

*The Answer of*  
**ERNST HAECKEL**  
TO THE FALSEHOODS  
OF THE  
**JESUITS**  
*Catholic and Protestant*

From the German Pamphlet "SANDALION," and  
"MY CHURCH DEPARTURE "

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Being Haeckel's Reasons, as Stated by Himself,  
for His Late Withdrawal from the Free  
Evangelical Church, with Comments  
by Joseph McCabe and Thaddeus  
Burr Wakeman

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To the Truth Seeker  
Zena 12-12-1910.  
With best thanks!  
Ernest Haeckel

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## ANSWER TO THE JESUITS.

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BY ERNST HAECKEL.

INTRODUCTION. In April, 1905, I delivered three lectures in Berlin on the war over the idea of evolution. They furnished the occasion for a number of violent attacks, directed not so much against the essential questions of our modern doctrine of evolution as against myself, author of "The Riddle of the Universe," in which I treated those great questions from the standpoint of the monistic philosophy. To discredit monism my works were called the worthless, misleading fabrications of a dilettante. My slanderers were especially successful in their efforts to brand my embryologic expositions and the illustrations accompanying them as reprehensible "falsifications of science." What they seized upon as most welcome proofs were the

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These pages present a condensed translation of the answer made to his Christian slanderers by Prof. Ernst Haeckel of the University of Jena, Germany. The Englishing of "Sandalion" was done for THE TRUTH SEEKER by Thomas Seltzer. "My Church Departure" is translated by Thaddeus Burr Wakeman.

schematized figures of young human embryos and the embryos of other vertebrates, which I placed next to one another for comparison in a number of my works.

The embryos of vertebrates, especially of mammals, are most important in proving the history of our descent. With the help of comparative anatomy and paleontology, these embryos demonstrate to every unprejudiced observer our close kinship with the other mammals. Unfortunately the mysterious province of comparative embryology is remote from the usual fields of culture. It requires very much study, thorough preparation in morphology, and careful discipline of one's critical faculty. The opponents of the doctrine of evolution took advantage of this fact. They charged me with wilful deception and falsifications, because I schematized the pictures of the embryos. By "schematize" I mean I omitted unessential adjuncts and strongly emphasized essential form relations. I also filled in deficiencies here and there by comparative syntheses.

These Jesuitic attacks recently obtained a very wide circulation and force me to enter into a discussion of my so-called falsifications. I will take a concrete, highly important example, the extremely interesting sandalion by which I will show in what a despicable way the Jesuits themselves falsified the truth.

THE NATURAL SCIENCES AND RELIGIOUS CON-

CEPTIONS. The great struggle for truth, the struggle to attain knowledge, carried on at all times by thinking men, assumed a different character after the beginning of the twentieth century from the character it had ever before had. In the eighteenth century the free spirit of enlightenment had already been furthered by a great number of the most eminent thinkers. But it was not until the nineteenth century, the "century of natural science," that it achieved the dominant position inconceivable in previous cultural epochs.

The remarkable progress in the natural sciences must perforce have had profound influence on the philosophy of thinking men. The essential difference between the clear dicta of reason in pure science and the nebulous imaginings of religion came out more sharply than ever before and manifested itself in many more ways. The positive facts actually acquired from modern natural science as well as our experiments have led us to the firm conviction that the entire world proceeds according to "great, eternal iron laws based upon the very nature of things, and that the highest concept, God, lies in those laws themselves." This is what we believe. On the opposite side are the adherents of the traditional churches. They maintain that a personal god created and rules the world, that he discovered the natural laws according to which the world's development takes place.

The church militant very soon realized the danger with which the monistic doctrine of evolution threatened its dominion over the minds of the people. It began an energetic campaign against Darwinism, and in the latter third of the nineteenth century the struggle took a prominent place in the spiritual life of all circles. But by the end of the century I could definitely assert in my "Riddle of the Universe" (1899) that the monistic idea of evolution had triumphed, and the dualistic doctrine of creation had been completely defeated in all provinces of modern natural philosophy.

Then the defeated church militant and the school of dualistic philosophy connected with it deemed it wise to change front and take unto themselves the victorious doctrine of evolution. In this direction the Jesuits became extraordinarily active—for centuries they had been extremely successful in the art of falsifying the truth. I speak both of the Catholic Jesuits and the Protestant Jesuits. The various schools of the Catholic Jesuits, embraced in the general designation of Thomists, endeavored to revive the scholastic philosophy of St. Thomas Aquinas. Competing with them were the orthodox schools of the Protestant Jesuits, who united in the Kepler League and misused the name of the great astronomer Johann Kepler to veil their true aim.

The general object of both these Christian leagues is the subjugation of rational science to the tradi-



tional dogmas of the Christian faith. They now believe they will reach their goal most surely if they preach the harmony of the two contradictory philosophies, the "creation by evolution." A good means seems to them to be the overthrow of the Monist League, founded in 1905, which has made it its duty to develop and propagate the idea of monism.

Though the Jesuits of both confessions went at the zealous pursuit of their goal by undauntedly practicing the known frauds of Jesuitism and perpetrating the riskiest falsifications in science, they adopted the genuinely Jesuitic tactics of charging others with their own crimes. They concealed their own deceptions by accusing the upholders of monism, myself in especial, with conscienceless distortions of the truth. But they are very careful not to take a definite stand against the great principles in which they differ from me. They direct their attacks against a few shortcomings in my works—some assumptions and daring hypotheses, or figures illustrating my popular works, which have not been thoroughly elaborated or are schematized.

THE THOMISTS AND KEPLERISTS. The remarkable history of the Society of Jesuits and their influence upon world history are well known. The spirit of lying and hypocrisy at the bottom of their whole system, their main principle, "the end justifies the means," have become a byword. Any transgression, any crime is permitted if it serves

the highest end. "Everything for the greater glory of God" (*Omnia in majorem Dei gloriam*). The Society of Jesuits obtained its greatest influence through the three significant declarations of war against reason by which Pius IX. tried to get the Christian world to bow before his almighty sceptre. These were the dogma of immaculate conception (1854), the encyclical and the syllabus (1864), an absolute condemnation of modern civilization and culture, and the dogma of the pope's infallibility (1870). In accepting these dogmas, these deeds of religious violence, modern Catholicism identified itself completely with Jesuitism.

R. H. Francé in 1904 very happily characterized Jesuitic science. He called it a serious menace, and was quite right in doing so because "it systematically smuggles the Jesuitic spirit into science, because, as a result, it distorts all problems and the solution to them, and because it skilfully turns upside-down the very principle of science." But this is not all. The worst danger resides in the fact that we are not sufficiently conscious of our danger. The general public and even scientists fall right into the cleverly prepared trap and believe there is such a thing as a Jesuitic science, the results of which may be taken seriously.

