in the idea of retrocity. One is not a number, but an instance of singularity, and singularity is not reversible.

Two on the other hand, is the first instance of plurality and being composed of a pair of singularities can be regarded as a duality which gives rise to the idea which in turn permits the concept of a dualism of identity. It therefore creates a context for the notion of retrocity.

The major source of terms in any dictionary is names and their antonyms, up and down, hot and cold, ambitious and lazy, i.e. most of descriptive language is polar, which accounts for the importance of number two as a primary idea. Whether two is actually a prime number has been a fundamental issue that is the height and depth of abstraction. It is totally uncontentable.

Number three has the important distinction of being able to represent a plane. The ideal form is a triangle. It may be said that a triangle is a qualitative representation of the quantitative number three.

In a similar sense, four has the distinction of being able to represent a geometrical volume, the ideal form being a tetrahedron. In this case it may be said that a tetrahedron is a qualitative representation of the quantitative number four.

This preamble is to bring notice that only six of the base digits can represent three-dimensional spatial figures, i.e. six quantitative signs that possess the qualitative features of space occupying entities. The majority of problems that number theorists have had in synchronizing number and form (geometry) has been due to the issues here pointed out.

Part of the reason that six is the first perfect number is because only six of the base numbers deal with volume space.

Number twelve is the first ideal synchronicity of quantity and quality because the dodecahedron is 12 spheres all kissing a thirteenth nucleus sphere. It is a plural synchronicity of quality and quantity.

We start by realizing that the descriptive mechanism of language has a serious flaw, because in nature a paradox just does not happen. Ambiguity and paradox result from ignoring at least one half of the three ambidirectional axes of spatial description.

In regards to the behavior of the number train this can produce confusion regarding positive and negative numbers, separated by a zero null event and the exemplary 99 octave cycle whose nave is 49.5.

Retrocity is the word that involves all three ambidirectional idea events that encompass the minimal parameter of the descriptive mechanism of human synfusion.

I can never think of myself as imparting information alien to my listener. You either already understand what I'm saying, or else you don't, in which case more words and pictures will only confuse matters worse. This is because of a very simple and fundamental error in accepted syntax. The T.R.I. is the physiogeonumeric picture of the semantic substructure to which we refer all quantitative and qualitative scenarios presented to us by the anonymous wonder we call Nature.

This is a book about an ancient knowledge of number and geometry that has not been recalled by educational institutions for over 6,000 years. It is primarily a document of pictures, called Synchrographs that reveal important rational aspects of numerical behaviors which concern cyclations and reversals in graphic methodology. They are impossible to recognize without such innovative epistemographic disciplines, such as this resurrection of ancient knowledge.

Number/geometry helps us think about complex systems. Quantitative notation is the initial spark that transforms our brainscape into a problem manipulating mechanism. This ultimately transfigures both the way we show the world to our inner self, and also transforms the mechanisms by which we understand why such an inner self should even be.

If any singular notion should be raised to prominence as fundamental to all thought functions, it is the idea of retrocity. This idea is initiated within the context of number two, which stands as the first actual number and consists of true plurality in that singularity is duplicated or folded in half, making one half the same yet different. Both sides share the opposite being of each other as a unity. Duality or twoness is dependent on the idea of retrocity.

Or, it can be said that retrocity is prequantitative. No speculations can be considered appropriate to the analysis of plural notation unless retrocity is recognized as a necessary element of the context of description. Any description of quantitative notation that ignores the function of retrocity in any one of its three basic modes is doomed to ambiguity or paradox. It is on this note that we predicate a comprehensive description of quantitative/qualitative epistemography.

Our kindergarden (or Eden) experience cannot forewarn us of the hair-splitting, semantic loop holes in the fundamental ideas that have gone into the formation of the alphanumeric principles of "thinking with words," on which our view of the cosmos initially depends.

In the complex and long-winded philosophic overviews of formal logic, much has been occulted of the supersimplistic nature of human communication on its most concrete level. This is especially true due to terms of such elevated levels of abstraction that all actual meaning is totally non-existent, yet we place such terms in the very positions critical to syntactic function.

To the Anglophonic mind, the word God is synonymous with number, not because the Tetragrammaton is a cosmic quartet, but because God discovered the word in six days and the word was with God, and the number of his creation was six...

Other words, like infinity, instantaneity, eternity, etc. have no other meaning than that which we impress by virtue of some indistinct function of the imagination.

Discrete levels of finitude in an octave loop of four progressively additive and four subtractively negative event octaves with a ninth null event can be said with a 3-dimensional picture on a 2-dimensional surface. All we need do is keep in mind the fact that the map is a shadow of a purely imaginary scene composed of data. It contains no true information of any kind. All perceptions are filtered through the sensory and mental processes, and are therefore second-hand to any "objective reality."

The SYNDEX initiative strives to eliminate the non-essential and problem-creating terminological habits of the presemantic world. If, in fact, prediluvial beings informed the Sumerians with a twenty one letter alphabet, (six of which were vowels), they no doubt had some terminological equivalent of the sacred words semantics, the knowledge of an ideal syntax. Syntax requires that the meaning behind syntax is the function of semantics as an operation of physiomathematical insight.

Talking or writing about words is a self-reflexive closed loop in itself. A true tool must be able to remove itself from the job it must perform. This lesson was required in order to investigate the relationships existing between number and geometry which can only occur inasmuch as one cannot exist independent of the other.

Arthur Young's REFLEXIVE UNIVERSE constitutes an exercise in double talk, which is useful because it touches a chord in the most rational mentalities. His next work, **CYCLOREFLEXIVE UNIVERSE**, does not alter the theme of his thought but merely shifts its point of equilibrium. This is the result of the synchrographic perspective which merely adds definition to a picture that is already correct, but fuzzy to minds that contain "tastes" where "flavors" ought to be.

Many modern authors dance in, around and about the Auric Key. They come close to its essence but do not penetrate its grand essence, which can only be alluded to by invading the sanctity of static dictionarity. With all its historical changes, the dictionary with its multitude of translations and interpretations is by no means a process that is about to crystallize into an eternal repository of all proper and legitimate thinking.

The alphanumeric/epistomographic gesture being a process cannot deal with a perfection that exceeds the human dream until the deepest dream can loose itself from the shackles of qualified plurality.

Two great books of the Old Testament are **the Book of Numbers and Deuteronomy**. To follow these through the Hebrew, Greek and Latin translations and into the modern Anglo discloses an unbroken series of numerical ratios both in terms of Gematria and general Numeronomy that are totally independent of interpretation. This matter is the meaning of the genii which is singular of genius who is everyone else. With that

exemplary wave, we are about to ride to a clarified vision of destiny on the bright horizon of mystical exactitude.

Epistomographic syntax is the ideal beginning for transcendental vision, but many strange and forgotten scenarios preceded even that.

So, never lose sight of retrocity in any one of its three fundamental situations. We can follow it back to the source.

The source of my animosity is the neglect of retrocity. To really get a-head, you get the monster by the tail and never ever turn loose for any reason whatsoever. For the monster will take you to a place where no one has ever been for a time beyond measure. It is like the serpent Ourobours which devours its own tail, eternally recycling itself.

Dictionary definitions show us the deficiencies within our thinking. I am shocked at not finding the word retrocity in any polylingual lexicons. Even the definition of the word retrograde is insufficient: going or moving backwards, apparently moving from east to west as a planet; BECOMING LESS HIGHLY ORGANIZED; to go backwards. As if it were an entropic, not syntropic concept!

To prove the point, **J.S. Bach's Retrograde Fugue**, or Crab Canon is, in fact, an example of a higher form of symmetry where the second half of the overall score is a perfect reversal of the primary half.

This is the definitive meaning of the term symmetry, where the structure or form of morphological unity represents a perfect mirror reflection of either/both of its two sides. Symmetry is ambiretrocity, pure and simple. The term retrocity is a most vital concept in the Syndex analysis of number behavior. The reverse nature of the number continuum has been totally neglected in the classical regard for the baseten continuum of quantitative notation.

The fact that palindromic numbers occur at seemingly chaotic intervals would seem to prompt an investigation of the possibility of their transpalindromic counterpart but so far as I have been able to deduce, no one else has pursued this proposition.

The TWELVE SYNDEX GLYPHS identify the ambidirectional character of any individual numerical signature. They are totally necessary in the exploration of number behavior. We cannot describe the true nature of the numerical continuum without the systematic mechanism of ambidirectional distinctions made manifest by this or some similar graphic procedure.

Even though an infinite progression of quantitative identities exist, as far as we wish to pursue distinctions, we have in the Holotomes twelve transfinite classes of number. They permit a wholly rational sequence of interactive moduals of finite and therefore rational behaviors. They permit the physiomahtematical syntax that is not possible without an interdependent range of finite levels of arithmetic congruency not available to an open-ended series of quatitative labelled plural identifications.

Discrete levels of finitude within other discrete levels of finitude is exactly what is occurring with the addition of each subsequent addition of integericity. With the recognition of the twelvefold nature of numerical classification, we abandon the absurdity of the infinite continuum of number, which leads us nowhere.

We opt in favor of a totally structured continuity of circular unities that interact in a rational epistemography that involves the essential arithmetic that distinguishes quantity, quality and the whole range of operations that we refer to as mathematics.

The primes do in fact occur in a totally rational order which is of such an elegant and rational distribution that it makes one wonder why it went unnoticed for millennia.

Each of the major sacred or holy books contains the key to this ancient enigma, but so far as I can ascertain, I am the only individual to successfully interpret the crucial information to find the embedded pattern. The major key to the orderly distribution of prime numbers is revealed in the distinction between palindromic and transpalindromic number.

Unless one can add, subtract, multiply, and divide with total ambidexterity, he has no right to deem himself a number cruncher. But, an excellent numeronomist can say with St. John, "Here is wisdom, let him who has understanding count the number of the beast." Maybe historians deduce it to mean Nero Caesar, but for our purposes it is the beast which bites its own tail--the number continuum.

It is a contextual field of number, whereas two 3-digit palindromes synchronize with a pair of two 4-digit transpalindromes. The number 666 is the accumulative sum of the first thirty six numbers added together and number 36 is the square of the first perfect number, in that $1 + 2 + 3 = \text{six}$ and $1 \times 2 \times 3 = \text{six}$. That this writ transpired on the twelfth day of the second month at seven o'clock is not to be ignored in the scheme of numeronomy.

Once: 666

Twice: 1332

Half: +333

Reverse of twice: 2331

GLOSSARY

AURIC KEY: #2520; also the node of Holotome E. The first and lowest number divisible by all base digits.

CYCLOFLEX (Cyclooscillation): Hyphenation of the terms cyclation or rotation and reciprocation or oscillation; contextual association with the glyph. Short form of Exemplary 99 Wavecycle, also referred to as 9/11 wavecycle.

HOTOTOME: A symmetrical geometrical modular unity, composed of the minimal number divisible by the maximal amount of consecutive factors of division.

MANDALOG: A circular or spiralic array of signs, symbols, or glyphs that interrelate number to geometrical form.

NUMERONOMY: The science regarding the systematic laws determined by the interbehavior of geometrical forms and quantitative notation.

PALINDROME: A number which reads the same forwards or backwards.

SYNCHROSTAT: A situative locus in the number chain where specific factors group, i.e. 210 is the minimal number divisible by 5,6,7.

SYNCHROGRAPH: Spiral number wheels; non-arbitrary modules which disclose special synchronicities and symmetries in the number continuum.

TRANSPALINDROME: The reflective pair apart from each other in the continuum; the reverse identity of any number to exceed a single (unreversible) digit: example, 12 - 21. When reversed, the transpalindromic nature of number yields a discrete series of behaviors that are otherwise unnoted without graphic disclosure.

Editorial Note: Clearly, lack of graphic support leaves many gaps in this website, as it stands. But all these graphics are complete and will be included as they are scanned onto disk. Some are so large as to be unreadable on any computer screen at this time. The truly interested and courageous may e-mail Bob, requesting xerox copies for themselves which complete the text, and make the concepts contained herein quite clear. There are literally reams of number charts and tables, which Bob has prepared over many years. It will help if you state your areas of interest and expertise. This site will expand as time and space permit until, eventually, the whole work is revealed. However, the work is complete now, except for occasional musings, corrections, and new supportive findings. This work, in highly revised and simplified forms, is also seeking a publisher. Thanks for your interest, patience, and feedback. Check back frequently-- much more to come...

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A Synergetic Revisioning of Number Dynamics

**In Light of Ancient Metrology
& Modern Cosmography**

by Robert Marshall and Iona Miller
c1998

"Bob and Iona's Adventures in SUM AREA"

SYNCHROGRAPH C:

#108, AUM or OM,

THE NUMBER OF THE UNIVERSE

by Robert Marshall and Iona Miller, c1998

Number Mysticism and Alphanumeric Writing
Cosmic Cycles and the Doctrine of Yugas
The Hindu Concept of Number
The Surya Siddhanta

Synchrograph C: Mandalog of the Universe

Synergetic Base Ten Number Dynamics

ABSTRACT: Syndex II is about the process of discovering synergetic, rhythmic symmetries on a graphic enspirament called Synchrograph C. On this number wheel, the natural numbers are spiralled 60 times around a radial array of 108 increments to the number 6480. Contemplating the C-Graph over the years has produced several revelations, including the following Holotomic Sequence: 12, 24, 72, 360, 2520, 27720, 360360, 6126120, etc., created by prime number multiplexing, and the exemplary 9/11 wavecycle (a +4, -4 basewave).

This book is *not* about number mysticism, or numerology. No occult theory of numbers is presented, no cosmic code of alien descent, no ideologies. Rather, it outlines the history of numbers and writing and the ancient science of astronomical measurements. Classical cultures are characterized by certain general basic ideas, of which metrology is foremost. We show why certain cultures considered certain numbers "divine," and why we should turn our attention to them in modern times.

Most of these numbers seem to have originated in Sumerian culture and are the result of geodesic and cosmological measurements (such as the Precession of the Equinoxes) discovered thousands of years ago, in the mists of prehistory. These numbers are important in certain inherent rhythms in the base-10 system of numeration. These synergetic qualities have hitherto remained unnoticed in classical number theory.

INTRODUCTION

to the Philosophical and Scientific Background

"Number makes its appearance in this context as the vinculum amoris, the bond of love which unites the two principles [psyche and matter] by jointly ordering them. In its profoundest sense number thus possesses the significance of an all-uniting Eros, although it connotes something different from the usual sense of the words love and Eros...Because there seems to exist such a clear spiritual "objective" order at the base of Eros, it is expressed in the seemingly abstract, feelingless, impersonal order of numbers, as a clear, immutable factor free from illusions...this cosmic ordering of the Self constitutes the ultimate mystery behind all human desire and behavior, an unfathomable and fearsome mystery."

M.L. von Franz, *Number and Time*, p292-3

"The unexpectedness of a mathematical result gives us the feeling that it is not our own creation, that the world of number exists in its own right, while its necessity and symmetry are balm after the ragged edges of life, or pure joy to those who do not yet know them. The appeal of mathematical form reaches deep into human character."

L. L. Whyte

"Very vigorous applause your very intelligent, scientifically systematic synchrograph evolved elucidations binomial symmetries, tantalizing manifestations...which to me clearly related several

fundamentals...Your cyclic synchrographing work clarifies and simplifies this whole matter to an epochal degree...your work fills me with joy."

B. Fuller letter to Bob Marshall, 3/3/81

NUMBER MYSTICISM & ALPHANUMERIC WRITING

Number mysticism reached a zenith in ancient Greece, since the Greeks were fascinated with the essence of the integers themselves to the point of worshipful devotion. The relation between numbers (and number words) and magic remained alive throughout the ages. It is visible in Pythagorean and Platonic philosophy, the Qabala, and various other forms of religious mysticism.

The Pythagoreans believed that numbers were the key to understanding the order of the universe, and to them numbers meant whole numbers or integers. They believed that the soul could ascend through the spheres, to eventual union with God, by means of mathematics. This peculiar fascination with numbers as individuals created an obstacle to developing a collective theory of numbers, i.e. arithmetic.

The main thread of the number concept in the crossroads cultures passed from Sumeria-Akkadia-Babylonia to Phoenicia to Hellenistic (and Hebrew), to Indian to Islamic to European cultures. Key numbers, cosmic cycles, and divine numbers permeate the number concepts of all these cultures. The Greeks and Hebrews had alphanumeric systems which developed into numerology and numberword mysticism.

Number mystics from the Pythagoreans onward considered number 'one' as the Infinite God, the First Cause, the One who transcends all multiplicity. To the Greeks, numbers were divine concepts, ideas in the mind the god who had fashioned the world. God was a great mathematician. In the Hebrew Qabala, the world is made with numbers and letters. In more accurate terms, the characters representing manifestation were alphanumeric.

Whether 'one' was actually a number at all was answered by the concept that it is the essence or underlying principle of number. All the numbers are made of it. In the West, ten (10) is the number of completion and perfection which returns the essential numbers back to unity. In China, **eleven is the number of Tao**, but not in the quantitative sense of ten plus one, but signifying the unity of the decade in its wholeness.

Jung echoes these ancient sentiments in *Memories, Dreams, and Reflections* (pp. 287 f.) by stating:

One, as the first numeral, is unity. But it is also "The unity,": the One, All-oneness, individuality and non-duality--not a numeral but a philosophical concept, an archetype and attribute of God, the monad.

In *Number and Time*, M.L. von Franz carries this thought further:

The number one possesses these unique qualities to a particular degree...it does not multiply by itself, or reduce itself by division because it is a divisor of all other numbers...It is the first triangular and also the first square number...it has no predecessor. In this sense it does not yet "count"; if it did it would be the first uneven prime number...in mathematics the number one is not reckoned among prime numbers.

This is supported by experimentation: *"dealing with the wave configurations of sand vibrations on thin plates of metal, all prime numbers figure with the exception of the one."*

Influenced by Pythagorean ideas and Qabala, in which 10 Sephiroth (Spheres) emanate from God, the occult tradition asserts that the succession of numbers 1 through 10 symbolizes and is, in fact, identical with the emanation of the manifest Universe. The 22 letters of the alphanumeric Hebrew alphabet contained and created the secret structure of all things.

