

THE WORLD-ENIGMA : The Answer of the Nineteenth Century.

A SUMMARY OF THE "WELTRATSEL" (WORLD ENIGMA) OF
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(By Joseph McCabe, issued by the Rationalist Press Committee as a supplement to Watts' Literary Guide for April, 1900.)

WHAT IS THE "WORLD-RIDDLE" ?

TIME was when man looked out upon the world, and down the avenues of the past and onward into the future, only to find himself surrounded by an infinity of enigmas. Even now, as Prof. Haeckel says, "the uneducated member of a civilized community, just as much as the savage, is environed by countless world-riddles at every step." But with the advance and diffusion of knowledge the number of problems grows smaller. Fifty years ago science seemed fairly in the way of dissipating all the mystery of life. One aspect of life after another was wrested from the theologian and mysticist, and illumined with a naturalist interpretation. Now, at the close of the nineteenth century, we witness a reaction. The forces of superstition and conservatism are rampant and influential; enlightened thinkers are belying the promise of science and offering a base to mysticism. Against this reaction Dr. Ernst Haeckel, "a thorough child of the nineteenth century," as he calls himself, raises an eloquent protest. He reviews the scientific discoveries and theories of the century, and shows that mysticism of the dualistic order is utterly out of court. The Monism of Spinoza has been amply substantiated. The so-called enigmas of Boi-Rey-mond and his like are no longer mysteries—the origin of the world, of life, of thought, of free-will, and so forth. One great enigma still remains—the intimate nature of the one great substance, illimitable in time and space, of which matter and force are the two chief features, and which makes up all things in heaven and earth. But the great problem of Dualism or Monism, with all its subsidiary problems, has been solved; there is no longer a basis for theism and ecclesiasticism.

SCIENCE AND THE HUMAN BODY.

Our knowledge of the human frame, so essential to a full understanding of human nature, was long retarded by the prohibition of the dissection of corpses. Even so late as the 15th century the practice was visited with capital punishment. As soon as the tyranny of the Church was broken, and scientists were free to devote themselves efficiently to human and comparative anatomy, very remarkable discoveries were made; the most significant of these being the discovery that man begins his career as a single, tiny cellule, and that even the fully developed organism is a vast, orderly community of these minute elements. So careful has been the research into the frame of man and of the other animals, that the "origin of man" is now placed beyond reasonable dispute. Dr. Haeckel here marshals his vast wealth of zoological facts in a new and striking fashion. He takes the large division of the animal world known as the vertebrates, and enumerates their characteristic features. Man possesses all these distinctive features, and is therefore "a true vertebrate." In the same way, Dr. Haeckel analyzes the distinguishing features of the successive sub-groups—tetrapods, mammals, placentals, primates, and catarrhinae (or old-world monkeys), and proves that man belongs by every scientific title to these divisions of the animal world. It is inconceivable how

any informed, impartial truth-seeker can resist the evolutionary theory which these facts so eloquently indicate.

THE ACTIVITY OF THE ORGANISM.

Like structure, like function, is a biological axiom; they are, as Mivart has said, the convex and concave aspects of a curved line. The author, therefore, has an easy though necessary task in proving that the life of the human body is entirely similar to that of cognate species. Circulation of the blood, respiration, lactation, are distinctive features in mammals; man possesses them. Besides the well-known similarities of age-life to that of man, physiology has discovered certain peculiarities in the activity of the heart, the division of the breasts, and the sexual life of apes which are likewise shared by man alone. The evidence of genetic relationship is scientifically overwhelming. As in the preceding chapter, the author gives an interesting historical introduction to his subject, and shows how the attempt to revive "Vitalism"—the theory that would make the "principle of life" to be of a different character from the natural forces of the organism—is a reversion to ancient speculation in the teeth of all modern biological research.

THE TESTIMONY OF EMBRYOLOGY.

Through long and laborious stages, which are fully detailed by the author, we have arrived at a true science of embryology. Baer discovered the human ovulum, the true point of departure, in 1827. In quick succession there came the discoveries of the spermatozoa, of the precise character of impregnation, and of the rapid subdivision and differentiation of the germ. We can now follow the evolution of the individual human organism from the tiny cellule through every stage of growth. Once more we have to study, not merely human, but comparative embryology, and the full significance of our discoveries is clear. Man commences his existence as a unicellular organism, passes through the same metamorphoses as the animals from which he is held to have descended, and is only gradually differentiated in his growth as a Vertebrate, a Mammal, a Primate, and ultimately a Human infant. For this embryological fact "there is but one explanation—heredity from a common parent form." So in the environment of the fœtus. The higher vertebrates—reptiles, birds, and mammals—have the embryo enclosed in protective coverings filled with water. This was unnecessary in their aquatic predecessors. The origin of these structures, the Amnion and the Serolemma, and of the Allantois, is just the same in man as in the other higher vertebrates. Even ten years ago there were creationists who contended that man had certain peculiarities in his embryonic development. Selenka proved in 1890 that these were shared by others of the Primates, especially the orang. Man has clearly inherited his whole structure and life.

THE TESTIMONY OF PALEONTOLOGY.

Dr. Haeckel takes us once more through the myths and legends and speculations which preceded the splendid work of Charles Darwin. The investigation of fossil forms in the rocks has proceeded far enough to close the case for human evolution. Comparative anatomy and physiology suffice of themselves to point out the broad lines of that evolution, and, when embryology adds its independent witness that man's individual development runs through precisely those stages and specific forms in the womb, the case is strongly reinforced. When, further, we find that the fossilized forms appear in the earth's crust in the chronological order which the theory demands, it passes beyond the range of rational controversy. We are