All this is equally true of the Keplerists. Their "Christian science" is just as false as the "Jesuitic science." Both pursue the same end, the amalgamation of the doctrine of the Christian faith with

the results of modern science, in other words, the subjection of science to Christian teachings.

Numerous Catholic associations, with more or less distinct shades of difference between them, may, in a wide sense, be included in the name Thomist.

ERICH WASMANN. The Jesuit father Erich Wasmann is the most important personality among the numerous learned Jesuits who are at present fighting for the Christian belief in revelation and against the monistic natural philosophy. He is distinguished for a wide knowledge of zoology, for his brilliant oratory, and his skill at fooling people by clever dialectics.

Through acute study of the life and form of insects, especially of ants and ant guests, Wasmann won a reputation as a learned entomologist. But the *scientific* zoology of modern times makes very different demands upon the student. It requires years of thorough study in comparative anatomy and ontogeny, in paleontology and physiology. A zoologist who has chosen the study of vertebrates for his specialty must know medicine well, for the simple reason that the human organism is in every way better known to us than that of any other animal. As soon as Wasmann leaves the narrower sphere of his entomology and enters upon this province, his zoologic knowledge reveals astounding deficiencies.

By his scientific studies, combined with fanatic religious zeal Wasmann won a leading position

among the Thomists, such as Dennert has among the Keplerists. Both are clever and indefatigable in their agitation for the "Christian natural sciences," both are unscrupulous in the choice of their means, both are invincible when an attempt is made to refute their blind belief with the logic of reason.

In my lectures in Berlin in 1905 I entered into a detailed criticism of Wasmann's chief work dealing with the great general problem of the modern natural philosophy, *Die moderne Biologie und die Entwicklungslehre*. Two years later Wasmann made his reply in three lectures at Berlin, which became of general interest because they were the immediate occasion for an open scientific battle. Twelve speakers opposed Wasmann, and thoroughly controverted him. Nevertheless the entire ultramontane press celebrated his public defeat as a brilliant victory.

Professor Ludwig Plate drew the following conclusions from the debate: "That genuine scientific research is impossible within the province of the ultramontane church; that the sharp, irreconcilable contrast between science and the orthodox Christian religion came out very clearly at the discussion; that even scientific investigators are well aware of the limitations of their knowledge, and that there are ultimate questions to which no answer can be found."

All these objections to the mystic falsification of the doctrine of evolution by Erich Wasmann as the

type of the Thomist, apply equally to the sophistical misrepresentation of genetics by Eberhard Dennert, founder of the Kepler League.

Two years later Wasmann made a vain attempt to rescue "Catholic natural science" and thereby destroy monism. He delivered three lectures at Innsbruck, which differed from his Berlin lectures only in that they contained still more violent attacks against me personally, against my anthropogeny, and against monism.

THE KEPLER LEAGUE. The younger brother of the Catholic Thomist League, the new Protestant Kepler League, was founded in November, 1907, by one of the most zealous representatives of "Christian Natural Science," Dr. Eberhard Dennert, principal of a Protestant school. The aim of the League was set forth in his first pamphlet—"to further the knowledge of natural science among the people at large. The aim also is to carry on the fight of natural science against monism." That the latter was the chief object of the League is shown by the circumstances preceding the formation of the League and its entire later attitude. In the very first volume of the League's publications Dennert said: "It is the religious and moral dangers with which monism threatens the life of the entire people that led to the formation of the League." In the preface to the same volume he expressly states: "The members of the Kepler League stand on the ground of theism." In many

other passages of his numerous works he emphasizes the very Christian character of his mystic, dualistic philosophy. The work of his that most clearly shows the purpose of his ceaseless agitation is *Der Darwinismus und seine Einfluss auf die heutige Volksbewegung* (Darwinism and its Influence upon the Modern Popular Movement). In it we find definitely formulated the "teachings of the Christian philosophy." We learn that: 1. "The world is limited by time and was created by an eternal personal God. 2. The method according to which God created the world has not been revealed to us, nor has it anything to do with the case (?). 3. God made man the crown of creation by putting his spirit into mortal matter and giving man moral liberty. 4. God guides and rules this world according to immutable natural laws made by him. It is conceivable and therefore possible (!) that God, their creator and lord, can break those laws."

There are six more of these in the same spirit, and the entire ten constitute the content of the Kepler catechism, by which Dennert as the "scientific director" of the Kepler League would give its Christian philosophy a firm foundation.

Every unprejudiced thinker instantly perceives that the catechism does not rest upon the firm foundation of scientific experience, but upon mystic revelation, the very opposite pole of scientific experience.

LEAGUE OF FALSIFIERS. In my statement of De-

ember 24, 1908, "Falsifications of Science," occasioned by the severe attacks of Brass and Tartüffe, I showed up in their true colors the Jesuitic accusations of my opponents. I called the Kepler League a league of scientific falsifiers. I might have said the same of the Catholic Thomist League, because their methods and aims are absolutely similar. The Keplerists indignantly denied the charge and dubbed it a "monstrosity." I ask the gentlemen: "Is it *no* monstrosity of the leading authors of the Kepler League, acting upon the false charges of Dr. Brass, to call me in numerous articles and pamphlets a scientific liar and falsifier of science?" That is, call a scientist a falsifier of science who for half a century at a personal sacrifice pursued *one* goal, to learn the *truth* in nature, and by the help of its teachings free all thinking men from the yoke of superstition.

As a matter of fact, it is both Jesuitical leagues who have falsified the whole idea of the cosmos by their endeavor to amalgamate the monistic results of modern natural science with the mystic, dualistic dogmas of the miracle-believing church.

Dr. Rudolf Hoernes, professor of paleontology and geology at Graz, said in one of his articles: "The Keplerists are not concerned to free science or serve truth. All they care about is to establish firmly the temporal dominion of the church, for which end they are willing to adopt any means." In another article, speaking of my alleged falsifi-

cations of pictures of embryos, he writes: "The truth is, the leaders of the Kepler League want to do the utmost damage to the theory of evolution by discrediting one of its most prominent representatives. At least they want to prevent to the greatest possible extent the dissemination among lay persons of a teaching that interferes with their philosophy. And it is in disseminating that teaching among lay persons that Haeckel performed special services."

THE JESUITIC PRESS. The severe warfare I have been forced to carry on for forty years with the clerical and conservative press has enriched me with noteworthy experiences of its Jesuitical tactics and practices. In recent years it took the occasion of the embryo dispute to say particularly brutal and perfidious things. I therefore feel that here is the place to show up its conduct.