The *SEFIR YETZIRAH*, the Book of Creation or Formation (300-600 AD) describes how God created the manifest universe by means of letters and numbers which are the foundation of all things. The letters are part of 'one body,' the alphabet which is an extension of God's own being. All created things, made by means of the letters, are also parts of the one body which is God.

True being for the Hebrew is the 'word,' *dabhar*, which comprises all Hebraic realities: word, deed, and concrete object. Non-being, nothing (no thing) is signified correspondingly by 'not word,' *lo dabhar*.

In European magical tradition, the most important of all alphanumeric alphabets is the Hebrew which had 22 letters, all of which were consonants. Vowels were inferred from context. Contemplation (theory) and application (practice) is the mystical tradition of Qabala. In this alphabet there are no vowels (our a,e,i,o, and u) represented. The same is true of the older Phoenician (Canaanite) alphabet, from which our own alphabet is descended--by way of the Greek, Etruscan, and Latin alphabets.

All over the ancient orient, in Assyria and Babylonia, as well as Egypt, the word and particularly the word of God, was not only nor even primarily an expression of thought; it was a mighty and dynamic force. The Assyrians and Babylonians conceived of the divine word under the image of a physical-cosmic power.

In Egypt, the power of creating and sustaining everything was traced back to the divine word, the ever-active fluid or ethereal divine substance proceeding out of the mouth of divinity. For example, in Memphis, *Ptah* is the Creator of the world. The specific organ of creation is *'the mouth which named all things.'*

ALPHANUMERIC WRITING

All things nameable can be recorded or counted by symbols for things. Writing (like naming) is an ancient, magical art, assumed to have been invented by the gods. Emerging

around 3200 B.C., writing contained mysterious, hidden, even divine Wisdom, for those contemporary minds. The archaic history of writing records its evolution from pictographs and ideograms, to phonetic and syllabic cuneiform, and the alphabetic form, whose sequential letters are also used as numbers.

Certain milestones in the development of alphanumeric characters have been documented archaeologically. Interaction along trade routes in crossroads cultures contributed both to the development (from syllabic hieroglyphics and phonetic cuneiform), and dispersal of a letter sequence which could be adapted to the phonetics of local dialects.

A tablet has been found from the 14th Century B.C. showing Ugaritic letters arranged opposite a column of known Babylonian syllabic signs, which supplied the sounds for the characters a, be, ga---and so on---in basically the same order and roughly the same sounds that would appear 300 years later in the Phoenician alphabet. By 1000 B.C., the Phoenician alphabet had come to full flower.

According to Isaac Asimov (1989), this is why the alphabet was never invented independently by any other society:

"Between the Egyptians and the Babylonians were the Canaanites, inhabiting the eastern shore of the Mediterranean Sea, (the Greeks called them the Phoenicians). They were traders who acted among other things, as intermediaries between the Egyptians and Babylonians. It was necessary for such traders to know both the Egyptian and Babylonian languages, and that was a hard chore indeed."

"It occurred to some nameless Canaanite to simplify writing by adopting a kind of shorthand. Why not give a separate symbol to each of the common sounds made by human beings in speaking a language? You could then build up any words of any language by using those sound-symbols. Sound-symbols had, in fact, been used by the Egyptians, but they also preserved symbols for syllables and for whole words. The Canaanite inventor had the notion that the sound symbols should be used exclusively and that words should be built up out of them."

That same alphabet could be used as numerals.

(scan alphanumeric table)

TIMETABLE

The Ancient Development of Alphanumeric Characters:

2800-2600 BC Sumerian cuneiform; pictographs, ideograms

2500 BC Cuneiform spreads through Near East; adapted Sumerian signs to the phonetics of local languages (Akkadian 2300-2150)

2100-1300 BC Syllabic cuneiform (Semitic style 2500-2000)

1800-1600 BC Old Babylonia

1500-1400 BC Ugaritic cuneiform of 30 characters; first ABC letter sequence; phonetics of a Canaanite dialect corresponding with Babylonian syllabic signs; precedes alphabetic cuneiform

1400-1300 BC ALPHABETIC CUNEIFORM from Babylon

1100- 900 BC Phoenicians spread precursor of modern alphabets; script of 22 characters, no vowels; rise of Assyria

800 BC Greeks and Hebrews adopt Phoenician alphabet; Greeks add first vowels; Babylon rebuilt; ALPHABETIC NUMERALS

500 BC Sanskrit alphabet and grammar codified

1000 AD Hindu-Arabic numerals and decimal system introduced into

Europe by Pope Sylvester II

It is now generally agreed that all existing alphabets as well as those no longer used, derived from **one original alphabet (Paleo-Sinatic, Syria and Palestine 1750-1500 BC)**. There is obviously a real advantage in the use of single symbols for single sounds, compared with thousands of symbols for representing things or ideas (pictograms). The simplicity of alphabetic writing removed the monopoly on learning. The alphabet expanded literacy.

But all alphabets are inherently flawed, or at least limited. The shortcoming is that it lacks the delicate variations necessary to indicate all the subtleties of the human voice. So

perfection has eluded any alphabet for that would mean the accurate rendering of every speech-sound.

In an ideal alphabet each sound would have to be represented by a single letter, and each letter would be limited to one sound. Every alphabet so far has omitted symbols for some sounds, and most have contained redundant letters. The adaption of a script to a language is not easy when it contains sounds not occurring in the speech from which it was borrowed.

In any event, the prototype of alphabetic writing was spread by the Phoenicians. Local scribes embellished it, or pared it down and evolved local variations. Historians and linguists cite four main branches of the Original:

- 1) **North Semitic**, included Canaanite, ancient Sinatic Hebrew, and Phoenician;
- 2) **Aramaic** includes Persian, Syriac, Mongolian, Armenian, Georgian alphabets, and the Indian main branch with 200 offshoots of Sanskrit; also the square Hebrew alphabet;
- 3) **South Semitic** is mainly Arabic;
- 4) **Greek main branch** includes all European alphabets: Etruscan, Cyrillic, Slavonic. Romans adopted only 21 letters from the early Etruscan alphabet, as well as their names for letters, which were different from the ones Greeks derived from Semitic letter names.

It made writing far easier to learn with its economy of symbols, and its direct relationship to the sounds of spoken languages and numbers. Literacy spread dramatically.

COSMIC CYCLES OF CREATION & DESTRUCTION THE HINDU DOCTRINE OF YUGAS

After the burning and plundering of the Hellenistic Library at Alexandria, Egypt, the exact science of ancient mathematics was lost to the west. The vanguard of mathematical discovery passed to medieval India.

Hindu mathematicians had little direct influence on Europe. But it is certain that the Arabs got their arithmetic and algebra from Brahmin knowledge. Caliphs entertained Indian mathematicians in the ninth and tenth centuries. Both Sanskrit and Greek classics of science were avidly translated into Arabic during the Moslem Empire.

The Crusaders were exposed to this Arab knowledge in the Holy Land, and their knowledge gradually penetrated Europe also through Islamic Spain (Toledo). This led directly to a revival of European learning after the Middle Ages.

Therefore, we attribute our present system of so-called Arabic numerals to those near-eastern cultures which preserved them through Europe's Dark Ages. However, this decimal system of numeration originated in India and was one of the many kinds of knowledge translated into Arabic during the cultural flowering of that area. The numerical characters and such notions as the zero and place valuation

came directly into modern society from India, even though they had been tentatively used in older societies.

Prior to the introduction of Hindu numerals, the alphanumeric characters developed by the Phoenicians predominated. Numbers were represented by the letters of an alphabet in their spoken succession. Both the Greeks (800 B.C.) and the Hebrews adopted this principle. Not only the alphabet, but the sounds of the letters were retained.

This adoption of an alphanumeric model led to the mathematical backwater of Gematria where every sum was a word or many words, and every word had a numerical equivalent. Number mysticism then concerned itself with various cryptographic messages and numerical codes. While good for mysticism and possibly promoting superstition, it was no favor to the advancement of mathematics. The old Phoenician "acrophonic" numerals were abbreviations of number words. Alphanumerics permeated the crossroads cultures.

Cultural concepts of time, real and divine, differ dramatically and underlie and condition each culture's worldview. The background of Hindu cosmology and science has its roots in the crossroads cultures. It involves notions of time and history, astronomy, and the idea of the Divine Word.

Ethnopsychology, psychology of language, philosophy of language, logic of language, semantics and comparative linguistics show that, relatively speaking, **Hebrew thinking is dynamic and temporal, while Greek thinking is static and spatial--even the Greek conception of time is spatial--boundless.**

The concept of number can be understood either as spatially quantitative or dynamically qualitative quantities. For the temporally-oriented Jews, there is an inner connection between plurality and intensity. Hebrew thinking moves in time, while the Greeks employ space as their thought-form. Hebrews used a lunar calendar, while Greeks used the solar year.

Both Indo-European and Semitic languages reveal a cross-cultural ambiguity when using spatial expressions to designate temporal notions. "Before" and "behind" can mean "future" and "past." This double temporal meaning of the same words reveals two different notions of time, as eternal rhythms. In Semitic languages, the notion of recurrence coincides with that of duration. Time is the stream of events, the historical content of occurrence.

The European sense of time is a confused mixture of time and space, a legacy of Greek thought. The Indo-Germanic framework of past, present, future is foreign to Semitic thinking where tense comes principally from the dynamic of completed or incomplete action.

Our modern concept of time is spatialized. For us actions are oriented objectively, impersonally and spatially; the ancient Hebrews thought subjectively, personally, and temporally. Europeans got both space/time views mixed together as Bible cosmology.

These notions came down ambiguously because the Hebrews had no notions of firm boundaries to objects, while the Greeks delighted in thinking geometrically. They relate to quantity and number as spatially quantitative (Greek) and dynamically qualitative quantities (Hebrew).

The Hebrew language has no expressions for the simplest geometric figures such as the triangle, quadrilateral, or square, nor the corresponding adjectives. Numbers are distinguished qualitatively as rhythms, each with its own peculiarity.

The form and syntax of the Hebrew numbers two to ten indicate that the smallest and basic numbers were thought of as qualitatively different totalities. From there it was just a step further to the conception of holy numbers...concrete numerical gestalts, an intuitive quality adhering to a totally unarticulated general impression of quantity. Hebrew plural forms are preferably designated as intensive.

God revealed himself to Israel in History, not Ideas. Therefore, the Israelites developed no mathematical science, though it flourished in neighboring Phoenician and Mesopotamian cultures.

The mathematical ideas of the Greeks cannot be comprehended without bringing geometry into the inquiry. The Greek Ideas were geometrical basic forms, the eternal blueprint of reality.

Space perception is the given thought-form of the Greeks, and the visible form of things occupied their attention. Geometry for them was the most important branch of mathematics.

The Greeks, including Euclid, thought geometrically even when they dealt with numbers. The square was a visual representation of the second power and the cube of the third. For the Greeks, the concept of large, quantity (largeness) was mostly a spatial idea.

The Indian concept of time has differences and similarities with the Greek and Hebrew notions revealed by linguistics of their respective languages. Language (syntax, grammar, verb tenses, etc.) displays the basic worldview of a culture, notions about how real-time experiences are processed and conditioned by the basic philosophy of a culture. Linguistic peculiarities come from the underlying assumptions about existence in time and space, perception, being and becoming, active/passive, etc.

Like the Greeks, the Indian view of time is static, that is it is conceived statically rather than dynamically, as the Jews also do. The early Greek, Heraclitus posits that flux and becoming alone are real, permanence and constancy are merely apparent. The Hindus believe the exact opposite.

Indians recognize, of course, that the things of this world are always moving and changing. But the substance of things is seen as basically unchanging; its underlying reality is unaffected by the ceaseless flux. Indian thought places a high value on universality, and the connection between this, and the static conception of phenomena, is of course not accidental. *"The one remains, the many change and flee."*

The static conception of time permeates Indian thought. It could hardly fail to do so, for it is present in the very forms of language itself, conditioning all philosophical thinking. In classical Indian languages, there are no words corresponding to the concept "*to become*." "*To become*" is "*to exist*."

"*Being born*" and "*existing*" come from the same root. So to become is to be born. Indians express change at all as "*being otherwise*." Becoming is expressed in terms of being; dynamic is seen as a phase of static. This point of view permeates the language and conditions the philosophy.

The classic Western expression of the sense of flux uses a vivid and specific verb: "All things flow." The corresponding idea in India is expressed in Sanskrit as *sarvan anityam*, "*all existences are impermanent*." It always directs the attention away from the action to the stable state of the actor, from the changing aspect of the action to the unchanging universal: "*to appear*" does not equal "*appearance*;" nothing can disappear or arise. The adverb isn't even a part of speech in Sanskrit.

In Indian philosophy, the Absolute is a Being beyond all temporal appearances. These exist and change in time; the Absolute is essentially static. The great unborn Self is imperishable, incorruptible, eternal, fearless Brahman, which is coequivalent with Atman.

Indian philosophers replaced the concept of Becoming with three aspects of temporal existence: Appearance, Extinction and Continuance, which are fundamentals in their cosmology. All three states are clearly conceived as static.

Here is a similarity to Platonic thought: Plato formulated the antithesis between Being and Becoming with the true essence of reality consisting of changeless, timeless Forms. This is why geometry was important, but Greek physical sciences only developed statics. Modern scientific thought, in contrast is concerned with kinetics, dynamics, synergetics.

Preoccupied with a more metaphysical time-sense, the numbness to the passage and flow of specific events makes non-Indians regard Indians as lacking in common sense. They simply do not seem to have a clear awareness of discrimination of "real time," historical time, and it shows in their language through the discrimination of tense. Children in India will ask you, "*What is time?*," not "*what time is it?*"

The difference between absolute past and relative past is not clearly made in the Indian language. Terms can be determined only through context. They don't grasp time quantitatively, and with historical accuracy. They exist through multiple lives repeated in limitless time: appearance, extinction, continuance, over and over through cosmic cycles of creation and destruction.

According to the Indian worldview, the universe, the world and social order are eternal. The personal is fleeting, and the basic assumption of transmigration is pervasive in language, thought, and philosophy. So, passing phenomena have no real significance, and no importance is given to providing them with accurate dates. In quasi-historical fashion they resort to hyperbole, idealization, and exaggerate to astronomical proportions.

Therefore, much of Indian so-called history is confabulated, the product of pure imagination.

They are more interested in religion and poetry than historical documentation. Proper observance of ancient precepts is stronger than the regard for historical accuracy. They contemplate eternal paradigms of human experience which are by their nature timeless and in that sense, outside history.

This is a contemplative orientation and worldview, expressed in the forms of Sanskrit itself. In Sanskrit, it is "effect and cause" syntactically, rather than the Western "cause and effect." The Western order of thought is to proceed temporally from cause to effect; the relationship is seen in time.

In Sanskrit, progressive phenomena are seen as already complete. Rather than "the relation of the knower and the knowable," it is "the relation of the knowable and the knower."

This way of thinking is retrospective and different from the approach which starts from the cause. Things are evaluated in terms of a final cause or aim, a teleological relation. But Indians do have a concept of abstract time and changing phases of the world. They just adhere to the universal principle that whatever is subject to organization is subject also to destruction, in lesser or greater duration.

There is no substance which abides forever. All matter is force; all substance is motion; every individual is unstable; all things pass away. Modern physics, the bastion of science's "cause and effect" confirms this curiously enough through inductive and deductive reasoning which would be alien to Indian thought.

All this is the essential background on Indian language, thought, and philosophy which provides the fertile matrix from which their cosmology of cosmic cycles of creation and destruction arose. In fact, the philosophy conditioned the language and vice versa.

And the nutshell of this philosophy and language is contained in the divine rootsyllable, the sacred numberword AUM, the sound of the mystery of the Word everywhere, whose personal realization is a peak experience.

Joseph Campbell explains AUM in *THE POWER OF MYTH*(1988):

AUM is a word that represents to our ears that sound of the energy of the universe of which all things are manifestations. You start in the back of the mouth "ahh," and then "oo," you fill the mouth, and "mm," closes the mouth. When you pronounce this properly, all vowel sounds are included in the pronunciation. AUM. Consonants are here regarded as interruptions of the essential vowel sound. All words are thus fragments of AUM, just as all images are fragments of the Form of forms. AUM is a symbolic sound that puts you in touch with that resounding being that is the universe. To be in touch with that and to get the sense of that is the peak experience of all.

A-U-M. The birth, the coming into being, and the dissolution that cycles back. AUM is called the "four-element syllable." What is the fourth element? The silence out of

which AUM arises, and back into which it goes, and which underlies it. My life is the AUM, but there is silence underlying it too. That is what we would call the Immortal.

As well as philosophy, Hindu cosmology also mixed space and time concepts derived from **astronomical and geodetic measurements**. They were influenced by the ancient Sumerian lunar reckoning which came with the Aryan invasion, and is, in fact, the legacy of all neolithic cultures. Later Hellenistic notions permeated their astronomy.

The figure the ancients used to define the circumference of the earth came from their foot and their cubit. These two numbers, 1296 and 864, are basic to many ancient systems of measure.

Is it a coincidence that a circle of 1,296,000 units has a radius of 206,265 units, the length of both an English and Egyptian cubit? The Hebrew shekel weighs 129.6 grams, and the English guinea 129.6 grains. The measure of the Holy of Holies in Solomon's Temple was 1296 inches.

129600 is the numeric basis for astronomical measures and played a role in Plato's mystic symbolism. Multiples and submultiples of 12960 are easily memorized: 1728, 864, 720, 432, **360**, 216, 180, 90, 40, **36**, 20, 16, 10, 8, 5, 4, 2. These sacred numbers were used everywhere in the building of sacred temples. The Babylonian Tablet (*Igi-Gal-Bi*) uses all of them, plus 144, 162, and 810.

In *IDEAL METROLOGY*, **W. H. Wood** points out the meaning of these figures in the East: "*In the law of the yoga, all periodic actions developed under the inspiration of The Invisible are measured by ideal cycles, expressed in geometric form by the number 1296 in thousands or thousands of thousands. The third stage of Yoga is represented by the third of 1296 or 432, which is considered the symbol of consecration, or standing in harmony with nature's beauty and order. The exalted life of a disciple of Buddha called for a cycle of 4320 million years.*"

In his classic, *THE BOOK*, **Alan Watts** points to the Hindu myth which says that as time goes on, life in the world gets worse and worse until at last the destructive aspect of the Self, the god Shiva dances a terrible dance which consumes everything in fire. There follows, says the myth 4,320,000 years of total peace during which the Self abides in itself and does not play or hide. Then the game begins again in a universe of perfect splendour which begins to deteriorate only after 1,728,000 years.