Dr. Arnold Brass wrote two polemical pamphlets, *Wahrheit* (1906) and *Affenproblem* (1908), which were immediately greeted with joy by all the enemies of intellectual progress and enlightenment. Correspondents to the reactionary press gave them the widest publicity. Hundreds of important and minor papers forthwith published Brass's false charge to the whole world. To none of them did it occur to find out the real truth about these "overwhelming" accusations or refer them to competent trained men. And when scientifically trained men of their own accord made statements in rebuttal,



as they did in several places, the clerical and conservative press ignored them. Dr. Brass's overwhelming charges were repeated with visible glee.

It is highly regrettable that a large part of the Liberal press was duped by these Jesuitical tactics. Many unbiased papers lent credence to the charges and gave them wider currency. The chief cause of this is the general ignorance of the biologic facts involved in the embryo dispute. It was very sly in Dr. Brass to make his attack in a dark spot remote from the general fields of culture and offering peculiar difficulties even to the trained specialist. An example of the extent to which the Liberal press was deceived is offered by the case of "Tartüffe," which aroused much comment.

PROFESSOR TARTUFFE. After the appearance in 1908 of Dr. Arnold Brass's *das Affenproblem*, the *Allgemeine Zeitung* of Munich published an anonymous article upon it. This anonymous article was the direct occasion of my reply of December 24th, and it produced a whole series of disputes. The main point about the "Tartüffe" article (as I had to call it!) is that the anonymous Professor X takes Dr. Brass's "extraordinarily severe charges" as proved and—unwillingly!—deduces: "That they not only destroy the scientific reputation of a man who, despite some slips, was held in high repute among wide circles, but they also expose a positive *stain upon German science* (!)."

The rest of the article and the author's appeal to

the opinion of the German embryologists were so perfidious, so Jesuitical, that I felt I was forced to my reply of December 24th. Besides, I had another motive, occasioned by the action of the *Allgemeine Zeitung*. The editors sent me the issue containing the "Tartüffe article" with a characteristic letter, in which they offer me their columns for a short reply to the article, which, they said, they had printed with profound regret though they had felt compelled to do so because it came from a source raised high above doubt both as to scientific knowledge and loyalty.

Of course, I did not accept the *Allgemeine Zeitung's* offer, but sent my reply to the Berlin *Volkszeitung*, the editor of which is one of the few liberal newspaper heads who have worked for the advancement and propagation of the doctrine of evolution.

THE FALSIFICATIONS OF ARNOLD BRASS. Dr. Arnold Brass provides the most plentiful source upon which the Jesuitic press has been drawing for some years to make charges against me of falsifying illustrations. Much as I dislike to touch upon the personal character of my opponents, I am compelled to do so in this case. For Brass is considered the star witness in the great "embryo suit," and it is upon his authority that the numerous charges of falsification are brought against me. He is distinguished from most of the other scientists in the Kepler League by his knowledge of zoology, anthro-

pology, comparative anatomy and ontogeny. But he misuses his knowledge to the utmost in order to throw a veil over the truth, or, as he says, to advance the cause of truth. The whole clerical press, therefore, and especially the Keplerist papers, honor him as a St. George who killed the dragon of unbelief, monism.

In the summer of 1906 Brass wrote a booklet of ninety-six pages entitled *Ernst Haeckel als Biologe und die Wahrheit*. I shall refer to it as *Wahrheit*. It contains sharp attacks upon my monistic natural philosophy, especially as set forth in my "Riddle of the Universe," and is full of perversions and absolute untruths. At the time I ignored his charges, as I did numerous other works against the "Riddle of the Universe." It was two years later that I was compelled to come out against Brass. In an address delivered in Berlin at a meeting of the Christian Socialists (April 1, 1908) he attacked me severely for having falsified the pictures of embryos. "The speaker," he said, "can make these charges from accurate knowledge directly acquired, since he himself made the true drawings for Haeckel." *Not a word of this is true!* The base calumny necessitated my setting the matter right, and led me to write my article of December 24, 1908. Brass's answer to my article was his *Affenproblem*, the subtitle to which is "Professor Ernst Haeckel, his falsifications of science and its defense by German anatomists and zoologists."

Dr. Brass is very active as the official lecturer of the Kepler League. In an authentic communication from the League he is recommended, and the following statement is made: "Dr. Brass's pay is guaranteed by the League." This statement is important, for observe what Brass himself said in the same year, 1909: "Besides, I am free. Nobody commissions me to lecture, etc. I am not the lecturer of the Kepler League, nor do I draw my salary or any pay whatsoever from that body." There you have that highly lauded Christian love of truth of the pious Keplerists!

It would take a huge volume to correct the misstatements, false deductions, and positive lies in Dr. Brass's lectures and writings. I shall limit myself to a critical discussion of a few points that can easily be made clear to every honorable person with some insight.

*Skeletons of Anthropoid Apes.* Few observations are so directly convincing of the close kinship of man and the anthropoid ape as a critical comparison of the skeletons. It was a very happy idea of the English genius Thomas Huxley to place pictures of the skeletons of man and the four surviving anthropoid apes on the front page of his "Man's Place in Nature." I copied the pictures in my "Anthropogeny." Later in my published addresses delivered in Berlin on the war about the idea of evolution, I used pictures of the same five skeletons, but from specimens in my own collection.

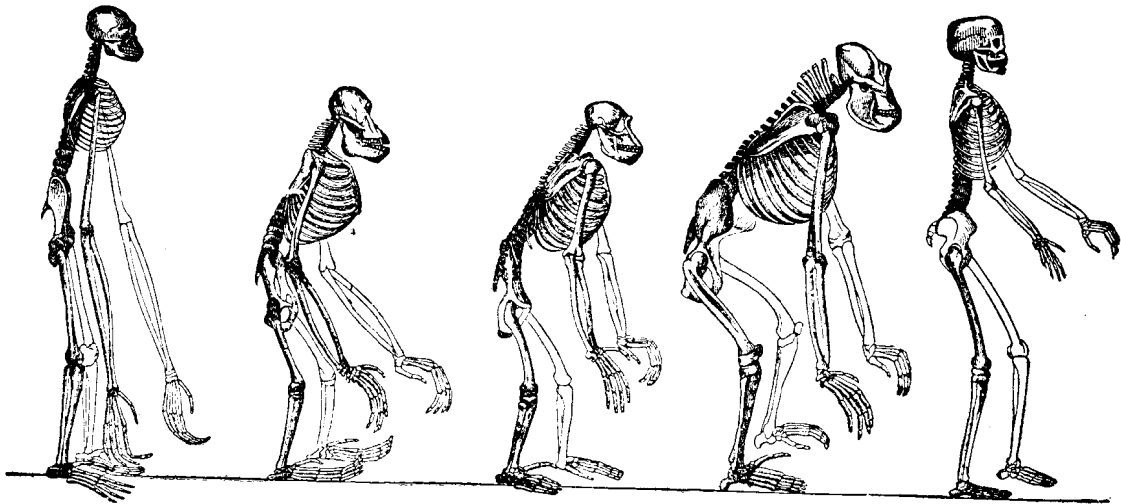


FIG. 278.  
Gibbon  
(*Hylobates*).

FIG. 279.  
Orang  
(*Satyrus*).

FIG. 280.  
Chimpanzee  
(*Anthropithecus*).

FIG. 281.  
Gorilla  
(*Gorilla*).

FIG. 282.  
Man  
(*Homo*).

FIGS 278-282.—Skeleton of a man (Fig. 282) and the four anthropoid apes (Fig. 278. Gibbon, Fig. 279. Orang, Fig. 280. Chimpanzee; Fig. 281. Gorilla). (From Huxley.) Cf. Figs. 203-209.

I purposely choose a younger chimpanzee and orang outang, because their similarity to man is more striking than that of older apes. The skeletons were photographed by my tried collaborator, Mr. Adolf Giltsch, and neither he nor I made any change whatsoever in their form or position.

Now what does Dr. Brass say about these clear, absolutely faithful photographs? He indulges in the following untruths—for the greater glory of God! “These tables show intentional falsifications to uphold the false caption [Skeletons of the five Anthropoid Apes]. The uprightness of man’s carriage is concealed. The gorilla’s knee has been pressed to make it appear to be standing straight. The walking posture of all the apes is false. . . . This table is an example of how Haeckel misuses the works of other people.”

Still more absurd is a criticism of Dr. Brass of tables I intend to give a museum. They are not yet made, the plan for them has not yet even been prepared. But that does not deter Dr. Brass from dishing up the following to his credulous readers: “I have seen some of the tables which are to serve as object lessons in the museum, and they make me feel ashamed for Haeckel and his friends.”

We all know how tender the ape mother is of her young. Yet Brass teaches us that it is exactly the “selfless mother-love and mother-care that clearly distinguish man from all mammals and removes him far above the impulses and instincts of a beast.”

Dr. Brass also denies the existence of superfluous rudimentary organs. By that surprising decree he expunges an entire chapter from zoology and botany, one of the most interesting chapters of the whole of biology.

Another strange statement of his is, "The cells of the human tissue differ conspicuously from those of other mammals." Now every histologist, every student, every physician who has examined microscopically the human tissue and the tissue of other mammals knows that their coarser and finer structure, the morphologic and physiologic characteristics of their cells are exactly the same. In sixty years, ever since thousands of accurate observations have been made of the structure of the epithelium, the glands, the cartilage, the bones, the plain and striated muscles no one has succeeded in finding any histologic differences between man and the other animals.

The same is true of the egg cell. Dr. Brass says the human egg cell is different from the ape's egg cell. He is the only one who has discovered that it is!

*My Embryo Pictures.* In the earliest stages the resemblance of the outer form and inner structure of the embryos of the amniota, that is, of mammals, reptiles, and birds, are surprisingly alike. The most experienced specialists are not able to distinguish the young embryo of animals that later are so con-

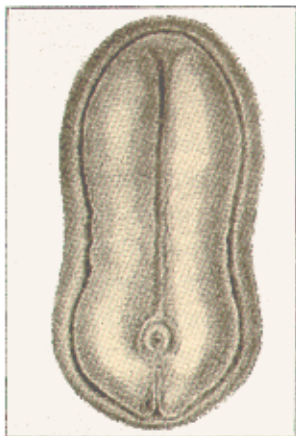


Fig. A. Human Sandalium according to Ernst Haeckel. This figure is a schematized copy of Fig. B. The natural symmetry has been restored, and attached embryonal parts have been omitted.



spicuously different as man and ape, dog and rabbit, bird and squirrel.

In this experiential fact of comparative embryology I see important proof of the theory of evolution. In many of my works I placed in juxtaposition a number of various embryos of amniota in three stages of development. I intentionally omitted unessential features from the representations, in order that the essential features should come out all the more clearly. It is these "schematizations" that have furnished Brass and his Keplerists with the best points at which to aim their calumnies. Others did not "approve" them either, although the right to use schematized reproductions, especially in illustrating difficult form relations, is generally recognized in text books and popular works.

In charging me with falsification they themselves falsified in the most brazen way. According to their allegations I maintained that the embryos I had compared are absolutely *identical*. All I had said is that their similarity is so great as to be confusing and deceptive. Neither I nor any scientist ever made the senseless statement that the embryos of men and apes, dogs and rabbits are at any stage of development *identical*. The very fact that they evolve into different things refutes such a thesis. Even in the simple, spherical germ-cell chemical differences in the molecular composition of the plasma may be assumed with certainty, though the

limited means at our command prevent us from proving that they exist.

*The Sandalion of Vertebrates.* The sandalion or sandal-germ is one of the most interesting natural forms. It is that important germ form of the embryo of the higher vertebrates or amniota which has the simple shape of a sandal or sole of a shoe. It is a thin, somewhat elliptical body, narrower in the middle and rounded and broader at the ends (Figs. A, B, C). It is an early stage of the embryo, at which nothing of the later characteristic form is to be discerned. None of the separate parts of the body are visible. Even vertebration has not yet become apparent. There is a very slight variation in its shape among the different amniota, especially in the relation of the length to the breadth and the rounding of the two halves. But its composition, or internal structure from a few simple primitive organs is the same in all amniota.