In *ANCIENT CULTURAL ANTHROPOLOGY*, **Dr. Charles Muses** wrote on the origin of certain Babylonian numbers. He noticed embedded in cosmic structure certain deeply fundamental numbers, which constitute an "alphabet" of sacred numbers. Among those still used today are 360 degrees of a circle; 60 minutes for an hour; 60 seconds for a minute and 24 hours for a day; 7 days a week; 12 months a year. Muses makes a list of 1, 3, 4, 5, 7, 12, 24, 60, and 360. He proceeds to show how all these numbers are related to patterns of circular arrangement.

Twofold twelveness, or 24 comes from uniting the 12 signs of the Zodiac with 12 hours of the day. Thus, from 360, 60 and 24 came a circle of time of 24 x 60 x 60 or 86,400 seconds. And a circle for space of 360 x 60 x 60 or 1,296,000 seconds.

Another research project of mathematician Dr. Muses is even more stunning in its results. He discovered that the roots an ancient Tantric lunar meditation practices were timed to certain anomalies in the moon's orbit. The *Satapatha Brahmana* and the *Taittiriya Sanhita* recount the procedures for a Tantric Lunar Resonance Meditation, associated with the Indo-European soma sacrifice. They are linked to the phases of the moon, but not the obvious points. The practice specifically divided the lunar month into 9 special days in both the waxing and waning halves, a cycle composed of 18 days total.

There is a striking correspondence between the two-fold cycle of lunar phases ($9 + 9 = 18$) each month and the *hypernumber w*, a lunar elliptic orbit function developed by NASA for the space program.

This hypernumber w and it's phases of the elliptical orbits provide the only available mathematical paradigm corresponding to the anomalies distinct to the waxing and waning lunar fortnights. It is amazing that they could be known through some unknown form of calculation in pre-Vedic times.

It is not necessary to describe the source and functions of hypernumbers here. It is enough to know that the hypernumber w has the remarkable property that, when multiplied successively by itself, all the resulting numbers lie on a certain ellipse. The number resulting from multiplying the square root of w successively by itself also lie on the very same ellipse. Exactly 12 distinct points are generated by both these processes.

There are three principle irregularities in the lunar orbit known since Ptolemy of Alexandria, but this cannot be the Vedic source, since it came later. Together these irregularities furnish a set of eight places in the lunar orbit where these reflecting configurations of force are maximum. These eight places map on the eight points furnished by the integer powers of the hypernumber w. W was conceived by 20th century mathematicians to describe these irregularities of the lunar orbit.

In ancient Indo-Iranian tradition the holiest time of the month is the dark of the moon, where it is conjoined by the sun itself.

The sun travels through the celestial sphere of 360 degrees. Multiples of 360 reveal a cascade of ancient sacred numbers, which are instrumental in the arithmetical construction of Divine Ages of the Hindus.

- 1 x 360 = 360**
- 2 x 360 = 720**
- 3 x 360 = 1080 - OM**
- 4 x 360 = 1440**
- 5 x 360 = 1800 - half circle**
- 6 x 360 = 2160; age of years**
- 7 x 360 = 2520; Auric Key**
- 8 x 360 = 2880**
- 9 x 360 = 3240; x 2 sum of ages 6480**
- 10 x 360 = 3600; Sumerian sar**
- 11 x 360 = 3960**

$$12 \times 360 = 4320 \text{ Maha Yuga div by } 4 = 1080$$

$$\times 2 = 8640 (4320 + 6480) \text{ Yugas + Ages}$$

Hindu cosmology mixed time-space concepts derived from solar and lunar calendars with holy number words. The Hindus had their own numberwords, called *mantras*. These words held mystical and numerical values. They were based on metrological and cosmological constants as well as ancient mythology, and therein lay their sacredness or divinity.

Yogananda and other Hindu sources cite #108 as a divine number, "*the number of the Universe*." It is said to be the number of AUM, or OM, the universal sound which underlies all creation. OM or AUM is the Word of the creator of universe, Brahman, who is associated with number 43200.

This notion is fundamental in two Hindu astro-calendaric systems, the Ages and the *Yugas*, which delineate the number of divine years in different Epochs. Both the so-called Ages and *Yugas* are all multiples of #108 (see Tables which follow).

The Hindu religion is a vast ocean of religious thought, springing as it does from the earliest time, long before the dawn of history. It comprises in its multi-colored texture shade after shade, an endless variety of design and pattern as it grew in the human mind, from animism to Nature worship to number mysticism.

DIVINE AGES

FOUR YUGAS FOUR AGES

Kali 432 (108 x 4) Iron 648 (108 x 6)
 Dvapara 864 x8) Copper 1296 x 12)
 Treta 1296 x12) Silver 1944 x 18)
 Krita 1728 x16) Gold 2592 x 24)

Maha Yuga 4320 x40) Sum 6480 x60)

$$36 \times 3 = 108$$

$$36 \times 36 = 1296$$

$$1296 \times 2 = 2592 - 4 = 648$$

$$10800 \times 4 = 43200$$

CREATION OF THE WORLD

According to Hindu cosmology, the world is created from an embryo, a "center," which also implies the construction of cosmic Time. This center concept is the root notion behind the **mandala, a term which itself means "a circle."**

Like our Synchronographs, the mandala represents a whole series of circles, concentric or otherwise, inscribed within a square. It is a symbol of the rite of penetration, which places

the neophyte in a sort of labyrinth as an initiatory process. Mandalas clearly have a labyrinthine character, and so do mandalogs if viewed from that perspective. They help us to concentrate and find our own center in the microcosm.

This can lead directly to a more authentic and deeper personal experience and understanding, if traditional ritual has become fossilized; the need of a personal experience is for reactivating certain primordial symbols in our consciousness. The purely mental constructions act as a support for meditation.

The Hindu notion of deep time is revealed when Indra hears from the mouth of Vishnu the true story of the eternal creation and destruction of worlds, the Great Time, mythic time in which we find the true source of all beings and of all cosmic events. This helps us pierce the veil of illusion created by profane time and our own history, and like Indra cures us of our pride and ignorance. It is a redemptive function.

To transcend profane time and re-enter into mythical Great Time is equivalent to a revelation of ultimate reality--the reality which is strictly metaphysical, and can be approached in no other way than through myths and symbols.

The conception of cyclic and infinite Time, Presented by Vishnu is the general Indian conception of cosmic cycles. Though this belief is found in all archaic societies, it is first espoused in the **Atharva Veda**.

India elaborated the doctrine of cosmic cycles by amplifying the number of periodic creations and destructions of the Universe to ever more terrifying proportions. The transition of each age marks the beginning of a regression. The decreasing length of each *yuga* marks this durational degeneration toward the present *Kali Yuga*. It is so called for the "black" goddess *Kali* or (**Shakti**, the Great Goddess), whose name is akin to the Sanskrit *kala*, or "time." She is the personification of time.

Number 108 is also said to be the number of names of the great Mother Goddess.

The 12,000 years of one *mahayuga* has been counted as "divine years" of 360 each, which gives a total of 4,320,000 years for a single cosmic cycle. This is all we need to retain with the cyclic character of cosmic time. The life of Brahma comprises 2,560,000 of these *mahayugas*, each going through the same stages concluding with a *pralaya*, and

grand dissolution.

THE HINDU CONCEPT OF NUMBER Indian Philosophy, Cosmology, and Science

"The Hindu traditions were brought to the Indian subcontinent by 'Aryan' migrants from the shores of the Caspian Sea, cousins of the Indo-Europeans who were the Hittites of Asia Minor (today's Turkey) and of the Hurrians of the upper Euphrates River, through whom Sumerian knowledge and beliefs were transmitted to the Indo-Europeans. The Aryan migrations are believed to have taken place in the 2nd millenium BC and the Vedas were held to be 'not of

human origin,' having been composed by the gods themselves in a previous age. In time the various components of the Vedas and the auxilliary literature that derived from them (the Mantras, Brahmanas, etc.) were augmented by the non-Vedic Puranas, and the great epic tales of the Mahabharata and Ramayana. In them, ages deriving from multiples of 3600 also predominate, [and the Divine Cycle of 432,000]."

Zecharia Sitchen, *When Time Began*

In the Bronze Age, the Indus Valley of Pakistan and Northwestern India was one of the cradles of civilization. Their lost language was proto-Dravidian. The *Vedas* were written in the Indo-European predecessor of the Indian root-tongue Sanskrit.

The two main cities were Mohenjo-Daro in Sind, and Harappa in the Punjab. Its original civilization, the Harappan, emerged about 2500 B.C. This was a sophisticated urban society with pictographic systems of writing and measurement (**metrology**). A thousand years later, Aryans brought cultural influences from the north with rituals that formed the foundation of Hinduism. These traditions apparently included number mysticism, but one of astronomical numbers, not integers..

Beginning with the *Brahmanas*, and even the *Puranas*, the Indians developed the doctrine of the four Yugas, the four Ages of the World. The essence of this theory is the cyclical creation and destruction of the World and the belief in "the perfection of the beginnings." As the Buddhists and Jains hold the same views, this doctrine of the eternal creation and destruction of the Universe is a pan-Indian idea.

In Indian cosmogony, the complete cycle is terminated by a dissolution (*pralaya*), with a great dissolution (*mahapralaya*) at the end of the thousandth cycle.

The names of the four **Yugas** first appear in the *Aitareya Brahmana, VII, 14*. In India, time is not a measure of quantity, but a means of expressing universal relationships. This doctrine of ages is a variation on the Myth of the Eternal Return, a primal conception of periodic renewal of the World.

In Hinduism, man plays no part in this re-creation, but desires to escape from the cosmic cycle. There is no final End of the World, just intervening annihilations of one Universe and the appearance of others.

In every age there is a turning-point, a new way of seeing and asserting the coherence of the world. Each culture tries to fix its visionary moment, when it was transformed by a new conception either of nature or man.

When seeking the roots of ancient sciences, it is important to remember that a language system may persist in the religious or sacred arena long after it is superceded by a more popular dialect. This has been the fate of Sumerian (which ceased to be spoken around 2000 BC), but was the language of sacred liturgy and divine knowledge for fifteen more centuries.

Other liturgical languages with a similar destiny include Sanskrit, Hebrew, and Latin, (as well as Old Slavic). The Akkadians preserved old Sumerian religious structure of a supreme Triad, and this reflected into India as Brahma/Vishnu/Shiva and the west as the Trinity.

The Akkadians promoted the Sun god over the Supreme Triad, and the Triad gradually lost cult supremacy to the sun as unrivaled universal divinity whose primary quality is the emanation of numinous light.

Another creation of Akkadian religious thought is divination. They multiplied magical practices and developed occult disciplines including astrology, which later became popular throughout the Asiatic and Mediterranean world. They added the personal experience to religious life and exalted certain divinities to supreme rank.

Astrology, a late development, was originally practiced primarily by the royal entourage. Over time, the ideas, beliefs and other techniques of Mesopotamian origin circulated from the western Mediterranean to the Hindu Kush. The Mesopotamian discoveries always emphasized a direct correspondence between heaven and earth, or macrocosm and microcosm. Contact with Sumerian culture mutated other civilizations, including the Egyptian.

The first cities of India, the indigenous Harappan civilization, were overrun by the Aryan warlords, who deplored writing and had no cities of their own. Their characteristic feature, before they settled down, was oral tradition, since after their encounter with the Near Eastern civilizations, they prohibited using writing.

This mixing of cultures led to a religious syncretism or mixing of the mental concepts of both groups, which very shortly spread Hinduism through the subcontinent. The Harappan religion provided the prototype of the Mother Goddess and her consort, the phallic *Shiva (Shiva/Shakti)*. They echo Mesopotamian mythology.

Around 1750 BC, the Indus civilization was on its deathbed, and the Indo-Aryans gave it a mortal blow. But this happened progressively, over centuries of intermingling. Aryanization of the Punjab launched the movement of the synthesis that became Hinduism.

In the west, the Hellenic culture and religion was the result of the symbiosis between the Mediterranean substratum and the Indo-European conquerors from the north. Then Hellenism sent its roots into Egypt and Asia on the tide of Mycenaean conquerors.

Despite symbiosis with countless pre-Hellenic traditions, the Aryan-speaking conquerors succeeded in imposing their pantheon and in maintaining their specific religious style. The original home of the Indo-Europeans is the region north of the Black Sea between the Carpathians and the Caucasus.

The Indo-Europeans had elaborated a specific mythology and theology (pantheon headed by a storm god and Mother Goddess). They practiced sacrifices and knew the magico-religious value of the Word and of chanting.

They possessed concepts of rituals that enabled them to consecrate space to "cosmicize" the territories in which they settled, and enabled them to "periodically renew the world." 10800 bricks in the fire altar = recreating universe in a ritual imitation of creation.

The Indo-European tribes called themselves Aryan, "noble man." They progressively assimilated the survivors of the Dravidian Indus civilization, as shown by language. Vedic Sanskrit has a series of phonemes, especially the cerebral consonants, which are found in no other Indo-European idiom, not even in Iranian. Very probably these consonants reflect the pronunciation of the aborigines trying to learn the language of their masters. Similarly, the Vedic vocabulary preserves a large number of non-Aryan words.

The time of the *Asuras* preceded the present epoch, ruled by the *Devas*. In India as in a number of archaic and traditional religions, the passage from a primordial epoch to the present epoch is expressed in cosmogonic terms: passage from a state of chaos to an organized world, a cosmos.

The *agnicayana* ritual was an imitation of the creation which sacralized a locality, making it the local center of the universe. The altar was built with 10,800 bricks piled up in five courses, sometimes taking the form of a bird, symbolizing the sacrificer's mystical ascent to heaven.

Originally, it involved human sacrifice, repeating the self-sacrifice of Prajapati. The building of the altar symbolized the creation of the universe, which consecrates any land. The cosmologies, like so many other religious ideas and beliefs, represent a heritage transmitted from prehistory everywhere in the ancient world. The Indians revalorized and reinterpreted many cosmogonic myths.

In the most famous hymn of the *Rig Veda*, the cosmogony is presented as a metaphysics, revealing how Being came out of Non-being. There was an undifferentiated principle called "One" (neuter): "*The One breathed from its own impulse, without there being any breath.*" Aside from that "nothing else existed."

Heat gave birth to the "One" potential and this potential developed desire which became Consciousness. The first seed then divided itself into genders, and the gods were born afterwards. **The "One" transcended both Gods and Creation. The One precedes the universe and creates the world by emanation from his own being. Both consciousness and the universe are the product of procreative desire.**

The *Rig Veda's* notion of the "One" is continued in the identity of *Purusha/Prajapati*. In the beginning Prajapati was the nonmanifested Unity-Totality.

The triple identification of Prajapati with the universe, with cyclic time (the year) and with the fire altar constitutes the great novelty of the Brahmanic theory of sacrifice.

They contain the thought that the world and life exhaust themselves by their very duration. *Satapatha Brahmana* states that, "*This Prajapati, the Year, is made up of 720 days and nights; that is why the altar comprises 360 enclosing stones and 360 bricks.*" In

short, every sacrifice repeats the primordial act of creation and guarantees the continuity of the world for the following year.

In the *Brahmanas*, sacrifice recreates the cosmos that has been exhausted by cyclic time (the year). This later becomes the conceptual basis of creating the *atman*, or indestructible spiritual being.

The self (*atman*) is equated with Brahman. The Brahman knows the structure and origin of the universe, because he knows the Word that expresses all that; for *Vac*, the Logos, can transform any person into a Brahman.

The identity atman-Brahman leads to the experience of "inner light." This spiritual exercise reflects the Vedic tradition that the sun and light are regarded as epiphanies of Being, of Spirit, of immortality and procreation. According to the *Rig Veda* 1.115.1, the sun is the life or atman--the Self--of all things. The atman is a form of "light in the heart." That Immortal, fearless being is atman. That is Brahman.

The identity brahman-atman constitutes the most important discovery of the *Upanishads*.

The *MAHABHARATA*, with 90,000 verses is the longest epic in world history. It recounts the conflict between two lines of Bharatas. By the fifth book of the series, they are preparing for battle, which is recounted in the sixth book--the Bhagavad Gita.

This monstrous war was decided upon by Brahma, to relieve the earth of a population that did not cease to multiply. Therefore, Brahma convinced a certain number of gods and demons to become incarnate in order to provoke a terrifying war of extermination.

Thus, the *MAHABHARATA* describes the end of a world (*pralaya*), followed by the emergence of a new world. The poem has an eschatological structure revealing a gigantic battle between good and evil. There is destruction on a cosmic scale followed by the resurgence of a new and pure world. It is the conclusion of a cosmic age.

The cyclical theory was popular from the earliest times of the *Puranas*. The eschatological myth is older than Hinduism; it is archaic and widely disseminated among crossroad cultures. The myth of the end of the world was known by the Indo-Europeans. Even though the eschatological myth is not documented in the Vedic period, this doesn't prove that it did not exist. The *Mahabharata* contains Vedic and pre-Vedic notions. It is an epic transposition of an eschatological crisis, which Hindu mythology called the end of a yuga. It is a grandiose synthesis, much richer than the Indo-European prototype. In this cycle of the eternal return, Krishna reveals himself to Arjuna as an incarnation of Vishnu.

Vishnu is the author of catastrophic destructions and resurrections. This is as much to say that Vishnu, as a supreme being, is the ultimate reality. He governs both the creation and destruction of worlds. He is beyond good and evil, like all the gods.

But the poem also glorifies the complementarity of *Shiva* and *Vishnu*, the Aryan/Harappan synthesis. These gods, together with the Great Goddess (*Shakti*, *Kali*, *Durga*) have dominated Hinduism from the first centuries of our era to the present.

Understanding the creative/destructive aspect of divinity is equivalent to a revelation and also constitutes a model to follow in obtaining deliverance.

Deliverance involves comprehension of the relations between the two modes of the real: immediate--that is, historically conditioned--reality and ultimate reality.