*The Human Sandalion.* Figs. B and C represent the only two specimens of the human sandalion in its earliest stages of which we are certain that they have been completely observed. They are copied from the handsome *Handatlas der Entwicklungsgeschichte des Menschen*, by Julius Kollman. In 1889—twenty-two years ago!—Count F. Spee published in the *Archiv für Anatomie* "Observations of a human germ-disk with open medullary groove and canalis neurentericus." The excellent reproductions Count Spee made of this extremely important hu-

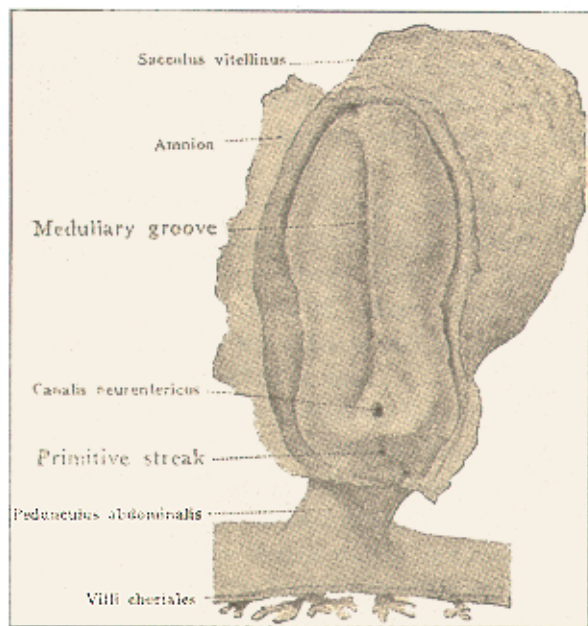


Fig. B. Human Sandalion according to Count Spec.

man sandal-germ and its grooves, which are of great significance, have been used in all later text books and embryological plates.

The famous human sandalion—two millimetres long!—is of extreme importance both for the ontogeny and the phylogeny of man, because it is the youngest and smallest embryo of the human race of which we possess reliable observations, and on which we can see the grooves revealing the whole finer structure of the organism. It is probably about twelve days old. Younger human embryos have never come under observation, though thousands of them are produced daily. At this early state the sandalion both in shape and internal structure is exactly the same in man as in the mammals most closely allied to man.

This thin germ-disk resembling the sole of a shoe, being a bit narrower in the middle than at the ends, is about twice as long as it is broad. Along the middle of the back surface running from one end more than half the length of the sandalion is the medullary furrow, the beginnings of the spinal cord; at the other end, the primitive streak, and in between, connecting them, the *canalis neurentericus*.

*Falsifications of Sandalion Reproductions.* In addition to its ontogenetic and phylogenetic value, Count Spee's classic embryo possesses special interest of a legal character, I may say. For it furnishes circumstantial evidence that the charges of falsifications made against me are malicious. No

competent embryologist has any doubt that the sandalion in man and all other mammals is absolutely symmetrical. The two sides divided at one end by the medullary furrow, at the other end by the primitive streak are absolutely the same in size and shape.

Now, apparently, Count Spee's reproduction contradicts this assumption. Here the outline is a bit unsymmetrical. At one end the left half is somewhat narrower, at the other end somewhat broader than the right half. In addition, the primitive streak is not exactly in the middle. No unprejudiced observer who is aware of the difficulties attendant upon the preparation and conservation of so extremely soft a body doubts that this asymmetry is purely accidental and is without morphologic significance. It arose when the delicate little germ leaf was transferred to the slide. But Count Spee, the happy discoverer of this treasure, most conscientiously drew it just as he saw it under the microscope and did not give it the symmetrical shape we are justified in saying it has.

In my "Anthropogeny" I made an absolutely faithful copy of Count Spee's picture. But alongside I put an improved picture of the same sandalion, that is, I removed the accidental asymmetry. I also omitted the disturbing remnants of the attached parts, which are of no significance in this case. I did this for the sake of comparison between the human sandalion and the similar embryos of a

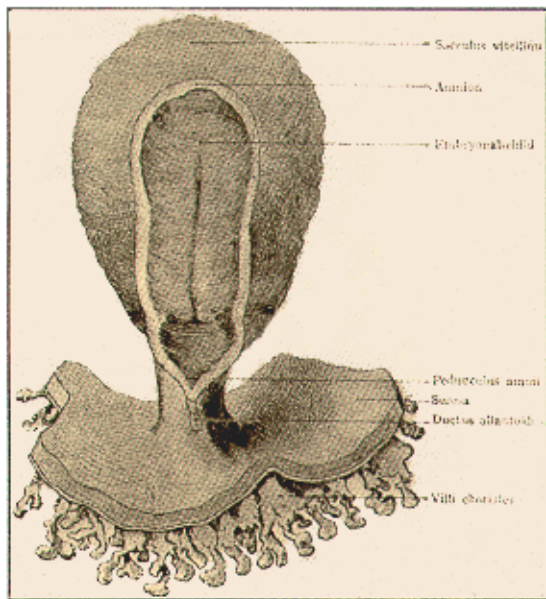


Fig. C. Human Sandalion according to Eternod.

rabbit and a pig. I am firmly convinced that my schematized figure more truly reproduces the shape of the symmetrical sandalion than the exact copy made by the discoverer, Count Spee. The lay person, therefore, in comparing the shape of the human sandalion and that of other mammals can obtain a better idea of their true relations from my reproduction than from Count Spee's. The student of comparative embryology who sees that the essentials in both reproductions are the same will find that my "falsification" is perfectly justified and useful for purposes of instruction.

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## MY CHURCH DEPARTURE.

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BY ERNST HAECKEL.

Since I have lately completely withdrawn from the Evangelical church, there comes to me a wish from many sides—and first from our *Free Word*—that I could make public my reasons for this step. So now that I must meet this wish I limit myself to the following short paragraphs:

1. My personal relations to religion in general, and to Christianity in particular, I have already set forth in my well-known book "The World Riddle" ("Riddle of the Universe"). But for the better understanding and completion of that confession the following facts and considerations must continue it.

2. Brought up by pious parents who belonged to the Free Evangelical church, then under the charge of the [famous] Schleiermacher, I remained during the first twenty years of my life a convinced and zealous adherent of that liberal form of Protestantism.

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Communicated to the "Free Word," Frankfort-on-the-Main, Germany. Translated for THE TRUTH SEEKER by T. B. Wakeman.

3. But first, during my five years course of Academic Studies in the departments of Natural Science and Medicine (1852-1857), and later, especially through my many travels, I gradually reached, through heavy soul conflicts, the conviction that the mystic faith-teachings of the Christian religion were completely irreconcilable with the certain results of scientific experience.

4. The changes and varied course of my life, in its third decade, also as thoroughly convinced me that the Christian religion, as far as the ethical and practical affairs and conduct of life were concerned, gave foundations just as little unassailable, unreliable and unsatisfactory in every point of view, as were those of its theoretic *View of the World*—[its cosmology].

5. As I had been thus from my early life inclined and accustomed to earnestly reflect over the facts and appearances of things, and to follow out their real and efficient causes, I soon worked my way from an originally *dualistic* and idealistic view of the world to a pure *monistic* and *realistic* philosophy: In so doing of decisive influence in the earlier stages were the writings of Goethe, and later (since 1860) those of Darwin.

6. The fundamental lines (*Grundzüge*) of a strictly *monistic*, actually unifying [integrating] philosophy, which gave itself to me especially from the teachings of evolution, I have firstly outlined in my "General Morphology of Organisms"—my

introductory work, in 1866; and later, in a more popular form, largely from that work, in my "Natural History of Creation," in 1868.

7. Next followed in natural order, "The Confession of an Inquirer Into Nature," growing out of that Natural History. This Confession, given as my address at Altenburg in 1892, entitled "*Monism*," definitely formulated MONISM, as the Bond of Union between science and religion: and thereby was especially emphasized the utter impossibility of reconciling the Christian beliefs about "creation," etc., with the important facts of evolution as now established.

8. In November, 1905, at Jena, the German Monistic Union (Bund) was founded by the adherents of a strongly *unitary view* of the world, resting only on the results of a scientific knowledge of Nature; and at the wish of many friends and students I became its honorary president; and thereby was also accepted by us as Bond of Union and rule of conduct, the "*Thirty Theses*" which had been published in 1904 in *The Free Word* at Frankfurt.

9. Since for more than twenty years I had *inwardly*, from pure conviction, absolved myself from the faith-teachings of Christianity, it would have been only natural to have given proper expression to this conviction *outwardly* by withdrawal from the Evangelical church. But this last step I left untaken out of regard to my family and some

dear friends to whom I would thereby have brought heavy sorrow and injury.

10. But if now, after ripe conviction, I have resolved upon this last step it is because, in part, the personal considerations have meanwhile been removed by my long delay, and in part because *now* changes have made it repugnant to my sense of honor to continue even the external appearance of religious inconsistency, and to thus justify the customary hypocrisy in our land; to wit:

11. The *reaction* in regard to the church affairs and in politics which has developed in our German realm during the last twenty-two years under the government of what is called the "New Course" ("*Neuen Kursus*") increases constantly, and endangers more and more the freedom of the mental and spiritual progress, and the welfare of our dear fatherland.

12. With the deepest regret it must be confessed that this *reaction* has found its strongest support in the much bewildered person of our highly gifted Emperor, William II., who, since the beginning of his reign, has placed himself in opposition to the so-called "Old Course" ("*Alten Kursus*") of his grandfather, William I.

I belong to the genuine and grateful admirers of this *first* Hohenzollern emperor and of his great chancellor, Prince Otto von Bismarck, who, not merely as helper in the work, but as *Master Architect*, under the greatest difficulties, battled out

the proud structure of the new German empire. Both of these great men were simple and free from show in their appearance, wise and strong in their action; both were gifted with a soul of genuine piety, never subjected to a power-seeking clergy; and they were accordingly as deeply hated by the Evangelical "cant" venders as they were by the ultramontane Catholic "center."

13. In contrast with this, the present emperor has nursed the *romantic* tendencies of his great uncle, Frederick William IV., to whom he seems to be related by his brilliant talent of speech, and his many-sided artistic talents. He shares with him also, as "*Ruler by the Grace of God,*" or "*Instrument of the Lord,*" the often emphasized conviction that "*The Throne and The Altar must mutually support each other*"; and even so with the dangerous Catholicizing tendency of his [new] Protestant Christianity.

14. In September, 1904, when I attended the International Freethinkers' Congress at Rome, the strangely "natural" friendship of the emperor and the pope was much discussed. In the Romish papers the hope was expressed that the Emperor William would soon return to the bosom of "the only salvation-giving church." The ostensive display which he paraded in the Vatican upon his visit to Pope Leo XIII. (the most dangerous enemy of the German Evangelical empire) estranged from him the sympathies of the sensitively educated Italians,

and all the more, as he was then the *guest* of the king of Italy at the Quirinal.

15. The evidence, plain to every eye, of his Catholicizing tendencies was furnished by the emperor, this year, when Pope Pius X., by his famous Borromeian Encyclical, hurled into the face of Protestantism the most shameful insults. Everywhere it was expected that William II., with his highly developed sense of honor, would give to that Romish German hostile pope (whom in 1899 I had characterized as the greatest charlatan in history) the becoming *German rejoinder*, but the Protestant emperor remained silent and left to the Catholic king of Saxony the honor of that reply.

16. The orthodox Evangelical church, which had in spite of everything secured this ascendancy, and which has besides approached very near to the Catholic church, has shared with it the theory and practice of the Jesuits. Both cherish their fundamental principle: The *end* (pleasing to God) justifies and sanctifies the *means* (the persecution of the heretics). Both contest with equal energy and with like consequences the enlightenment of the people and the progress of their knowledge and culture. To this end they use their powerful influence in church and state [and school].

17. Thus the separation of church and state, and also the absolute separation of church and school, appears to be more pressingly presented to us than ever before. In many civilized countries this sep-

aration, most important and useful to the state and the school, has been long ago effected; in Germany on the contrary, it stumbles over the most stiff-necked opposition.

18. We must now more than ever seek by every lawful means in our power to bring about this separation. For now the mighty power of the Catholic and Evangelical clergy, by a close union with the reactionary feudal nobility, is strengthened to a most dangerous degree. Both use in true Jesuitical way the cloak of religion for the veiling of their selfish interests and their lust of power. The notorious Black-blue Block threatens the foundation of our mental and spiritual freedom.

19. Although these political considerations are for me by far the most powerful motives for consequent present withdrawal from the church, yet they are reinforced by a sense of disgust (*Ekel*) at the sham-holy *hypocrisy* and the old Byzantine sneaking, cringing *treachery*, which in the splendors of the showy new emperor throne threatens to lead us all to a general and dangerous demoralization. This compulsory education into an *external* churchdoom destroys the noblest qualifications for any true and inward religion.

20. And finally there confirms me in my determination to withdraw from the church, the necessary defense I have had to make against the measureless attacks and the honorless slanders which during the last two years the clerical and re-

actionary press combined have hurled against my moral character. In the most vulgar modes of expression, and through hundreds of papers and brochures, I am insulted and placed in the pillory as a *traitor*. And why? Pretendedly, because I have disgraced science through false illustration, especially concerning embryos; but in fact because for fifty years I have fearlessly and without regard to consequences defended the true modern teachings of evolution, and have furthered its most important result: that from the vertebrate animals the human species have descended. The two modern Brotherhoods of Jesuit Societies (Bunds), the cvangelical Keplerbund, and the Catholic "Thomas Bund," have rivaled each other in these heinous charges. To both and all of them I have at last devoted a final and conclusive answer, which appeared in the December number of *Neuen Frankfurter Verlag* (now published as a pamphlet), under the title of "Sandalion; an Open Answer to the False Charges of the Jesuits."