Curiously, this paradoxical work about a frightening war of extermination and the end of a *yuga* is the exemplary model for every spiritual synthesis achieved in Hinduism, especially the tendency to reconcile contraries. It justifies a certain mode of existing in time; it valorizes the historicity of the human condition. Arjuna's existential crisis ends with his exemplary revelation concerning the human condition and the "ways" of deliverance.

Like the Greeks and the Jews, the Hindus faced the dilemma of time's meaning:

In the *History of Religious Ideas*, Eliade puts it succinctly:

"How is it possible to resolve the paradoxical situation created by the twofold fact that man, on the one hand, finds himself existing in time, condemned to history, and, on the other hand, know that he will be 'damned' if he allows himself to be exhausted by temporality and by his own historicity, and that consequently, he must at all costs find in the world a way that leads to a transhistorical and atemporal plane."

Since the whole universe is the creation, (or even the epiphany of *Krishna-Vishnu*), to live in the world, to participate in its structures, does not constitute an evil act. The "evil act" is to believe that the world and time and history possess an independent reality of their own, that is, to believe that nothing else exists outside of the world and temporality. The idea is certainly pan-Indian, but it is in the *Bhagavad Gita* that it received its most consistent expression.

It is still Vishnu who periodically destroys the universe, at the end of each cosmic cycle. All is created and governed by God. Cosmic life, individual existence and history receive a religious meaning. The periodic destruction of the universe is a theophany...the resacralization of life and human existence.

In Hinduism, man plays no part in this re-creation, but desires to escape from the cosmic cycle. There is no final End of the World, just intervening annihilations of one Universe and the appearance of others.

In every age there is a turning-point, a new way of seeing and asserting the coherence of the world. Each culture tries to fix its visionary moment, when it was transformed by a new conception either of nature or man.

Hindi Baseten Numerals

The history of our base ten system emerges from this Hindu cosmogony and astronomy. Hindi-Arabic numerals penetrated into Europe beginning in the 12th Century. A unique property of Hindu numerals is that (unlike Hebrew, Greek,

Roman, Mayan, Chinese, or other characters) the numerals are REVERSABLE and hold place value.

Without resorting to graphic depiction to reveal inherent symmetry and rhythms, they allow for the symbolic representation of palindromes and transpalindromes, the emergence of classes of numbers.

This is a singular property of this base ten system of notation, even though the Hindus were influenced by Hellenistic culture as well. Greece and the Near East still employed alphabetic numerals, with no place values. With the advent of positional numeration and its universal acceptance, the decimal cryptogram of a number automatically provided it with a name.

According to the Hindu view, all the aspects of the manifest world spring from similar principles. There is a correspondence or equivalence between sounds, forms, numbers, colors, ideals, as there is also between the abstractions of subtle and metaphysical worlds on one side and the forms of the perceptible universe on the other. Astronomical phenomena form the basic symbols of universal principles.

According to the Nondual Principle, the Supreme Cause must be beyond Number, otherwise Number would be the First Cause. But one is considered a number just like two, or three, or ten, or a million. If "God" is one, he is not beyond number any more than if he is two, three, or a million. But, although a million is not any nearer to infinity than any number, it seems to be so. The number one is in a way the number farthest removed from infinity, so divinity is best represented by an immense number of different gods.

In the *Puranas*, it says, "*The nature of illusion (maya) is [represented by] the number one.*"

To speak of the manifest force of a unique God implies a confusion between different orders. God manifest cannot be one, nor can the number one apply to an unmanifest causal aspect. At no stage can unity be taken as the cause of anything, since the existence implies a relation and unity would mean existence without relation.

Divinity as ultimate essence, is neither one, nor two (dual), nor many. The nondual principle transcends all forms of manifest divinity. This nondual Immensity is the Brahman, on a plane different from that of existence. Existence is multiplicity.

The identity of the macrocosm and microcosm can be observed in the permanence of the relations found as the substratum of all the aspects of the perceptible universe. These relations can best be expressed in terms of number. Hence NUMBER is easily seen as the common element of all forms, the all-pervading unity of all substance. Modern physics reflects and confirms this philosophy.

The creative or revealed Word of Brahm in the Vedas is *AUM*, or *OM*. It is the first manifestation of articulate language, the root monosyllable, which includes all language and meaning. It is the seed syllable of all human speech, a nutshell containing the whole of wisdom. The four Vedas are merely comments on and amplifications of this infinitely

meaningful syllable. It is more than past, present, and future; it is an indestructible Immensity

***AUM* is said to issue through a process of MULTIFOLD REFLECTION.**

Taken as a symbol of divinity, *AUM* appears as the form from which the universe develops; the first thought-form of Brahman, the Creator. From this basic syllable spring forth all the elemental sounds, the roots of manifestation, keys of all language.

The number 4,320,000 (108 x 40) has a very ancient symbolic or "divine" meaning. It came to India with the Aryan migration and became codified in the *Rigveda*, *Book of Sacred Verses*. Among other things, it is the number of syllables in the *Rigveda*, which has 40 syllables per stanza, (10800 stanzas x 40 syllables = 432,000).

Hindu tradition associated the "divine" number 432,000 with the Brahman and the *Yugas* and Ages. This number of the *catayuga* divided by four yields ages of diminishing length.

Golden Age = 4 x 4,320,000 = 1,728,000

Age of Knowledge = 3x =1,296,000

Age of Sacrifice = 2x =864,000

Age of Discord = 1x =432,000

Ten eons = 1000 cycles of caturyuga = 4,320,000,0000 years; "Day of Lord Brahman," This is a close estimate to the age of the Solar System, 4.5 billion years..

These are divine, not human years...the corresponding duration for the *Kali Yuga* is 36,000 mortal years. 32 x 12.

Indian Science and Cosmology

The Golden Age of Indian science came to medieval India during the Gupta Empire (320-647 AD) when culture and the arts flourished. The most famous scientist of the period was the **astronomer and mathematician Aryabhata**. He discussed, in verse, quadratic equations, sines, the value of pi, eclipses, solstices, and equinoxes, and the spherical shape of the earth, and its daily revolution on its axis. His successor, **Brahmagupta**, systematized the astronomic knowledge of India.

Other Indian astronomers made up a calendar of 12 month, each of 30 days, each day of 30 hours, inserting an intercalary month every five years. The Buddhists still use a lunar calendar. They also predicted eclipses accurately, calculated the moon's diameter, and expounded the theory of gravity.

Indian astronomy and mathematics were unequalled (except in geometry) by those of any ancient western people. Our Arabic numerals and decimal system which come from them are far more fluid and versatile than any before them. The numerals can be found on the rock edicts of Asoka (256 BC), while the scientists used the decimals system long before the Arabs, Syrians, and Chinese had a chance to borrow them. The mathematicians also created the concept of a negative quantity (without which algebra could not exist), and found the square root of 2, and solved complicated equations.

The discovery sometime in the first centuries of our era of the Principle of Position became a world-wide event. It was a radical departure in method, which in Syndex Theory makes reciprocity possible. Without this principle of position no progress in arithmetic was possible.

Place position probably was inspired by the use of counting boards. **ZERO** was probably conceived this way also from an empty column, and became the Indian **SUNYA**. It represents a turning point for modern science, industry, and commerce. It paved the way to a generalized number concept, and plays a fundamental role in nearly every branch of mathematics. It is one of the single greatest achievements of human thought.

There is an ancient code of numbers and proportion based on metrological standards of measure. Such constants as astronomical Precession, and geodetic measures such as polar diameter provided the basic context. Fractions of the earth's principle dimensions mirrored numerical patterns in the appearance and movement of nature.

These numbers are the vestiges of the Sumerian sexagesimal system and calendar. Earlier measures of astronomy, astrology, and cosmology were usually in units of 12, as were various ancient units of measurement of time.

Mankind counted days and the changing of the moon and seasons for millennia before recorded history. As early as 3760 BC, the Sumerians created a lunar calendar. By 2800 B.C., they had worked out a cycle of 19 years which kept it synchronized with the solar year and seasons. Certain years had 12 lunar months, while others had thirteen. This lunar calendar was adapted by the Akkadians, Babylonians, Assyrians, Greeks and Jews. The Nippur calendar is still the basis of Jewish religious ceremonies.

Sumerian astronomy included the concept of "deep time," as recounted in the *Enuma Elish, the Epic of Creation*. Ancient texts known as the Sumerian King Lists describe the settling of the divine Anunnaki on Earth before the deluge. They list the governorships of the first 10 leaders which lasted a total of 120 *sars*, or 432,000 Earth-years.

This is a direct source for divine eras in Hindu lore, but they expand the vastness to an overall time span of 4,320,000, and then to a Divine Year or Day of Lord Brahma--4,320,000,000--a thousandfold great *yugas*. The Sumerian formula is echoed in the Hindu traditions.

From Sumeria comes the ubiquitous concept of a sky divided into 360 degrees of Latitude, 60 minutes of 3600 seconds; 12 month years beginning on Spring Equinox; 12 hours of day and night ($2 \times 12 = 24$); 12 signs of the Zodiac, etc.

Sumerian fractions were geared to the principle of repeated halving. Whole unit or natural fractions are important in arranging metrological units. The system based on 60 is evenly divisible by 2,3,4,5,6,10,15, and 30 eliminating the frequent need of fractions. This naturally leads to grouping higher units in 12, 30, or 60. All these ratios occur in one or another of the parallel systems of units in Mesopotamian metrology. 4320 is one such number; so is 108000.

The Greek astronomers adopted this system, and so did their followers in India, the Islamic Empire, and Europe. Much of the mathematical knowledge commonly ascribed to the early Greek philosophers was already known to the Egyptians and Mesopotamians centuries before the rise of Greek civilization. However, the Greeks preserved and spread this knowledge. They were the first to consider mathematical concepts as abstractions not part of the real world, but of the idealized "sacred space" of the human mind.

There is some evidence of ancient India having direct contact with Sumeria around 2500 B.C. This is difficult to document, but not to deduce. However, nevertheless, Hindus contributed the final step to mathematical astronomy, namely, the use of the place value notation for the smaller decimal units. This is where we get our divisions of 60, 24, 12, and 2.

AS WE HAVE SHOWN ELSEWHERE, THESE ARE CLOSELY ALLIED TO THE HOLOTOMIC SEQUENCE: 12 - 24 - 72 - 360 - 2520, ETC.

These numbers are the vestiges of the Sumerian sexagesimal system and calendar.

ROOTS OF THE NUMBER CONCEPT IN INDIA

2500-1500 BC Contact with ancient Sumerians. Indus civilization; proto-Dravidian language; pictographic script; no firm evidence of separate numerals. Pre-Vedic *PURANAS*, "Ancient Writings."

1500-1001 BC *UPANISHADS*: Vedic period begins; *RIGVEDA*, Sacred Book of Verses.

1000-801 BC Pantheistic religion develops; Brahmanism; astronomy; lunar year adjusted to correspond with solar year; In Greece, alphabetic number system.

700-600 BC Indian *VEDAS* completed; doctrine of transmigration.

585 BC In Greece, Thales uses Babylonian methods to predict eclipse of sun.

500 BC Era of Buddha; **Sanskrit alphabet** and grammar codified.

500-451 BC *RAMAYANA* text.

326 BC Alexander invades India; Greco-Indian kingdoms established; Greek influence on art and science. Hellenistic culture flourishes. Barrier between East and West broken.

300 BC *MAHABHARATA* text.

250 BC In Greece Erathosthenes sieve reveals distribution of primes among first 100 integers.

Early centuries AD **Invention of the Zero (Sunya)** & negative numbers in India.

150 AD In Greece, Ptolemy's *ALMAGEST*, a unified method for representing celestial phenomena, circular cycles and epicycles.

300-400 AD Christians vandalize Library at Alexandria, Egypt.

375-413 AD Astronomical and mathematical advances of medieval India;
Aryabhata,
Brahmagupta.

400 AD *SURYA SIDDHANTA*, classical astronomical text; spherical geometry; epicycles; formula for length of day; solar velocity; earliest place value; #108 = numberword AUM (OM) = Universe.

500 AD Aryabhata argues for a moveable and rotating earth.

505 AD *PANCA SIDDHANTA*, by Viraha Mihira, summary of five classical astronomical treatises; sine tables.

595 AD Powers and roots of numbers; first recorded decimal reckoning.

600-700 AD Moslem Empire; Moslems burn Alexandria Library, ancient exact science lost to west.

760 AD Hindu numerals known in Bagdad; Arabs bring decimal system from India.

810 AD Al-Khwarizmi uses zero and positional notation to create algebra.

814 AD Arabs adopt Indian numerals, including zero to multiply by 10.

850 AD Mahavir, Indian mathematician; Pythagorean triplet construction known in India.

975 AD Present arithmetical notation taken into Europe by Arabs, Jews, and Crusaders; penetrates by 12th century.

1000 AD Sridhara recognizes the importance of zero; present version of *SURYA SIDDHANTA*.

1030 AD al-Biruni's report on Hindu astronomy and astrology derived from Viraha Mihira.

1100 AD Europe begins adopting Hindu-Arabic numeral system from Jewish scholars who learned it in Babylon, Jerusalem and Islamic Spain. First brought to Europe by Moors; introduced by Gerbert of Aurillac (Pope Sylvester II), about 1000 AD.

1202 AD *Liber Abaci* (*Book of the Abacus*) written by Italian mathematician **Leonardo Fibonacci**, who derived it from Al-Khwarizmi during his North African travels. Introduced Arabic-Hindu numerals to Europe in Latin translation.

THE *SURYA SIDDHANTA* **THE CLASSIC OF INDIAN ASTRONOMY**

"The time by which the worlds come to an end is different from the time which measures life. Time is thus of two kinds, gross and subtle, manifest and unmanifest."

Surya Siddhanta 1.10 [371]

The worship of the sun was common in antiquity and India was no exception. There is a famous sun temple in Konark in South India, and in the historic town of Mooltan or the land of the Sun, in the North. **The sacred wordnumber 108 had to do with the numbers of revolutions of the sun in the various epochs, which are all multiples of #108.**

The Holotomic Sequence was discovered through a systematic graphic analysis of the enspirament of number 108 (or 3 x 36).

Not only sacred to the Hindus, this number also appears in Tibetan Buddhism, where it is considered highly auspicious, being the number of beads on each strand of the mala, or Tibetan rosary beads. Therefore, it reveals its character as an ancient symbolic form of circular unity.

The Hindu calendar claims an amazing antiquity. Its alleged starting point is the divine beginning of Brahman, the first god of the Holy Triad Brahman/Vishnu/Shiva. Its unit is the *Kalpa*, equivalent to one day of Brahma's life (4,320,000,000 years--a close estimate to the age of the Solar System). Brahma's allotted life span is 100 years of 365 Kalpas each. The present epoch is the *Kali Yuga* and this Hindu year exceeds the figure 155,521,972,849,000 and counting.

In both solar and lunar calculations, the ancient Hindus fixed certain points of time back as epochs. They each begin when the planets are assumed to fall into a line of mean conjunction with the Sun in the beginning of Aries. In the classic astronomical text, the *Surya Siddhanta* (400 A.D.), the zodiacal signs are used to denote arcs on any great circle.

In the *Surya Siddhanta*, the least cycle of years in which the Sun, Moon, and planets are supposed to return to a line of mean conjunction at the beginning of Aries is 1080,000 years, a fourth of a *Maha Yuga* of 4,320,000,000 years or revolutions of the Sun (*Surya*). The revolutions given in the *Surya Siddhanta* must always be divisible by four, or no mean conjunction could take place at the beginning of the *Kali Yuga*.

There are two primary astrocalendric systems in India, solar and lunar: *Yugas* and Ages denoted by metals:

According to Neugebauer (1952), the sixth chapter of the *Surya Siddhanta* deals with a graphical representation of the different phases of an eclipse; the thirteenth chapter deals with the construction of a celestial globe. These mysteries were reserved for initiates: "***This mystery of the gods is not to be imparted indiscriminately: it is to be made known to the welltried pupil, who remains a year under instruction.***"

Spherical astronomy methods are characterized by the use of the interior of a sphere for determining the length of circular arcs on the sphere. This method was used in the *Surya Siddhanta* to determine the length of daylight from the shadow of a sundial of known height.

Another astronomical text, the *Panca Siddhanta* (505 A.D.), written by Varaha Mihiri is a summary of five great classical astronomical treatises. It reveals a close relationship in methods of calculation to the Babylonian linear (arithmetic) method. This method of determining the position of the sun works with zigzag functions or step functions which approximate greatest and smallest solar velocity. There is no direct evidence for a direct link from Babylon to India, but it cannot be ruled out. However, the Hellenistic influences in the texts are obvious to scholars.

Despite its origin, the apparently Babylonian knowledge was passed back to Asia Minor in an improved form by al-Biruni, who reported on Hindu astronomy and astrology in 1030 A.D. The *Panca Siddhanta* also contained rules for computing lunar motion based on processes now known to us from Greek sources.

But the *Surya Siddhanta* arguably remained the main canon of Hindu astronomy. It was allegedly revealed by the Sun (Surya) at the end of the Golden Age (2163102 B.C.) to a Maya Asura. Its contents, however, reflect the Hellenistic influence.

While the original may be dated to 400 A.D., the consistently-modified present version may have been written as late as 1000 A.D., long after the conquests of Alexander the Great (356-323 B.C.), and his death in Babylon. From that point forward, Hellenistic and Mesopotamian sources are definitely mixed.

The terminology and methods of Hindu astrology are certainly of Greek origin. For example, the names of the zodiacal signs are Greek loan-words. Similarly, the basic concepts of the planetary theory of the *Surya Siddhanta* are influenced by the Greek epicyclic models and not by Babylonian linear methods.

In the chronology of Hindu astronomy, linear methods as well as trigonometric models point to the early centuries AD, not BC. Babylonian methods and concepts reached India either via Persia or Roman/Greek sea routes to Pondicherry where these methods first surfaced in the subcontinent. They appear only in the form of Hellenistic astronomy and astrology.

The *Surya Siddhanta* combines older, very primitive sections with the Greek theory of epicyclic motion. But even though this Greek influence is apparent, it has obviously undergone a quite independent transformation in many details of the general theory.

Modifications of certain types, such as the values of numerical constants, went on almost continuously. They moved closer into accord with the Hellenistic sources. The time of the *Surya Siddhanta's* origin and this cultural contact is the same--about 400 AD.