JOSEPH McCABE.

## HAECKEL'S EMBRYO-DRAWINGS.

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BY JOSEPH M'CABE.

During my wanderings at the Antipodes last year it seemed to be the impression of the opposition that the most effective thorn they could strew in my path was the candid confession of Professor Haeckel that his drawings were forged. To judge from the letters inserted in the public press, before and after my visit, the clergy were positively weeping over the pathetic and lamentable end of the career of a great scientist. He was "morally and scientifically dead." In the book-shops, it is true, he seemed to be very much alive; nor did any name draw such hearty plaudits from Australasian audiences as that of Professor Haeckel. But from Perth to Invercargill there was mourning in the ecclesiastical world at his sudden and inglorious decease.

I have never told the whole truth in regard to this episode of Haeckel's later years, because I did not know it until this month. Let us have it out, and readers of the *Guide* throughout the world

will be able to stem the tears of their clerical friends. The discussion is not relegated to the Antipodes. Only a few days ago a London lecturer wrote to ask me the truth about it. Here is the truth; and if the gentle readers find my language sinking at times from the highest level of courtesy, I must confess that I am not high-minded enough to speak altogether politely of a malignant and unscrupulous attempt, by dishonest means, to embitter the last years of well-earned rest of one of the greatest living scientists and the greatest living Rationalist. I take the facts from Dr. Schmidt's "Haeckel's Embryonenbilder" and professor Haeckel's "Sandalion."

The trouble began at the beginning of 1908. Haeckel had published a new work on the origin of man (not translated), with several very fine and large plates. On this, Dr. Brass, a lecturer of the "Keplerbund"—a sort of Christian Evidence Society masquerading as a scientific society—stated that Haeckel had so far tampered with his figures as to "put a human head on an ape-embryo, and *vice versa*," and this in spite of the fact that "he had personally shown Haeckel the correct illustrations." Haeckel disdainfully replied that this was "an audacious lie," and later showed that he had never had any such communication with Dr. Brass, that the illustrations in question were accurate copies of figures by well-known embryologists, and that he had not drawn them himself at all. Dr.

Brass then amended his charge. Haeckel had, he said, cut off the tail of the embryo of a *macacus* (tailed monkey) and turned it into a tailless ape (*gibbon*). Haeckel thereupon, while denying expressly the truth of the charge, published his famous "confession" that six or eight per cent of his drawings were "falsified"; and a thrill of horror ran through the religious world. Naturally, the shudders were not told that Haeckel spoke in the most patent irony, and admitted having done only what embryological illustrators were in the habit of doing—including, as we shall see, Dr. Dr. Brass.

The usual clerical version of the story is that Haeckel was "forced to confess," under pressure from forty-seven of the leading scientists of Germany. This is quite the boldest of all the inaccuracies—I am trying to be polite—I have ever seen in the clerical press. Haeckel's statement appeared in the anti-clerical *Berliner Volkszeitung* for December 29, 1908. No scientific man had at that time intervened, and the next paragraph will show what Haeckel's forty-seven colleagues really did.

Isolated medical men and professors were drawn in. One, of good standing, Professor Keibel, declared that Haeckel had, in perfect good faith, really shortened the tail of an embryo-monkey, taken various other liberties, and inserted imaginary embryos without saying so. The Keplerbund took courage, and issued a circular to the leading scien-

tific men of Germany, calling upon them to declare themselves. They did; but not quite as Professor Dennert wanted, and the clerical press represents. Nearly all the leading embryologists and anatomists in Germany signed this statement. I need only say that the forty-seven names include Weismann, Wiedersheim, Bonnet, Boveri, Kollmann, Hatschek, Flechsig, Waldeyer, Korschelt, Hertwig, Lang, Plate, Pfeffer, Rabl, Rückert, Rhumbler, Ruge, Schwalbe, Goette, Chun, etc. And what they said was—a few lines sufficed—that, “though they did not like the kind of schematizing which Haeckel practiced in some cases, they, in the interest of science and the freedom of teaching, condemned in the sharpest manner the attack of Brass and the Keplerbund on Haeckel.”

In face of that document, religious journals—the journals which are always wondering how men can possibly be truthful and good without their assistance—are assuring their readers all over the world that Haeckel is “morally and scientifically dead,” and has been condemned by German science. But was there not a counterblast to this defense of Haeckel? There was—the blast of a penny trumpet. A document in condemnation of Haeckel was issued by the Keplerbund, and signed by thirty-six men, some of them of great distinction in the world of science. But what our truthful friends always omit to say in regard to this document is that the men of real distinction who signed it were

astronomers, geologists, botanists, lawyers, etc., but *never embryologists*. Their judgment on the point is absolutely worthless, and, indeed, they do not pretend to be able to judge it. They take the word of Dr. Brass, the worth of which we shall see in a moment.

The second round had gone very badly for Herr Brass. The third was fatal. Some amiable and religious director of a bank chid Professor Hertwig for letting the defender of the faith down so badly. The distinguished embryologist replied that he had welcomed that means of giving expression to his "indignation," which was "so much the greater as he saw the name of Brass again for the first time since the scientific activity of the man had come to a deserved and unfortunate end in the field of zoology—twenty-five years before." A bad hit for Dr. Brass. Then Professor Rabl, another of the leading embryologists, son-in-law of Haeckel's great opponent, Virchow, entered the lists, and finished the defender of the faith. In the *Frankfurter Zeitung* for March 5, 1909, he, like Hertwig, emphasized the great services of Haeckel to science, and showed that Brass had, in his illustrated works, committed precisely the faults he brought against Haeckel. Brass was, he said, a "mere layman" in embryology, and university students had to be warned not to trust his illustrations. Professor Forel also joined in the defense of Haeckel.

So the "honor" of Professor Haeckel was amply

vindicated by the anatomists and embryologists of Germany. It will be more difficult to rehabilitate the honor of the religious press, which has, in defiance of the plain facts of the case, trailed its unscrupulous slander over the world. But there is a further point. What of this "practice of schematizing" on Haeckel's part which his colleagues "do not like"?

In the first place, the assertion that it was done to prove a thesis is part of the slander. Says Professor Rabl: "Illustrations which are absolutely true to nature prove Haeckel's phylogenetic deductions *far better and more convincingly* than his schematic figures do." That cuts down a fine crop of "inaccuracies." Secondly, the general public probably sees only one point of great importance in Haeckel's embryonic figures—the gill-slits, which so strikingly show the fish-ancestry. About these there is no dispute. I have seen human embryos, and any reader of the "Evolution of Man" knows that the illustrations taken from other authors wholly agree with those of Haeckel in this. Thirdly, a writer for the general public, which is not permitted to see undeveloped human beings, has not the same task as a professor of embryology. For instance, Haeckel commonly cuts away the ventral pedicle and yolk sac and clears the abdomen. Professor Keibel says that it is wrong. It is a mere matter of opinion. That is an example of schematizing.

But we may, in conclusion, turn to Haeckel's own book for his defense on this point. He has an easy task with many of the "falsifications" which the acute eye of Dr. Brass discovered. Some readers will remember a fine plate showing the skeletons of man and the four anthropoid apes—which, in unconscious humor, I have entitled "Five Anthropoid Apes"—in the "Last Words on Evolution." Dr. Brass finds grave and purposive inaccuracies in them. But they are *photographs* of the actual skeletons. Next, Dr. Brass has personally seen certain genetic tables for the instruction of the public in Haeckel's Museum, and is "full of shame for Haeckel and his friends." But the tables do not yet exist.

The best idea of this schematizing, however, can be conveyed at once to any reader who has "The Evolution of Man." Fig. 137 (complete edition) shows a human embryo drawn by Count Spee. Fig. M. I, on Plate V (two pages later), shows the same figure "schematized" by Haeckel for the purpose of comparison. The charge of "falsifying" is ludicrous, and the aim of Haeckel quite plain. Yet this is one of the classical examples. Another is the alleged cutting-short of the tail of the poor embryonic monkey. The truth is that even the human embryo is so excellently tailed at an early stage that there could be no point in such a procedure. Again, where Brass quarrels with the number of



vertebrae in a human embryo, no definite number was intended, as the number is variable.

These examples will suffice to explain Haeckel's procedure. He has tried to aid the general reader by schematizing six or eight per cent of his pictures. Many of his colleagues think that he ought not to have done so, but they sternly denounce the indictment of his "honor," and declare that more exact figures prove the evolution of man even more conclusively. Haeckel maintains that, in dealing with an inexpert public, he was quite right in putting certain figures diagrammatically, and making hypothetical drawings of others where the actual object is not available. It is an academic dispute. But that Haeckel confessed to misleading the public, or misled the public in order to prove his thesis, that any scientific men forced him to confess, or that the embryologists and anatomists of Germany ever sanctioned the attack on him, are irigid and calculated inaccuracies. They have gone through the religious press of the world. For the satisfaction of dishonoring in the minds of their readers a man whose character is as great as his service to science and to truth, they have reproduced, without the least scruple to inquire into its truth or untruth, a mess of malignant mendacity. The forgers are in the churches.

## WHERE STANDS PROFESSOR HAECKEL NOW?

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BY THADEUS BURR WAKEMAN.

To be able to get out of a great life trouble safely, wisely, and well is a very great achievement; but a greater is to be able to use such victory so as to make it the greatest possible victory to one's self and to others. It is now the great good fortune of Professor Haeckel that he is in a position in which he may be able to do both of these great things. In his twenty reasons for leaving the church in the last TRUTH SEEKER and in his recent pamphlet, "Sandalion," vindicating him and his motives from the charges of the Jesuit conspiracy against him, he stands out free and clear, the one noble man, prepared by science, time and circumstances to do his noblest work. That work would be the extension around the earth of the monistic, secular *scientific Alliance* founded by him upon his thirty Theses; these *Theses* which really caused the Jesuit rage and conspiracy against him. Because the truths set forth by this scientific Luther could not be answered, they determined to destroy the man by

striking down his moral character so that he might not be believed. But "truth is mighty and will prevail," and so in the end it will fall upon and crush these meanest of conspiring slanderers. They are the meanest, for no other word can describe those who attempt to "trade upon," and so misuse the ignorance of multitudes in order to get them to morally assassinate the one who has spent his life in trying to educate and enlighten them?

This is the way it was done: The word "Sandalion" is a Greek word for sandal or *shoe-sole*, largely used in the Orient. Biologists use the word to describe the embryo forms of vertebrate and mammalian animals which look like it. The evolution biologists show that the similarity of these forms was such as to plainly indicate that all of the higher forms of these animals were descended from the lower forms of the vertebrates. This is done by making type forms of the Sandalion variations of the different species to be compared. Such "schematized" synthetic ideal forms are just as necessary to the comparative biologist as his microscope, camera, or chemical preservatives, and so such forms have been in general use from Darwin, Huxley and others for a long time, and by none more effectively than by Professor Haeckel, the leader in that department of science. It was only necessary for one of these schematized forms to be compared with some special one to discover differences, which Haeckel points out were never ma-

terial, but that the succession of similarities was carefully preserved—as is done in Huxley's succession of anthropoid and human skeletons, for the same purpose; that it is not to deceive but to enlighten the observer by enabling him to connect the links in the chain of evidence. There was no intent or thought of fraud or deceit in all this in the mind of Haeckel more than there was in the mind of Darwin in his varying pictures, showing the fertilization and variations of orchids. But the pictures were not the same! They were never intended to be, and would be worthless if they were!

On this simple fact these Jesuits could load up the uninformed minds and prejudiced feelings of multitudes with a magnificent lie for the glory of their "God," and they did!

On pages 45 of his Sandalion pamphlet Professor Haeckel gives a page specimen of this Jesuit abuse, and in the Appendix we find the response of the biologists of Germany practically in Haeckel's favor unanimously—46 at one time—as far as any wrongful intent was concerned. As to minor biological details complete unanimity is not to be expected. Doctors would not be doctors if they did not disagree.

But as to the main contention that "the human species have descended from the vertebrate animals," there is no longer serious question. Darwin and Huxley have been succeeded by Menckekoff, the successor of Pasteur, by Haeckel, as the suc-

cessor of the great mass of the scientists and evolutionists of our time; and there is not the slightest doubt that their verdict will stand affirmed and confirmed for ever!

Where, then, and for what, does Ernst Haeckel, the representative of this great affirmation of science, stand? He has answered by leaving the church and joining the Monistic Secular Alliance of the free-minded people of the world. In his country, where church and state are united, he was wise in not acting rashly. He did not leave until an Alliance had been formed that could far more than take its place for all the good it could do.

Not by his own act or choice, but by the evolution of circumstances which he could not control, he now stands before the civilized world with the question: Shall Natural Science and Humanity, or Supernatural Illusion and Dogma, lead the future of the Human Race? If the former, the peoples that surround the Atlantic ocean will see in the Monistic Scientific Alliance the future "Republic of Man." If the latter, the supremacy of the Jesuits and the pope will be the future of mankind.