The source book of the *Panca Siddhanta* is the *Paulisa Siddhanta* which contained the earliest documented sources on place value notation. Hindu astronomy reflects here the oldest strata of Greek astronomy, without Ptolemaic theory's refinements, (150 BC-150AD).

Latin translations of the astronomical tables of Al-Khwarizmi are a curious mixture of the Hindu and Greek methods. He translated *SLOKAS*, or Hindu sacred verses, for the west. Another Arab scholar, Al-Biruni translated an astrological work of Varaha Mihiri's into Arabic.

According to Neugebauer:

***"There are many evident indications of a direct contact of Hindu astronomy with Hellenistic tradition, e.g. the use of epicycles or the use of tables of chords which were transformed by the Hindus into tables of sines. The same mixture of ecliptic arcs and declination circles is found with Hipparchus and in the early Siddhantas, [where they referred to polar longitude and polar latitude]."* The extensive use of the sexagesimal system is common in both Greek and Mesopotamian astronomy.**

"Indian asterisms appear in Abu Ma'shar, and their source is found in the astrological writings of varaha Mihira, the same author of the sixth century AD in whose astronomical work we found the use of the linear methods for the lunar motion, otherwise known to us from Greek papyri and finally from cuneiform tablets. Following the unmistakable traces of very specific astrological doctrines, one can reconstruct the road which connected Hellenistic Mesopotamia with Hellenistic Egypt, with pre-Islamic Persia, and with India."

The lunar theory presented in the *Panca Siddhanta* is essentially the same step functions described in Babylonian texts. In the *Surya Siddhanta*, the zodiacal signs are used to denote arcs on any great circle, as did the Greek Hipparchus. In the *Surya Siddhanta*, lunar months are described of fixed length, but later in Hindu astronomy they are of variable length as in the adjusted lunar calendar. Decimal place value notation probably was a modification of the sexagesimal place value notation with which the Hindus became familiar through Hellenistic astronomy.

So, it appears that even in the ancient world, "there is not much new under the sun." Concepts travelled along cultural exchange routes, and were widely shared and modified, then recycled back to where they came from...in the so-called beginning.

However, for the case of the Hindu calendar systems, this is hardly as far back as their huge cosmological epochs would have us believe. Even though the *Maha Yuga* is a good

pre-scientific guess for the age of the Solar System, (4.5 billion years), there is another, symbolic meaning to these great sums. The key numbers' importance comes from basic metrological constants. $25,920 = 2160 \times 12$ is the formula of the "Great Year" or Precessional Cycle. 500 such cycles $500 \times 25920 = 12,960,000$.

The Aryan, or pre-Vedic *Puranas* derived ages from multiples of 3,600: $3600 \times 3600 = 12,960,000$. The globe is divided into 360 degrees of latitude, each degree containing 60 minutes of 3,600 seconds. $3600 = 60^2 \cdot 3168 - 1008 = 3.1428571$. #1080 is a cross-cultural lunar number, and close to the radius of the moon in miles.

Heraclitus spoke of 10800 years between successive destructions of civilizations. Its Aryan roots show in the Germanic 1080 pillars of Valhalla. In oriental astronomy, it is an important metrological unit (1080): divide a circumference of 3393 by 108 = 3.1416666.

$60, 60^2, 60^3, 60^4, = 12,960,000$

SYNCHROGRAPH C: #108, AUM THE MANDALOG OF THE UNIVERSE

"In India, where the first form to appear in the lotus of Vishnu's dream is seen as Brahma, it is held that when the cosmic dream dissolves, after 100 Brahma years, its Brahma too will disappear--to reappear, however, when the lotus again unfolds. Now one Brahma year is reckoned as 360 Brahma days and nights, each night and each day consisting of 12,000,000 divine years. But each divine year, in turn, consists of 360 human years; so that one full day and night of Brahma, or 24,000,000 divine years, contains 24,000,000 times 360 or 8,640,000,000 human years, just as in our own system of reckoning the 24 hours of a day contain 86,400 seconds--each second corresponding to the length of time, furthermore, of one heartbeat of a human body in perfect physical condition. Thus it appears not only that the temporal order written on the faces of our clocks is the same as that of the Indian god Vishnu's dream, but also that there is built into this system the mythological concept of a correspondence between the organic rhythms of the human body as a microcosm and the cycling eons of the universe, the macrocosm."

Joseph Campbell, *The Mythic Image*

Hindu polytheism implies many discrete points of view. These non-conflicting beliefs are logical conclusions drawn from the premises and reached through the accessible methods that constitute each approach. Each one is real within its own field. The builders of these points of view are not called thinkers, prophets, or philosophers--but "SEERS."

As such, Marshall was a seer when he conceived Synchrograph C or Synch "See," as a mandalog of concentric circles, in the tradition of the *mantras*, *mandalas*, and *yantras* (graphic mantram).

In a gestalt approach to the concept of number or the field analysis of number behavior, any specific number is considered in terms of the neighborhood in which

it dwells, instead of by some individual feature which it may share with some other family member.

Graphic displays can reveal certain features of number behavior which remain hidden in numerical or linguistic terms. The neighborhood of special numbers can be revealed by certain spiralic displays of circular unity (mandalogs).

#108 as the Hindu number of the Universe is one such circular totality which encodes the structure of Epochs or Divine Ages. Since the incremental numbers of the ages are multiples of #108, when enspiralled along 108 axes, the characters 0 - 6480 all align along the zero/108 axis -- they share the same neighborhood.

The synchrographic structure of the two ancient Hindu modules of circular unity disclose that the *Yugas* fall into a perfect tertiary symmetry. The Ages assume a perfect quadric symmetry when spiralled along 108 axes of a number field, array, or matrix. The final number of this synchrograph is 6480. The number of zeros at the end of any astronomical Hindu number is nearly arbitrary. The glyph unifies the two ancient systems.

These high factorial number arrays preceded modern forms of circular unity, even perhaps the Babylonian adoption of 360 as circular unity in that 108 is 3×36 .

The number wheel, Synchrograph C #108, enspirals the natural number series around a field divided into 108 radial increments from zero to 6480. Since #108 is 3×36 , and both systems mutually include the square of 36 (1296), it becomes evident that the classic 360 degree circular unity is the common denominator of these two separate systems.

"The word OM," said Ramakrishna to his friends, "is Brahman. Following the trail of OM, one attains Brahmin." The vowel O in Sanskrit is regarded as a fusion of A and U.

Note also that the numbers that represent these two systems all fall in the same zero axis. Also note, the sum of the *Yugas* (4320) end at two thirds of this axis ($6480 - 3 = 2160$: Platonic month = $12 \times 2160 = 25920$, Precessional numbers).

In the configuration of this mandalog, the four-digit palindromic sequence "1881, 2772, 3663, 4554, 5445," etc. fall in a quadric array, and the turnaround or nave of transpalindromicity (49.5) synchronizes the corner of the square with the side of the triangle, i.e. the nave between 45 and 54 (which added together equals 99).

Contemplation of this wheel discloses the complete menagery of "sacred numbers," the key numbers of ancient metrology and the Holotomic Sequence in positions that yield a perfect symmetry where only chaos exists in classical number theory.

Nature's behaviors coincide with the most crucial divisions of the continuum of base ten number. This wheel reveals a rhythmic series of revelations that are otherwise not available for contemplation.

Prior to this development, there were no most useful base ten Hindu characters with place valuation which makes the retrocity of the base wave visible. But since Sumerian times, there were Tables of Multiplication which clearly demonstrated the factors of divisibility of even astronomically large sums.

The certain numbers which stood out for their special properties came to be recognized as sacred or divine. As we have seen elsewhere, these are closely related to the Holotomic Sequence, which has its nave in the perfect number 6.

12 - 24 - 72 - 360 - 2520, etc. are all key numbers in the Sumerians so-called sexagesimal system. It was not beyond the Sumerians to determine their factors of divisibility even when they had no concept of the unique properties of prime numbers.

SIX, not sixty, is the key to the original system, which much later influenced the development of Hindu numerals and Divine Ages. There was a decimal subtext to the original Sumerian sexagesimal system.

Numeronomy is naturally based on six, not sixty. The assumption of sixty as the number on which the Sumerians based their system of calculation creates a difficulty in seeing how the number six, by itself, gives the foundation for the synchronization of number and geometry.

Six as the first perfect number denotes circular unity in planal geometry and accomodates Synergetics requirements for wholeness. By doubling six, we involve spherical unity represented by the close pack of 12 spheres around one. The number 60 shows no such harmony. Symmetry and synchronicity of planal and spatial systems of geometry and number share a basic unified interface.

60 is not a Holotome, and does not represent a symmetrical retrograde unity when mapped out in the synchrographic discipline.

It does however contain a unique nature in that it is the lowest number to accomodate 2, 3, 4, 6, and 8. ITS MISSING DIVISORS, FIVE AND SEVEN are conspicuously absent in either the Yugas or Ages.

NO FIVES EXIST IN THE YUGAS; NO SEVENS OR THREE EXISTS IN THE AGES. 2, 3, 5, 7, 11, and 13 are the first primes.

The absence of these specific primes in these modules holds an important key to the preBabylonian use of number thirtysix. $3 \times 36 = 108$, the Hindu number of the Universe, another form of totality. In each block of the divine epochs, the sum number of each block is tenfold the initial number. These calendaric values could have been discovered by contemplation on multiplication tables, and observational astronomy.

$$12 \times 3 = 36 \times 3 \quad 108 \quad 6^2 = 36$$

All numbers divisible by Holotome A: #12
 $432 = 12 \times 36$ $648 = 12 \times 54$

The Sumerian calendar was based on the 25,920 Precession cycles. While the Platonic Year was based on the divine number 2160 (1080 x 2). Plato mentions another divine number in his Republic, 5040 (2520 x 2).

$$12 \times 2160 = 25920$$

$$20 \times 108 = 2160$$

$$36 \times 60 = 2160$$

$$2160 + 360 = 2520$$

$$2160 + 432 = 2592$$

So, the crucial key to the anatomy of BASETEN NUMBER BEHAVIOR lies in the special series of number modeules referred to as the Holotomic Sequence.

It represents the ordinal series of those minimal numbers that accomodate the maximum amount of consecutive factors of division from one onwards. The first nine members of the sequence include these symmetrical entities.

12

24

72

360

2520

27720

360360

6126120

116396280

The first four numbers are recognized as numbers frequently used in prebabylonian times as metrological modules--the zodiac, 24 hours of the daily cycle; 72 = 1 degree of arc every 72 years; 360 degrees in a circle.

The next number (2520) is not commonly recognized, but 5040 was held in importance by Plato and alluded to in Revelations through the number 1260 (1260 x 2 = 2520).

THE MAJOR SIGNIFICANCE OF 2520 IS THAT IT IS THE FIRST NUMBER DIVISIBLE BY ALL NINE BASE DIGITS. FOR THIS REASON WE CALL IT THE AURIC KEY, for it made numeronomy graphically visible.

The next number 27720 of course is divisible by the first palindromic prime which is eleven and through its intimate connection to number nine is instrumental in the cycloreflexive wave that both separates and connects the Holotomes from and to each other. That is, it preserves the logical continuity of the transfinite chain of number. Each holotome retains and builds on the image of the one that precedes it.

The semiarbitrary answer to the question of why some unknown geometer selected 360 degrees for equating a circle has been that 360 has more than the usual amount of divisors for its size. This is not necessarily a complete, specific, and logical answer.

As a matter of fact, 360 is divisible by all base digits except prime number seven and when we multiply 360 by prime number seven, we produce 2520 which is the first and lowest number divisible by all base digits.

Since by multiplying 2520 by the next prime and receiving another palindrome followed by a zero, i.e. 27720, we naturally decide to destrapolate this sequence to see where it begins:

$$27720 - 11 = 2520 - 7 = 360 - 5 = 72 - 3 = 24 - 2 = 12$$

Since these are exactly the most often cited numbers of ancient metrology we have arguably discovered a long-lost key to the basis of ancient metrology or numeronomy.

To amplify this claim, note that 12, 24, 72, 360, 2520, 27720, etc. are the exact sequence of minimum sums that accomodate the maximum amount of consecutive divisors (factors of division). #SIX was exactly half of the first true Holotome, making the first perfect number the nave of Holotome A (12).

The Holotomic Sequence was discovered through the systematic graphic analysis of the enspirament of number 108 (AUM), and so was the 9/11 Cycloflex.

Multiples of 360, show the linkage between 360 and 2520 by prime numbers 7 and 11; this table yields interesting results.

$$1 \times 360 = 360$$

$$2 \times 360 = 720$$

$$3 \times 360 = 1080; \text{ OM}$$

$$4 \times 360 = 1440$$

$$5 \times 360 = 1800 - \text{ half circle}$$

$$6 \times 360 = 2160 - \text{ age of years}$$

$$7 \times 360 = 2520 - \text{ Auric Key}$$

$$8 \times 360 = 2880$$

$$9 \times 360 = 3240; \times 2 \text{ sum of ages } 6480$$

$$10 \times 360 = 3600 - \text{ Sumerian sar}$$

$$11 \times 360 = 3960$$

$$12 \times 360 = 4320 - \text{ Maha Yuga} - 4 = 1080 \times 2 = 8640$$

$$12,000 \text{ years of mahayuga} \times 360 \text{ "divine years"} = 4,320,000$$

To summarize the Hindu translation of the divine years into human we arrive at the following:

$$4,800 \times 360 = 1,728,000 \text{ human years}$$

$$3,600 \times 360 = 1,296,000 \text{ "}$$

$$2,400 \times 360 = 864,000 \text{ "}$$

$$1,200 \times 360 = 432,000 \text{ "}$$

$$12,000 \text{ divine} = 4,320,000 \text{ human years} = 1 \text{ Great Cycle or Mahayuga}$$

Furthermore:

1,000 Mahayugas = 1 daytime (or 1 night) of Brahma (1 kalpa):
i.e. 12,000,000 divine years or 4,320,000,000 human years.

360 days and nights of Brahma (720 kalpas) = 1 Brahma year:
i.e. 8,640,000,000 divine or 3,110,400,000,000 human years.

100 Brahma years = 1 Brahma lifetime:
i.e. 864,000,000,000 divine or 311,040,000,000,000 human years.

THE SUMERIAN LEGACY

The Sumerian legacy is an integral aspect of Synchronographics. Historically, the first synchrograph could be considered their division of the sky into the 12 divisions of the Zodiac.

Zecharia Sitchin concludes that Sumerian science originated with the "gods from outer space." But it is not as mind-bending to imagine some more plausible alternatives to this "channelling." An ancient "Newton," "Leonardo," or "Einstein" could have bootstrapped his mathematical system from ages of pre-historical experience, 50,000 years of human observation of the heavens and earth.

Just like the nameless creator of the Phoenician alphabet, the name of the source was lost, but the useful knowledge retained. Steeped in legend and myth by Babylonian times it was attributed to a divine source just as we attribute our own moments of inspiration or genius to a higher source, beyond our ordinary selves. This nameless genius created an oral tradition whose tables and methods were eventually written down. At first, one had to be an initiate (priest or scribe) to use the methods. Later they were adopted in everyday life.

The ancient systematic observers noticed the regularity of the passages of the planets through the constellations of the fixed stars. They conceived the grandiose idea of a mathematically determined cosmic order of greatness with lesser ever-evolving cycles of celestial manifestation, disappearance and renewal. Man sought then to harmonize with these cycles through the timing of religious festivals and astronomically based calendars in imitation of heavenly circumstances.

The Precession of the Equinoxes was first noticed as a slow but steady slippage through the Zodiac of 1 degree every 72 years. To complete one cycle of the zodiac-- a "Great" or Platonic Year--requires 25,920 years. Dividing this sum by 360 yields the number 432, the root of the mythological count of 432,000 years. However, it is not only mythological, or archetypal--it was discovered by centuries of controlled astronomical observation, even prior to written record-keeping.

In India, the *Kali Yuga* is supposed to have begun on February 17, 3102 BC. The astronomical aspect of a *yuga* begins with the sun, moon, and planets in conjunction in the initial point of the ecliptic. Everything returns to the same point at the end of the age.

This belief originated way before Hindu astronomy and is cross-cultural. But 3102 BC is a good approximation of the invention of the arts of writing, mathematics, and astronomy--all of which are a remarkable effort at translating celestial mathematics into the ordering principle of life on earth.

This is the echo of the old Mesopotamian doctrine which reverberated through Greece and Rome (Berossos to Seneca) as well as India (*Yugas*). It spread all over the known world into Egypt, the Zoroastrians, and traces are even found in China, Mexico, and South America. The old Sumerian tradition of astronomical observation was the basis of all intellectual culture, and originator of the myths of eschatology, or end times.

The Sacred Portal

The sacred place, the center of transformation, has always been a refuge from the laws of the temporal world. Sacred space is the visionary gateway which opens communication with the transcendental reality of the divine. Here, as Jung states, "man is no longer a distinct individual but his mind widens out and merges into the mind of mankind--not the conscious mind, but the nconscious mind of mankind, where we are all the same.

When the concept of such a holy site or center is joined with a mathematically structured universe, derivation from ancient Mesopotamia must be suspected. It is the archetypal source, the navel of the world. In many cases, the center is conceived as an axis extending vertically upward and downward, with the center at the conjunction of the four cardinal direction.

This is the ancient model of sacred space, which corresponds in Synchrographics with the form of the T.R.I., the Triaxial Retrograde Interface. The three intersecting axes of Euclidean space with a shared coordinate.

The Hindus had a version of this centering mechanism called the regents of the directions. Brahma was in the overhead position, Vishnu below, with Shiva as the vertical axis. Each directions is attributed to a god and quality.

The essence of this image of the axial point or pole is that it symbolizes the way or place of passage from motion to rest, time to eternity, separation to unity; but then also, conversely rest to motion, eternity to time, unity to multiplicity. The realization of the nonduality of heaven and earth--even of being and nonbeing--is assimilated in the **sacred center**. The ego is sacrificed in the primal waters of deathlessness, and released to be carried in all directions. This is the mystical-psychological sense of sacrifice in all great religions.

A solar hero is the most frequent embodiment of this process of purgation, illumination, and unification. He unites the religious significance of the sun, the zodiac, and the seasons with circular or cyclic determinism. Man sought to rise and share the great cycle with the sun and stars, to climb beyond the material universe to the immaterial realm of the world-sustaining sun. The ageless concept of the new dimension transcending linear,

historical time echoes Mesopotamian cosmology. We ourselves are already that light of consciousness, that ground of being.

THE JUNGIAN APPROACH TO NUMBER

Jung revealed how mythological images and numbers have always been associated with each other. Here, we find a correspondence between the Universe, #108, and cycles of the Sun.

Von Franz summarizes her Jungian view:

"The concept of natural numbers rests on an archetypal foundation. It represents a preconscious pattern of thought common to all human psyches, and therefore constitutes the basis for transmitting knowledge to a greater degree than mythological images, which exhibit more ethnological variations.

"Those aspects of the number archetype which present-day Western mathematics has made conscious in no way exhaust all its aspects...The preconscious aspect of natural numbers points to the idea of a numerical field in which individual numbers figure as energetic phenomena or rhythmical configurations. The "field," which we take to represent the structural outlines of the collective unconscious, is organized around the central archetype of the Self (which corresponds with the Sun, which corresponds with 108, and Brahma). For this reason historical mandala structures deserve particular attention. In corresponding "cosmic models" and mathematical representations of God, the first four numbers predominate to an exceptional degree.

"...These synchronistic and parapsychological aspects of number...can only be fathomed when we take into account the unconscious emotional setup and preconscious fantasies of the observer along with his conscious mental situation and outlook. The description of such phenomena will of course no longer produce universally valid theories, but rather transmittable realizations that can exert a mind-releasing, community-building effect, just as scientific advances did in the past. The common denominator in mankind's cognitive processes thereby shifts from the level of doctrinaire intellectualism onto another plane. It centers instead on the realization of an a priori psychic structure common to all men. Depending on the epoch and an individual's creative abilities, the basic substratum becomes clothed in the most varied shapes and conscious formulations, progressively transforming 'ancient, eternal truths' into more highly differentiated conscious patterns of realization.

"As the ultimate verification of these processes stands the objective psyche and its synchronistic manifestations, which contain the mystery of the sporadic conjunction of psychic and physical events, revealing a common 'meaning.' . . .When we take into account the individual characteristics of natural numbers, we can actually demonstrate that they produce the same ordering effects in the physical and psychic realms; they therefore appear to constitute the most basic constants of nature expressing unitary psychophysical reality."

The Development of Mathematics

According to Singer's **A Short History of Scientific Ideas**, something of the nature of mathematics must be much older than the earliest documented examples. In tribal pre-history mankind watched the movement of the heavens and kept tallies of the passage of cycles of both lunar and solar nature. The importance of the Sun grew with the rise of agriculture and the importance of dating planting and harvest times accurately.

By Sumerian times, numbers were represented in a system which combined a decimal with a sexagesimal notation. It embodied the principle of place-value, but not as we now know it. Shifting a number one place to the left multiplied its value sixty-fold, successive shifts to the right corresponded to repeated divisions by sixty to form sexagesimal fractions. In later Babylonia of the Seleucid period, the texts employ a 'zero' to indicate an empty sexagesimal place between two other figures. Remnants of the sexagesimal system survive with us in the 360 degrees of the circle, etc.

The mathematical texts usually consist either of tables for multiplication, squaring of numbers, etc. or of worked examples illustrating the solution of elementary geometrical or algebraic problems. The geometry amounts to little more than estimations of the areas of fields, though the special property of the right-angled triangle was known. The ratio of the circumference of a circle to its diameter, *pi*, was taken as equal to 3. This is the value adopted in the Old Testament, perhaps under Babylonian influence.

The algebra of the Old Babylonians could solve quadratic equations by a procedure equivalent to evaluating the modern formula, which gives the roots in terms of the coefficients, though the known texts nowhere quote or prove this rule. They also handled linear equations in several unknowns and even attempted to solve cubic and biquadratic equations.

The Old Babylonians astronomy amounted to little more than recognition of bright stars, arbitrary demarcations of the heavens, and often undated observations of striking celestial or atmospheric phenomena. There are also records of omens drawn from these, whose significance marks the beginning of astrology. Originally used to predict the fortunes of contending kingdoms, horoscope astrology subsequently developed into complex procedures for foretelling the destinies of individuals.

The later or Seleucid texts, on the other hand, embody complicated systems of theoretical astronomy. These were elaborated by the temple priests who observed the heavens from characteristic stepped watch-towers or temples, of which the Tower of Babel is a reminder.

The periodicity exhibited by the planets, and more particularly the revolutions of the sun and moon, were utilized for the measurement of time. The monthly changes of the moon are more obvious than the annual travel of the sun. So the lunar calendar was retained for religious purposes, while the solar was adopted for agriculture.

No natural numerical relation exists between the lunar month and the solar year. But by the fifth century BC, it was established that 19 solar years are equal to 235 lunar months (125 of 30 days and 110 of 29 days each) to within a fraction of a day. These 19 years, comprising 12 of 12 months each and 7 of 13 months each, were combined in a certain order to form what has been called, after the alleged Greek inventor Meton, the Metonic Cycle. The sequence in which 29-day and 30-day months followed one another was seen to be affected by the variations in the rates of motion of sun and moon, by the latitude of the moon, and by the inclination of the ecliptic to the horizon.

In the tables for predicting the dates of successive new moons, separate columns indicated the corrections to be separately applied for these various factors affecting the length of the month. They represented fluctuating discontinuity between upper and lower limits in a characteristic manner. The Babylonian tables, which extended also to the prediction of planetary phenomena, have been classified into two main systems, according to the methods employed to represent the variation of the sun's rate of motion through the course of a year. (adapted freely from **The Short History of Science**).

Indian Mathematics

The Indus civilization also learned its first lessons in mathematics from astronomy, the gateway to time reckoning and temple building. In the arithmetic of trade, the merchants of India were the equals of those of Mesopotamia.

Until about 2000 years ago, they probably used numerals made up of horizontal strokes. When they began to use dried palm leaves as writing material and developed a flowing style of writing, they also began to join up these strokes, so that became and became. In this way they gradually built up different signs for each number up to nine. Each sign could be conveniently used to indicate the number of pebbles in any groove of the abacus.

The Indians learned how to tell not only how many pebbles are in a groove, but also which groove they are in. The far right stood for units, the next to the left for tens, then hundreds, and so on. An empty column used a dot, as we now use zero. Thus each value meant only that one figure.

This system does away with space-consuming repetition. We can record the same number on any groove of the abacus by using the same sign. Saving space is only a small advantage. The great advantage of the Hindu system is that it enables us to calculate with numbers.

Other ancient systems of writing all relied on the use of different symbols for the same number of pebbles in different grooves of the abacus. Before you could do written or mental calculations with them, you would need to learn a different table of addition and multiplication for each groove. When there are only nine different signs, each of which can show the number of pebbles in any groove, and a zero indicates empty grooves, you need learn only one simple table, once and for all. You can carry over in your head because there is only one simple table to remember.

The Hindu number language quickly led to a revolution in the art of calculation. The mathematicians of India began to think in fractions and write them in the modern way. **By 500 AD, Indian mathematicians had solved problems that baffled the greatest scholars of antiquity. The mathematician Varahamihira calculated how to forecast the positions of the planets; Aryabhata wrote a rule for finding square roots and gave the value for pi as 3.1416.**

Around 800 AD, this numerical system was exported to Baghdad on the age-old caravan route. The Muslims used trigonometry. Because they had mastered the new arithmetic of India, they could make much fuller use of the geometry of Euclid. Improved navigational equipment emerged from the observatories which also had improved equipment. Knowledge took a big leap forward between 800-900 AD, when East met West in Baghdad, and the **base ten system** became the standard..

SYNERGETIC BASE-TEN NUMBER DYNAMICS

"Henri Poincare, for instance, says: "Every whole [natural] number is detached from the others, it possesses its own individuality, so to speak; each one of them forms a kind of exception, for which reason also general theorems of number theory are but seldom forthcoming." Nevertheless, this individual aspect of number appears to contain the mysterious factor that enables it to organize psyche and matter jointly."

M.-L. von Franz, Number and Time

"Consequently, it is not only the parallelism of concepts which nowadays draws physics and psychology together, but more significantly the psychic dynamics of the concept of number as an archetypal actuality appearing in its "transgressive" aspect in the realm of matter. It preconsciously orders both psychic thought processes and the manifestations of material reality. As the active ordering factor, it represents the essence of what we generally term 'mind'."

M.-L. von Franz, Number and Time

The Synergetic Natural Number Continuum

The continuum of base ten number is generally looked upon as a progressive and linear series of cardinal and ordinal numbers. Iterations signify the simple addition of the initial unit to each resulting member encountered in the continuing series of elements known as numbers. The digits 1 - 9 are known as integers or numerals. Of course, multiples of 10, 100, 1000, etc. are formed simply by adding zeros.

Further analysis discloses that this continuum can be viewed as both progressive and regressive. It is not exclusively linear, but has a cyclic function resulting from the terminal character of the last base digit and the next beginning initiated by zero producing the two-digit range. This doubling of number is for all practical purposes a cyclic function that recycles again and again with each ten-fold group produced.

Besides the cyclic and ambidirectional aspects of the number series, there is also a periodic series of reversals that occur in conjunction with the cyclic aspect.

This ongoing combination of diverse functions can be considered a mixing effect not unlike an egg beater that folds the medium over and over. Remember, from our previous discussion that **"OM is said to issue from a process of multifold reflection."** That process, exactly, is revealed in the number continuum when we can hold a metaphorical mirror up to nature's primal manifestation--the natural number sequence.

The key to the comprehensive analysis of general number behavior is found in the concept of "circular unity." Circular unity is an idea demonstrated by the harmonious interaction of the first six numbers. SIX is the first perfect number is the sum of its first three digits, or $1 + 2 + 3 = 6$.

$1 \times 2 \times 3 = 6$; $6^2 = 36$; $36 \times 3 = 108$; $36^2 = 1296$ $\times 2 = 2592$.

The term "unity" (or Universe for that matter) implies something that is composed of parts. Fuller agreed, and stated it as, Unity is plural and at minimum two, or at minimum six.

The sequence of perfect numbers (6, 28, 496, etc.) does not have the structural nor metrological significance of the Holotomic Sequence, which graphically displays an important structural order within prime number distribution.

Note that the first Pythagorean Triple 3:4:5 equals 12, which is Holotome A (which is also twice the first perfect number). $3 + 4 + 5 = 12$.

The sheer complexity of the waves and cycles that are generated within the base ten continuum cannot be described nor explained with conventional modes of philosophical description. Number theorists must resort to higher mathematics. But these cycles can be demonstrated graphically so they are visible even to those not mathematically inclined.

Synchrographics has been systematically contrived to formally illustrate behavioral patterns that have successfully led to a general understanding of the fundamental elements of the geometrical nature of the base ten system.

Can we find a cosmic mandate expressing Fuller's assertion that unity is plural and at minimum sixfold? The Holotomes and Holotomic Sequence fulfill this mandate with neat, logical finite sections. They represent circular unity and whatever else remains of the "infinite rest" that swells beyond our immediate focus.

When we refer to the base of a number system, such as base ten, we are also referring to the amount of iterations in a loop or cycle for the FOLDMENT that multiplies the base and the multiples of that base is for all purposes a circle.

The coexistent independency and interdependency of the base digits creates the rational notion that continuity is discontinuous. From this we derive the closed loop logic of the Holotomes as discrete levels of finitude.

The graphic importance of this particular Holotomic Sequence is that circular symmetry is being conserved and may be enlisted as the fundamental reference key in the graphic investigation of number behavior. The primes are deployed in symmetrical interface only within these specific Holotomic domains.

The Synchrographic process of regarding symmetry as a primary analytical aspect of reference makes the Syndex archetypal system of fundamental classes of numbers possible. The foundation of this system is the palindromes and transpalindromes.

These 12 archetypal classes of number are catalogued by the ambidirectional glyphs that discloses the transbinomial nature of any individual number. Only 12 permutations exist in the total foldment of the number field or domain: Retrosquare Primes, Retroprime composites, tranpalindromes squares, etc.

The so-called four fundamental operations of arithmetic are in reality two binomial pairs: addition is reverse subtraction; multiplication is reverse division.

The term transpalindrome is invoked merely to establish a context through which to establish a bilateral system of numerical classification, that is, to create a notational link between any integer of 2-digits or more with its antithetical or reverse companion. For example, number 21 is the transpalindromic companion of number 12.

This simple concept brings into being a host of valid structural relationships that would otherwise be totally ignored. For example, number 16 is the ONLY 2-digit square that is a prime when reversed: 16 is a square, 61 is a prime. We call number 16 a retroprime square, and number 61 is conversely termed a retrosquare prime.

Without this classification system, it is impossible to analyze the number field. Palindromes, or binomial reflection numbers are neither purely accidental nor without significance. Remember, OM issued from a process of multifold reflection to create the entire universe of phenomena.

It is through the classification process that the enigma of prime number distribution has been solved. By labelling all possible permutations of the ambidirectional system of number dynamics, we find there are twelve discrete members in the domain of number class.

In order to systematize the study of the base ten concept, a graphic format was essential to organize sizable spans of the continuum for in-depth analysis. The enspirament of number offered itself as the ideal format. The cyclations of the spirial could be referenced to the longer cyclic periods intrinsic to number itself. There are cycles within cycles, more readily seen in graphic format than in a continuous sequence.

This was the general reasoning for adopting the synchrographic methods: to condense, or sample the number continuum, and establish reference to related periods of cyclicity.

The fundamental basis of the compound cycling begins with the circular unity six (ref. Fuller). It is the 2-dimensional circular unity of the spherical 3d model of sacred space which is composed of the nexus of the four cardinal directions with a vertical axis,

(T.R.I.), six ambidirectional axes. It leads directly into the full spectrum of SYNDEX discoveries, or the nuts and bolts of general Numeronomy:

#1. The Triaxial Retrograde Interface is the fundamental program for circular and symmetrical retrograde unity and the general basis of the Holotome's profile. $1 + 2 + 3 = 6$; $1 \times 2 \times 3 = 6$. $6^2 = 36$; $36^2 = 1296$. $60, 60^2, 60^3, 60^4 = 12,960,000$.

2. Description of the proliferation of the Holotomic Sequence by prime number multiplexing; list of first five holotomes and synchrographics describing them.

12
24
72
360
2520

#3. The twelve Syndex glyphs denoting the archetypal system of ambidirectional number classification; also the general explanation of transpalindromicity. The alphabet of number class includes: palindromic primes (11, 101); retrosquare prime (61); transpalindromic squares (144, 441); retrosquare composite (46); palindromic composite (33, 99); retrocomposite prime (41); transpalindromic primes (13, 31); retroprime square (16); palindromic squares (121); retrocomposite square (64); transpalindromic composite (12, 21); retroprime composite (14).

#4. The exemplary nineleven retrograde octave wavecycle and prime/square/composite triplex diagram, denoting the profile of 9/11 cycle in conjunction with the four 2-digit pairs of transpalindromic primes. Also various descriptions of transpalindromic profile in 2, 3, 4, 5, 6, 7, and 8 digit multiples of 99 sequences. The 9/11 wave cycle was discovered on Synchrograph C, #108.

#5. How retroadditive sums of holotomes produce 1/3, 2/3 or full 99 count or even multiples of 99, thus synchronizing with exemplary wavecycle.

#6. The fourteen 3-digit pairs of transpalindromic primes.

#7. The location of holotomes in exemplary 99 wavecycle path.

#8. Tracks denoting interval symmetry of primes: Holotome D.

#9. Ancient Metrology: The Sumerian knowledge of the Precession of the Equinoxes: $72 \times 360 = 25,920$; and the Holotomes as circular unity, 12 - 24 72 - 360 - 2520, etc. Here the intrinsic structure of number coincides with nature's scenario. And the Hindus used exactly the same figures as metrological modules, as have all subsequent civilizations. Temple architecture is based on multiples of $36 = 6^2$.

So, Numeronomy, the laws relating to the essential structure and dynamics of number, is a new word for an extremely ancient science. This science, based on the knowledge that the continuum contains a definite structural order with general laws that describe the nature of that order, has laws that relate to the general behavior of nature itself.

In Synchrographics, the cyclic and reflexive nature of the cardinal/ordinal number series is portrayed through a graphic context which reveals the minimal set of key numbers required to show the coherent nature of prime number order.

Synchrographics suggests some new terms, including a 12 symbol alphabet which is justified by the context. Systematic investigation of the intrinsic structure of the numeric series is purely a matter of selecting a graphic method of mapping numbers in their natural order so that geometrical order is also an integral aspect of that sequence.

The system of multiradial and multiaxial interfacing between number and idea is called spatial formation. The maps that include the relationships of circular unity and the distribution of primes and other classes of number are called mandalogs.

The employment of this multirelational spread sheet permits the number analyst to consider aspects of the numeric continuum that would otherwise not be taken into account and therefore beyond the order-seeking functions of human mentality.

The first important concept of numeronomy is the exemplary base wave. The wave begins both before and after number 10. In fact, it is called the nineleven cycloflex because it is the result of the mutual interaction of both nine and eleven.

This wave begins at ten and concludes its first cycle at 99 ($9 \times 11 = 99$). Then it continues through the multiples of 99 and never ends. This is called exemplary because it sets up a continuous pattern that never ceases and never changes. This pattern is responsible for the continuous integrity of number behavior.

Numeronomy

Numeronomy, or the laws governing the behavior of the continuum of quantitative notation is the natural result of numerology, the study of number. Numeronomy is the outcome of Synchrographics. Numbers speak for themselves through structure and behavior.

The single most important discovery of the SYNDEX PROJECT is the Holotome and the Holotomic Sequence, created by prime number multiplexing. It was discovered on Synchrograph C.

The second most important discovery is the Exemplary Basewave Octave or Nineleven Cycloflex. It was also discovered by meditating on the C Graph.

The third important discovery is the four pairs of 2-digit transpalindromic primes which served as major clues to the discovery of the coherent order of prime number distribution.

The fourth discovery is how the Holotomes relate to the exemplary octave wavecycle.

Number/geometry is the fundamental cornerstone of human communication and specifically the alphanumeric principle of descriptive notation. The T.R.I. represents the geonumerical basis of the sequence of minimal pluralities that accommodate the maximum

amount of dividing factors. The Holotomic mandalogs display the retrograde symmetry of each of the circular unities in the form of a half positive and half negative octave system predicated on the octave nature of the so-called base ten system of number.

The base ten system of number is an octave system, where either one or nine can be seen as a null value event.

Furthermore, this octave can be regarded as a cyclic function. The zero, one, or nine can function as the null event which acts as the null value gap between the beginning and ending of the octave retrograde cyclation, due to its half positive and half negative symmetrical cycle (which negates the numerical value of one or nine just as if they were of the same nature as zero).

Due to the octave nature of the eight true numbers, no transpalindromic sequence can exceed an octave cycle.

Each Holotome in the sequence of holotomes when represented in a radial series of the numbers is composed of a perfectly symmetrical array of prime numbers diametrically opposed to other prime numbers or numbers composed of primes multiplying other primes. Also, the intervals that separate the primes are diametrically opposed to the same magnitude intervals across the wheel, yielding 100% perfect radial symmetry.

In the context of the Holotomes, then, the deployment of prime numbers is an orderly progression. This ends the tradition that the primes do not occur according to any recognizable pattern.

This is the essence of the holotomes and their graphic elegance. Graphical elegance is often found in simplicity of design and complexity of data. Visually attractive graphics also gather their power from content and interpretations beyond the immediate display of some numbers. The best graphics are about the useful and important, about life and death, about the universe. Beautiful graphics do not traffic with the trivial.

On rare occasions, graphical architecture combines with the data content to yield a uniquely spectacular graphic. Such performances can be described and admired, but there are no compositional principles on how to create that one wonderful graphic in a million.

Number is considered so simple and mundane in nature that a popular assumption exists that there is nothing more to know about it that could really be of any valid significance. In a sense, number is self evident and apparently contains no subtle mysteries.

Contrary to this attitude, number is the repository of a highly complex system of very intricate and involved interrelationships that have shaped the cosmological and religious backgrounds of all cultures. They affect us unconsciously at the deepest levels of our belief system, which in turn conditions our thoughts, feeling, and behavior.

The true mechanisms operating in the number chain can be shown in a system of incremental spirals portraying the numeric continuum and the special events which occur in it. R.B. Fuller recognized this when he wrote to Marshall, March 3, 1981:

"Your cyclic synchrographing work clarifies and simplifies this whole matter to an epochal degree."

SYNCHROGRAPHICS

Synchrographics is an innovative, systematic discipline interfacing the natural base ten integer progression with the fundamental elements of geometry. This institutes a graphic synthesis of the the two basic disciplines which in essence are initially two interdependent concepts that only occur through their mutuality.

The Pythagorean Triples that begin with the 3-4-5 triangle bring to note this initial unity of number and geometry attesting to the scientific validity of the synchrographic method of analysing relationships. They are not at all evident without such an interdisciplinary medium.

Each holotome expressed in synchrographic form is geometrically symmetrical. The base digits of the parallel spirals of iterating squares give direct visual evidence of the factorial degree of any specific integer by the occurrence of squares that have been color-coded for that particular incident of synchronicity.

In that the initial holotome is twelve and all subsequent holotomes are a multiple of that number, the valuable duodecimal interface that encompasses the base digits is reflected in the substratum of all holotomes.

Synchrographics offers a plausible answer to the question of why the Babylonians adopted the 360 degree circular unity. The ancient Hindus chose 108, which is 3×36 .) The classic answer is that 360 has many divisors. But perhaps some unknown numerist discovered this sequence in the ancient past.

This sequence is generated by doubling the first perfect number six to equal 12. Then doubling 12 for 24. Then multiplying 24 by the first true prime $12 \times 3 = 72$. Then by multiplying that number by the next true prime $72 \times 5 = 360$. Then multiplying that by the next true prime: $360 \times 7 = 2520$, etc.

By beginning with twelve we have already involved 2, 3, 4, and 6. By doubling 12 we have involved #8. or five of the base digits. By multiplying 24 by prime number three, we involve nine, or six base digits. By multiplying 72 by 5, we involve seven base digits or 2, 3, 4, 5, 6, 8 and 9. Finally, by multiplying 360 by 7 we have captured them all: 2520.

If the Babylonian metrologists knew of this, neither they nor modern number theorists make mention of it.

Whatever the case, the Holotomes are ideally adapted as instruments for translating intricate geometrical interrelationships into the language of number. Only through the careful study of these special modules does the exquisite order of prime number occurrence become obvious, for the primes are found to be deployed in symmetrical interface only within these specific holotomic domains.

Thus, number stripped of its structural character is reduced to the empty and monotonous iterations used essentially for counting objects and measuring distances. When numbers, on the other hand, are permitted to be deployed in cycles that are in phase with their already inherent rhythms, a clearer picture emerges.

All mandalogs are the product of the systematic generation of the exact sequence of minimax factorization. They have the perfect retrograde feature by which the patterns generated in the first half of the spiral are reversed at midpoint and are reflected as a mirrored image in the second half of the spiral. Remember, OM was formed by multifold reflection!

Also, because of the existence of palindromes and other reflective qualities issuing through each holotome there is an exemplary wave form that begins at the end of the first holotome. This is a dual component wave, resembling the DNA helix. The wave begins amid number ten and is composed of square number nine and palindromic prime number eleven.

This compound cyclic wave is labeled the nineleven cycloflex. It cycles and oscillates through multiples of ninety-nine and produces decant or tenfold series of consistent tranpalindromic sequences or numbers. Each number in the sequence has its perfect reversal on the corresponding other side.

The total reversal of number should always have been expected in that the number chain is by its graphic nature a two-way street, refolded again in the four fundamental operations of arithmetic.

The graphic mandalogs contain a rational and logical system of interrelating number and geometry or quality and quantity. They are graphic expressions of identical ideas regarding the descriptions of events in nature.

A critical consideration in expressing the optimum number of interrelated ratios is to do so with a minimum amount of graphic details. That is, to show the most information with the least given axis of reference. The mandalogs, or number wheels, are mathematical entities which express a plurality of interdependent formulae in a simple singular system.

**The cornerstone of SYNCHROGRAPHICS is the preliminary Pythagorean Triple:
 $3 + 4 + 5 = 12$:**

**Holotome A times two equals B or 24
times prime number three equals C or 72
times prime number five equals D or 360
times prime number seven equals E or 2520
times prime number eleven equals F or 27720
times prime number thirteen equals G or 360360**

In this way, the minimal numbers that accommodate the maximum amount of consecutive factors of division are generated by the multiplication of each resultant sum with the next prime number in its natural order of occurrence.

Each of these Holotomes is a number of special geometry, a circular unity. Expressed as a geometrical entity, a synchrographed Holotome is found to be reflectively symmetrical. At its midpoint, its initial pattern reverses and its second half becomes a reflection of its first half, much as OM created the Universe through its "multifold reflection."

J.S. Bach used this numerical phenomena in his **Crab Canon** or Retrograde Fugue. The breakdown of that notation was 22×144 or 3168. This number is cited in the Qabala as the perimeter of Solomon's temple: $3168 - 1008 = 3.1428571$ (4×252).

The secret traditions seem to have made liberal use of the Holotomes without ever pointing them out.

The number 3168 has special qualities: By adding the palindrome which is the sum of a palindrome times another palindrome:

3168
5445 : 55 x 99
8613

We get a reversal of the initial number.

The ninety-nine cycle is the carrier wave of the transpalindromic reflection sequence. This sequence is crucial to the mapping of the natural number scenario because the 99 cycle issues through the Holotomes.

The Holotomes are ideally adapted as an instrument for translating into the language of number the intricate geometrical interrelations between the configurations of cubic space. The Pythagorean Triples are the best examples of the interdependent nature of number and geometry. These triples logically deduced as an "infinite set" all share the 90 degree angle. They show the geonumeric character which describes the same ratios and interrelationships in different styles of notation.

Synchrographics begins with the assumption that since number and geometry are two ways of expressing the same set of ratios or relationships, then it holds true that a graphic device may be generated that faithfully aligns these two methods of notation in a synchronetic diagram. That is, a single notational system may express the geometrical nature of number and visa versa.

The "four progressively additive and four progressively subtractive event octaves with a ninth null event" depicts the primary cycle or finite extent of the initial program parameter.

With the turnaround occurring at ten (between square number nine and prime number eleven), the nineleven wavecycle then begins and proceeds to forty-nine and a half (49.5). It turns around and proceeds to ninety-nine (99), and thereafter continues through the multiples of 99 to 1089 or the only four-digit transpalindromic square. This is not a guess, since the mandalogs demonstrate it graphically.

The behavior or structure of the baseten system requires the perspective of an integrated complex where number and geometry are interqualifying aspects of an unified system of congruent identities. The character of notation determines whether data is in the form of number or geometry. Each requires the other in order to be expressed.

This interdependency authorizes the synchrograph to represent a number as a geometrical phenomena in which each holotome contains the triquadric core intitiated in number 12.

(Holotome A)

Thus, every subsequent holotome retains a copy of the initial data, plus new more involved data. **Each and every holotome is a symmetrical retrograde MANDALOG**, representing the four progressively additive then progressively subtractive event octaves with a ninth null event synchronicity. Altogether it represents the octave nine system of R.B. Fuller, or Marshall's nineleven cycloflex.

The exemplary compound wavecycle which proliferates through the multiples of 99 is the carrier wave that both integrates and isolates the Holotomes with accumulative integrity. In this scenario, the primes behave in an orderly manner through their special palindromic members:

13 31 17 71 37 73 79 97

The four pairs of two-digit palindromic primes form the octave bridge in the 99 cycle.

The general laws of number behavior can now be written from the behaviors clarified through synchrographic mapping techniques. Numeronomy is then expressed or emanated through the transpalindromic functions, which remain unseen in classical number theory and structure.

The intellectual separation of geometry from number removed from number the purely geometrical aspects of the numerical continuum that made the holotomes apparent as symmetrical mathematical entities.

Only through the study of these special modules does the exquisite order of prime number occurrence become obvious. These geometric number wheels are unique examples of circular unities.

The primes are deployed in symmetrical interface only within these specific Holotomic domains.

There is a way in which to seek out these entities by intermultiplying the primes from a special base module. Much in the way that the factorials are produced but with the difference that diminishes the huge sums that result from the redundant multiplication of the accumulating composites, out of what would have been primes.

We begin with six, the first perfect number, then double it to produce 12, which we call a holotome. This produces a **number wheel** that involves all of the base digits plus three of

the first two-digit numbers. This number wheel contains all of the needed geometry by which to proliferate the family of related Holotomes.

All mandalogs are the product of the systematic generation of the exact sequence of minimax factorization. They have the perfect retrograde feature which reverses at midpoint, because of the existence of palindromes and other reflective qualities.

The first solid indication of a rational link between prime numbers and square numbers was found in the diagram entitled the prime/square interface which actually includes the composites in that the full overview addresses the holistic interaction of all classes.

The prime/square interface diagram consists of a vertical column of the first one hundred and one numbers with their squares listed on a right hand column. The finite extent of this number map is calculated to encompass the full range of the 99 cycle. The cycle that contains the exemplary basewave that is essential to the structural integrity of the Holotomes. This wave in a certain sense is such that it determines the point places in the continuum where discontinuity may or may not occur.

The mandalog, then, is a graphic mathematical entity for the expression of a plurality of interdependent formula in a simplicated singular system, i.e. an information containment mechanism, or book: Holotome.

Such a device contains information and is at the same time a device to convey information clearly and accurately, with a minimal possibility of ambiguity, error, or paradox.

In classical systems of encoding and conveying information, elements of paradox occur through the vehicle of language itself. The fault generally exists in the very foundation of language at the fundamental level of syntax.

It is through the transpalindromic nature of the natural baseten number sequence that the irregular occurrence of prime numbers is recognized as a purely causally-determined pattern of rational explanation.

The classical approach to a study of prime numbers is such that the primes are considered more or less estranged from other classes of numbers in hopes that the primes might manifest some intrinsic rhythm of their own that could be found to account for distribution, density, etc.

No single class can be isolated as an element responsible as a determinant of any specified classes of behavior, since the full compliment of classes that comprize the self-modifying continuum interact congressionally.

Synchrographic analysis has shown that an exemplary wave form is formulated in the structuring of the base digits which when issuing through the sequence of numbers maintains its own structural quality even while it modifies the quality of the numerical event identities it encounters.

This wave form occurs through the mutual interaction of square number nine and palindromic prime number eleven. In that nine times eleven equals ninety-nine, the wave proliferates through the multiples of ninety-nine.

Fuller did not have the advantage of synchrographs to clearly see and properly describe this basewave. This description of an octave-nine system had the turnaround at fifty. The true nineleven turnaround is a 49.5.

The graphic mandalogs allow us to monitor the exemplary basewave that is guided through the continuum of natural number by the cyclic and reflexive qualities inherent in the special or noble numbers.

In the Prime/Square Interface Diagram, the basewave is seen to contain itself through the palindromic mechanism that is sustained through the four pairs of transpalindromic primes that act as transnumeric relay stations.

The tapestry of number is literally woven with the four warps and four woofs, or octave, of the transpalindromic bridge between the first and only two-digit palindromic prime number 11 and the first, but not only, 3-digit prime number 101--primes that are known to proliferate palindromes in being multiplied by themselves.

The full importance of the basewave continuity observed in the multiples of 99 is only realized when investigating its involvement in the structure of the Holotomes. The initial holotomes contain only a rational section of a complete cycle; that portion necessary to insure a quality of infinity, (the number repeating itself indefinitely).

The number structure or number behavior mapping technique makes number theory visibly coherent. Synchrographic techniques are scientifically systematic. The general scheme of Numeronomy involves a more complete system of classification which takes special note of both the palindromic and transpalindromic nature of number. It is possible (but remains to be calculated), that the holotomes contain a consistent ratio between

primes and non-primes with the holotomes that precede and follow.

TRANSPALINDROMES

Transpalindromicity of number is merely a term by which we include the reversal of any particular number exceeding a single digit. For example, 16 and 61.

Another example involving a transpalindromic distinction is when a reversed number remains in its class, like 13 and 31 which are both primes, i.e. transpalindromic primes as compared to a simple palindromic prime such as eleven. These are only twelve permutations possible within the whole continuum of number.

The complete analysis of number behavior is not possible without taking into account the palindromic and transpalindromic characters of number. This is the crucial and paramount reason that the behavior of prime numbers have remained an enigma for so long.

Number theory has ignored the ambidirectional reflexivity inherent in the number continuum. Regaining an impartial view of how reflexivity is totally conserved within the continuum leaves no gaps in the concept of numerical continuity.

The synchrographs and mandalogs used in this study are to support the continuity that has been disrupted by the belief that prime numbers are without connective order. Toward this end, we introduce approximately 16 new words that fill in the missing blanks to form a coherent picture or concept of true number dynamics.

The term "synchrostat" designates an event synchronicity in the numeric continuum. This term and its subsequent Tables were valuable tools in indentifying a cyclic series of numbers that embody features that were common to all members of the series. They embody and exemplify a practice that was used to explore many other cycles until the main base cycle was finally discovered.

(Synchrostat illus. here.)

Comprehend the universal nature of the transpalindromic function of number behavior is not easy. We tend to see the number chain as a unidirectional continuum, which is too linear for a synergetic perspective. Revisioning it with the concept of simultaneous counterflow yields a more accurate picture. With large spans of number, the complex interrelationships become difficult to visualize.

Fortunately, because of the octave nature of the base cycle there cannot be more than four consecutive transpalindromic pairs in a single symmetrical sequence, regardless of the amount of digits in each individual number.

However, we are only looking at the multiples of nine. But, in fact, all the numbers in between are also involved in transpalindromic transactions. To address such a complex interchange by graphic means can only be accomplished in a series of static cross-sections each involving no more than the eight required transactions.

The exemplary 99 wavecycle affords us a context that gives a graphic expression of total transpalindromic symmetry which it is possible to contemplate with clarity.

All the Holotomes contain the same general mechanism seen in the 99 cycle, but even the Holotomes must be contemplated in various graphic modes to capture their full integrity.

Transpalindromicity functions through the ambidirectional nature of number. It is therefore, the initial or primary function of number behavior in general. All details of number behavior derive primarily from a transpalindromic function operating through an ambidirectional chain of ambidirectional numerical events.

If any aspect of direction is left unconsidered in the behavior of any specified event then behavior observed in connection with that event will have been compromised. In the past, there has been a general disregard for the retrocity of number in general. Yet, no single function is more important or interesting than this transpalindromic nature in determining the basic waveforms inherent in baseten numeration.

Transpalindromic symmetry refers to a circular module of numerical relationships and interoperations which form a totally harmonious retrograde and symmetrical octave unity. The emphasis is not on palindromes, but on the relationship existing between palindromes and transpalindromes:

1089

Palindromes: 55 x 99 = 5445

9018

We can take any number, reverse it, add the two numbers together, continue to reverse and add, and eventually end up with a palindrome--a number whose digits appear in the same order whether they are read from left to right or from right to left.

Transpalindromic symmetry is not isolated to the few graphic expressions submitted here as examples to clarify the meaning of this neologism (transpalindromicity) on the subject of number behavior.

Transpalindromic behavior itself is a totally general condition of the number chain and is operative throughout the continuum. It is also a primary factor in the graphic disclosure of many subtle but important aspects of number behavior; an intrinsic structural condition effecting every and all numbers in their collective interactions.

Transpalindromic symmetry is a condition relating to specific isolated groups of number or special numerical quata where symmetry manifests as a collective mutual interaction.

A Holotome is such a collective interactive group where symmetry is herein claimed to be absolute.

A Holotome is distinguished by an integrity of retrograde octave symmetry, discrete levels of finitude and circular unity. Its expression in synchrographic form is a holistic synthesis of graphic syntax.

A contemplative instrument of inquiry into the relationships between words and the idea-pictures they mean to represent.

Transpalindromic symmetry means cycloreflexive synchronicity: what comes around

goes around. Palindromes are symmetrically flanked by up to four transpalindromic pairs.

SUMMARY

To summarize our main premises, note that the multiples of nine produce a transpalindromic loop, or wavecycle, which turns around at midpoint to produce a reverse series of companion numbers:

27
36
45
54
63
72
81
90

The first eight multiples of nine disclose an octave cycle of four forward and then four backward number events. This retrograde function progresses to a point between 45 and 54, where it reverses and then continues on in retrograde manner to 81, which is the reverse of 18. Thus a cycloflex or wave-cycle is apparent.

In addition to this +4, -4 cycle, the multiples of eleven produce a consistent series of two-digit palindromes: The first eight multiples of 11 are palindromes which then represent an octave of 8 forward ambidirectional number events, ending in 99 or 9×11 :

11
22
33
44
55
66
77
88
99

Thus, the number 99 is composed of 2 discrete octave sets that are synchronous:

9 11
18 22
27 33
36 44
45 55
54 66
63 77
72 88
81 99
90

The number 99, then, is a crucial module in the description of number behavior. It contains a full octave of eight sequential palindromes in the multiples of 11 and eight sequential transpalindromes in the multiples of nine. This module is then the archetypal prototype of the transpalindromic sequence which issues through the multiples of 99.

99
198

297
396
495
594
693
792
891
990
1089

Four forward then four backward event octaves with a ninth null event, altogether represent a NINELEVEN OCTAVE CYCLE.

It is through the transpalindromic nature of the natural number sequence that the irregular occurrence of prime numbers is recognized. It is a purely causally determined pattern of rational whole numbers.

In the classical approach to the study of prime numbers, the primes are considered more or less estranged from the other classes of number, in hopes that the primes might manifest some intrinsic rhythm of their own that could be found to account for distribution, density, etc.

Since the full compliment of classes that comprize the self-modifying numerical continuum interact congressionally, no single class can be isolated as an element responsible as a determinant of any specified classes behavior.

Synchrographic analysis has shown that an exemplary waveform is inherent in the structuring of the base digits. When issuing through the sequence of numbers it maintains its own structural quality while modifying the quality of the numerical event identities it encounters. This waveform occurs through the mutual interaction of square number nine and palindromic prime number eleven. In that nine times eleven equals ninety-nine, the wave proliferates through the multiples of ninety-nine.

Together, this pair interact to produce the exemplary transpalindromic wavecycle sequence which integrates the full band of number classes.

Buckminster Fuller, not having the advantage of the synchrograph did not clearly see and properly describe this basewave. His description of an octave-nine system had the wave turnaround at 50. The diagram shows the true nineeleven turnaround is at 49.5.

His description of "four progressively additive, then, four progressively subtractive event octaves, with a ninth null event" is a good description and perfectly adaptable to the actual scenario. The full ninety-nine cycle divided by two equals 49.5.

The involvement of prime number eleven in the palindromes has always been known.

$11 \times 11 = 121$
 $121 \times 11 = 1331$
 $1331 \times 11 = 14641$

And prime number 101:

$$101 \times 101 = 10201 \times 101 = 1030301$$

But the exact nature of the exemplary nineleven sequence has not been described until the present document.

The relation of the palindromic primes to the transpalindromic primes are found in the nintynine cycle. The four pairs of two-digit transpalindromic primes:

13 31 17 71 37 73 79 97

form a relay bridge between ten and one hundred within the nintynine cycle. See diagram entitled the PRIME/SQUARE INTERFACE.

The continuity in and the discontinuity between the holotomes is effected by the integrity of the exemplary nineleven wavecycle. Each holotome contains a rational section or an even multiple of nintynine:

$$\begin{aligned} 12 / 99 &= 0.121212 \\ 24 / 99 &= 0.242424 \\ 72 / 99 &= 0.727272 \\ 360 / 99 &= 3.636363 \\ 2520 / 99 &= 25.454545 \\ 27720 / 99 &= 280. \\ 360360 / 99 &= 3640 \\ 6126120 / 99 &= 61880 \\ &\text{etc.} \end{aligned}$$

There is a class of number not generally acknowledged in traditional number theory, found through the systematic exercise of synchrographics. It is mechanically instrumental to the general operations of number behavior through interactions with other familiar classes of number.

That any number of two or more digits, with the exception of numbers ending with a zero, has a reverse mate is obvious. The reverse of number twelve is twenty one, the reverse of thirteen is thirtyone, etc. This is the transpalindromic aspect of real numbers.

If the reverse mate of any specific number was of the same class as its forerunner then there would be no reason to regard the transpalindromic aspect as a designation of any structural distinction. It would simply be an "artifact" of the so-called Arabic numeral system. But, since for example, a square may be a prime when turned around, a structural distinction is obvious.

The square number sixteen becomes a prime when reversed. Sixteen, then, may be referred to as a retroprime square. As a matter of special interest, it is the ONLY two-digit square that is this class.

Any number which remains in its same class when reversed is a transpalindrome of that class. For example, thirteen and thirtyone are both primes, i.e. transpalindromic primes.

There are only four pairs of transpalindromic primes:

13 31 17 71 37 73 79 97

The following reference guide shows the structural relationships that influence the interbehaviors of number due to the transpalindromic distinctions.

(Insert the archetypal alphabet of number class here)

144 and 169 are the ONLY THREE DIGIT EXAMPLES of a transpalindromic square number.

$$12^2 = 144$$

$$21^2 = 441$$

$$13^2 = 169$$

$$31^2 = 961$$

The 12 -144 loop shows composites multiplying into squares of transpalindromic composites, while the 13 - 169 loop shows primes multiplying to squares of transpalindromic primes. Their roots are the transpalindromic composite number 12 and the transpalindromic prime number 13.

The structural distinction of these numerical identities is made evident. Their special characters are identified as active members of the mechanisms of numerical interaction. The graphic paraphenalia is available to monitor the exemplary basewave that is guided through the continuum of natural number by the cyclic and reflexive qualities inherent in the special members.

The flow or cascade of number is simulated in the synchrographic of Holotome E. It is characterized by the congressional interactions of a complete system, i.e. all classes of number are accounted for. This is not the case in classical number theory, which omitted the transpalindromic classes of number. Yet these classes are most responsible for the behavior of number, per se.

Again, the crucial double helix of the nineleven wavecycle is based on two odd numbers, nine and eleven. $9 + 11 = 20$: two odds made an even. Twenty is also the base of the Mayan number system, which operates with the same numerical modules as the ancient Hindu system: all multiples of 108.

The prime/square interface diagram shows the basewave, graphically. The palindromic mechanism is sustained through the four pairs of transpalindromic primes that act as transnumeric relay stations. The tapestry of number is literally woven with the four warps and four woofs, or octave, of the transpalindromic bridge. This bridge links the first and only two-digit palindromic prime number eleven and the first, but not the only, three digit prime number 101. Primes are known to proliferate palindromes in being multiplied by themselves.

The full importance of the basewave continuity observed in the multiples of nintynine is only realized when investigating its involvement in the structure of the holotomes. The

initial holotomes contain only a rational section of a complete cycle--that portion necessary to insure a quality of infinity (the number repeating itself indefinitely).

Holotome A $12 / 99 = 0.121212$

B $24 / 99 = 0.242424$

C $72 / 99 = 0.727272$

D $360 / 99 = 3.636363$

Whereas Holotome E is 45 more than 25×99 , and 54 less than 26×99 , ($45 + 54 = 99$), or a rational transpalindromic and transholotomic link.

Holtome E: $2520 / 99 = 25.454545$

$25 \times 99 = 2475 + 45 = 2520 + 54 = 2574$ (26×99)

The next holotomes are even multiples of nintynine:

$$27720 / 99 = 280$$

$$360360 / 99 = 3640$$

$$6126120 / 99 = 61880$$

Note also that the preliminary holotomes themselves are either palindromes or cyclic repeating numbers.

(Insert holotomes, cont. Basewave involvement)

The Syndex system of the classification of number takes special note of both the palindromic and transpalindromic nature of number, i.e. the directionality of multi-digit groupings as they determine a local and intrinsic geometry to the sequence.

This mainly geometrical analysis of number concerns itself especially with the character of the index of factorial synchronicity and the specific locations in the continuum at which they occur. It is a study which would be impossible without the aid of a structured graphic medium by which to note the relating numerical events.

Equipped with the archetypal alphabet of number class as a reference guide, Marshall began exploring the relative positions of these identities on serial listings of the natural number chain. The first significant discovery he noted was in regard to the transpalindromic primes, squares, and composites. Not only were they directly related, but the squares were separated by either a palindrome or a minus or plus one palindrome.

(12 and 13 syndex pretzels, insert here)

The transpalindromic composites produced transpalindromic squares and so did the transpalindromic primes. In the two-digit range, there is only a single pair of transpalindromic squares: 144 and 169. Both have transpalindromic roots. In the two-digit range there is but one retroprime square which is number sixteen (16) 61 divided by $16 = 455 \times 9$; $61 + 16 = 77 = 7 \times 11$.

This exceptional example of transpalindromicity is labeled a retroprime square, a class of special numbers. It is preceded by fifteen which is a transpalindromic composite, and followed by seventeen, one of only four pairs of 2-digit transpalindromic prime numbers.

The nineleven cycloflex or exemplary basewave is by nature a palindromic and transpalindromic wavecycle. The palindromic multiples of eleven (11, 22, 33, etc.) and the transpalindromic multiples of nine (9, 18, 27, 36, 45, 54, etc.) synchronize at ninety-nine ($9 \times 11 = 99$). This establishes a base cycle that involves the intermediate numbers between the only two-digit palindromic prime number 11 and the first 3-digit palindromic prime number 101. This basewave then repeats itself indefinitely through the multiples of 99 (99, 198, etc.).

99
198
297
396
495
594
693
792
891
990

(insert poemgraf #101)

The next observation Marshall made was that there are exactly four pairs of transpalindromic primes in the 2-digit range. These four pairs are commonly separated by even multiples of square number nine.

13 17 37 79
+18 +54 +36 +18

31 71 73 97

And added together produce even multiples of prime number eleven, the first palindromic prime:

13 17 37 79
31 71 73 97

4x11 44 8x11 88 10x11 110 16x11 176

These four pairs of transpalindromic primes prove to function as a wave guide for the exemplary nineleven base wave that terminates at one hundred, in between palindromic 99 and palindromic 101. These four pairs, four forward and four reverse, also represent the octave which equates with the exemplary basewave cycle.

(Insert Transpalindromic Prime/Square/Composite Interface)

The Holotomes owe their integrity of continuity and holistic discontinuity (circular unity) to the structural polarity of this cyclooscillating and octave-containing basewave. Each holotome is itself a totally symmetrical retrograde mathematical entity of four progressively additive, then four progressively subtractive event octaves which contain a "one half 99" turnaround point.

The mandalogs clearly show this turnaround at 49.5, but in light of our general theory we must conjecture why this is so, and it still remains somewhat obscured in our thinking. If nature works in rational whole number increments, how do we account for the fact that the 9/11 turnaround is at 49.5? Fuller thought it was at 50 perhaps because of his prejudice toward fractions. Since the graphics clearly show otherwise, how do we reconcile this with synergetics? We know it is 99 divided by 2, yet the verbal "excuse" for the fraction constitutes a "hitch in the giddyup" of rational whole number increments as displayed by the octave wavecycle itself. The hitch seems to be the exception to the rule.

CONCLUSIONS

The Goldback Postulate alleges that *'every even number is the sum of two primes.'* The case has not yet been reported where this does not hold true. Even though this postulate is unprovable in the sense that all even numbers can't be checked out, it may be provable through a true understanding of how the sequence of number operates.

No even number may be a prime because of the prior occurrence of number 2, which acts as a divisor for all even numbers. The first three odd numbers are primes because no number preceding them has occurred that could act as a divisor. Number 9 is the first odd number that is not a prime, because of the prior occurrence of number 3.

Therefore, the occurrence of the first odd number as a composite is the result of the previous occurrence of an odd number that had no preceding idvisors except unity, which by definition is indivisible. So, the composite nature of 9 is causally determined in that 9 would have been a prime like all previous odd numbers, but for the prior occurrence of number 3.

From this it may be postulated that all even numbers will be composites, and all odd numbers are potentially primes unless some previous odd number has occurred that acts as a factor, rendering them composites.

This is also a way of saying that every odd number that is not a prime is the product of at least one previous prime and one previous composite, ($3 + 6 = 9$).

But the serial equitability of the progressively divisible number chain produces a surplus of combinations to produce primes from even numbers. In fact, as numbers progress composites will occur that accomodate multiple sets of primes and visa versa. Does this not render the Goldbach Postulate only a probability?

The assumption that all odd numbers would be primes if no previous number had occurred that would act as a divisible factor perfectly fits the casse. If the prior number

had not occurred, or could be stricken out, as in the case of number three, 9 would be a prime number, but since three is three and not something else, 9 is a composite.

The fact that nine is also a square number tells us also that the generation of squares, cubes, etc. is also the result of the occurrence of previous odd numbers, as two odds make an even and two of the same numbers multiply into a square number.

Continuity is a provisional term that requires a context describing a series of entity events that connect or disconnect to or from each other.

The primes have always been regarded as a single class with no breakdown into subclasses, no different kinds of primes.

Secondly, the primes have been viewed apart from the composites, thereby ignoring any relationships that they certainly must share with the other classes of number.

The first indications that other classes of primes exist was found in the nature of square numbers which range from 2 to 20 with one exception: none differ from each other by 16, reflecting our exceptional 2-digit prime/square reversal.

The first three digits--1, 2, and 3--are generally regarded as primes, but the initial members are in a class by themselves. One is not even a number, in the serial sense. It doesn't multiply like real numbers do. Two is also not a number, but is the source of the doubling of unity--duality. 1×2 is 2×1 . It is the source of duality, evenness or balanced symmetry, and essentially static state. Two is the symmetry aspect of the one continuum.

Three is also not a number, but the source of imbalance and asymmetry, a source of dynamic flow. It represents the unitary aspect of the bipolar continuum. The source of oddity or difference with these three qualities produces number four, the first real number or the idea of quantity/quality and dimensionality of the tetrahedron.

"This intellectual step from two to three is a retrograde one, a reflection leading from two back to the primal one," according to von Franz. *"In principle this procedure can be repeated with all subsequent numbers. The retrograde counting step leading from the number three to four has even been made historically famous by Maria Prophetessa's alchemical axiom."* (see Jung's Transformative Process, SYNDEX I). It means that the number three, taken as a unity related back to the primal one, becomes the fourth. The four is understood not so much to have 'originated' progressively, but to have retrospectively existed from the very beginning.

Even and odd are established in the ideas of two and three. They are essentially spatial or geometrical ideas relating to shape and form. They are the prototypes that establish the classes of number yet to come.

All even numbers are non-primes because they are matched pairs or symmetrical sets of two.

All odd numbers are potentially primes, being uneven non-symmetrical amounts. The first odd number to become a composite is nine. It is not a prime because of the initial

occurrence of 3, which acts as a factor making 9 geometrically symmetrical. Two odds make an even. 9 is axially odd, but radially even.

The SYNDEX description of number behavior employs the overview of the cycloflex. It represents the reality of function that is both cyclic and oscillatory, i.e. both rotational and reciprocating.

In describing number behavior and dynamics, it becomes necessary to show the interaction existing between palindromic numbers and transpalindromic numbers--an interaction that is in essence a cyclic behavior.

The retrograde functions progress to a point and then reverse in octave cycles of four forward and four backward number events. This is a wave-cycle or cycloflex.

Continuity in the description of the exemplary basewave cannot mean in the sense of something uninterrupted because it must be curtailed on the upper limit of the Holotome for the sake of holistic unity.

Continuity has given trouble to the number theorist because of the mind's insistence that any specific integer is an isolated idea entity and cannot be effected by another integer, several or even many times removed. But this is, in reality, the case when number 9 is not a prime because of the usurpation of its "primeness" by 3.

This transinteger dynamic is a passive dynamic. It happens as acausal determinate which means the retrograde loops on the SYNDEX number maps are left to show the truth.

The number reversals that purport to carry the exemplary wave are gestures of quasi-disconnective continuity because the relations must be shown that we may see how numbers interact as they flow towards some "nothing" called infinity.

The prior reference to approach of holistic continuity at the end of a Holotome is the final non-event of such a specific system. The octave is best deactivated at these discrete points. It is predominantly the Holotomes that clarify the distribution of prime numbers, for the primes are symmetrically arrayed within the context of each holotome.

The radial symmetry of the holotomes is, in itself, the geometric proof of numerical coherency. That each subsequent holotome admits one, and only one, additional divisor establishes a rational medium between prime numbers and the sequence of specific compositry.

Though the structure of the basseten continuum is a highly complex order, there are graphic methods by which the more important aspects of that order may be appreciably simplified.

For example, there are very rare, often unique examples, of certain classes of number that occur seldom or even just once in the two-digit numbers. It was through the discovery of these rare or noble examples that the exemplary basewave cycle was discovered. Once that cycle was isolated it was a simple matter to extrapolate into the higher orders to

secure the multiple digit cousins of these noble examples for comparisons to confirm the sustained functions of cycles being investigated.

A basewave was long ago suspected by the classical number theorists, but its elusive nature was due to the fact that it was not a singular wave form but a compound variety. A wave composed of the mutual interaction of square number nine and prime number eleven, whose essential palindromic nature is connected with the transpalindromic aspects of the total numeric profile.

The synchrographs act as maps by which we may follow the progress of this exemplary wave cycle. It is a feature that would not in any way be apparent without such a systematic graphic mechanism.

The nineleven wave is further caged by such features of the continuum as the lone pair of 4-digit transpalindromic squares--those being the square of 33 and 99: 1089 and 9801. These two interreflecting squares neatly bracket an octave sequence of four forward and four reverse multiples of the first square which significantly includes a center or nave number which is a palindrome which results from two 2-digit palindromes.

By and large, it is predominantly the holotomes that clarify the distribution of prime numbers because the primes are symmetrically arrayed within the context of each holotome. And the number of primes in each holotome is determined by the total modular amount of the previous holotome. For example, Holotome E or #2520 contains 367 primes or just seven more than Holotome D which is #360 ($360 \times 7 = 2520$), and Holotome D contains 72 primes where #72 is the modular sum of the previous holotome.

The fundamental intent of the initial idea was to create a context which would geometrically paraphrase the elements of numerical progression in a graphic system that involves the primary elements of plane or two dimensional geometry. The two axes provide a base for symmetry as a reference to systematically involve the cyclic and wave functions of the numeric continuum.