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[p. 24e]

'The World of Life. The Result of Dr. Wallace's Latest Scientific Investigations'

The World of Life. A Manifestation of Creative Power. Directive Mind and Ultimate Purpose. By Alfred Russel Wallace, O. M., F. R. S., D. C. L., Etc. New York: Moffat, Yard & Co.

Over half a century has passed since Dr. Wallace sent to Darwin a paper in which was outlined a theory of the origin of species by means of natural selection, and of which Darwin said: "Were Wallace's paper an abstract of my unpublished manuscript of 1844 it could not better express my ideas." Wallace's paper and an abstract of Darwin's manuscript were published together in 1858, and since that date they have been known as the co-discoverers of the theory of organic evolution by means of natural selection. Darwin died in 1882, at the age of seventy-three: Wallace is yet alive, and at the age of eighty-eight has completed the present volume, in which he says: "I have attempted to summarize and complete my half-century of thought and work on the Darwinian theory of evolution." This volume he also wishes to be considered as supplementary to his former work, "Man's Place in the Universe." And as some treated the conclusions arrived at in that book as wholly matters of opinion or imagination, although no one could be more careful to state his reasons for his conclusions than Dr. Wallace was, he begs the reader to remember that no matter how strange and heretical some of his beliefs and suggestions may be, he has stated them only after a careful study of the facts and conditions of the problem.

The work is of great interest and value for a number of reasons. First, Dr. Wallace has been looked up to for over half a century as one of the greatest men of science, and especially a great naturalist. So every scientific matter discussed in this volume will be seen in the light of the latest knowledge upon the subject. Then Dr. Wallace was co-discoverer with Darwin of Darwinism, and he is therefore best equipped to review its progress during the past fifty years and to state the results as they are today. Again, he has made some independent discoveries that are very interesting. For example: "Some little-known aspects of bird migration are here discussed, and proof is given of the enormous importance of mosquitoes for the very existence of considerable proportion of our birds, including most of our most-favored pets and songsters." After reading this chapter the bird-lover will be a little more kindly disposed towards that little pest, the mosquito.

But in addition to these things which are clearly matters of physical science Dr. Wallace discusses some fundamental problems which Darwin considered beyond the scope of his inquiry, but of which Dr. Wallace thinks organic evolution suggests solutions. Such are the nature and causes of life itself, the alleged cruelty of nature, the uses of pain, and some sociological problems. In one chapter he finds that his study of birds and insects has given him proofs of an organizing and directive life principle. He agrees with Darwin that the universe could not have existed without an intelligent cause, but he goes further and calls that intelligent cause the infinite God; but he holds the idea, strange to find it in a modern scientist, although it was quite fundamental in the thinking of the ancient Hebrew theologians and some of the old Greek philosophers, that the infinite God, while responsible primarily for life, mind and man, delegates many of the things in creation to a graded hierarchy of spiritual beings. To use his own words: "If, as I contend, we are forced to an assumption of an infinite God by the fact that our earth has developed life,

and mind, and ourselves, it seems only logical to assume that the vast, the infinite chasm between ourselves and the Deity is to some extent occupied by an almost infinite series of grades of being, each successive grade having higher and higher powers in regard to the origination, the development and the control of the universe." This fundamental contention of Dr. Wallace that life is not created by matter is a welcome reaction from the materialism of Haeckel and many of the lesser lights of physical science; but if he had taken some time from his beloved science and given it to philosophy he would have seen that it is not "logical to assume" a theory which was held by the old Jewish theologians, and is to be found in Greek philosophy In its decadence, and which has finally been rejected by philosophy. But too much stress should not be put upon this assumption, as he practically says it is the product of his imagination; and this is one of the things in the book which are matters of personal belief, rather than the outcome of knowledge.

As Dr. Wallace returns from his little excursion into the field of philosophy and turns to his own field of science, he puts aside all hesitating and his mind acts firmly and vigorously. His chapter upon the alleged cruelty of nature and the purpose of pain is original and stimulating. Many in the past, and, perhaps, there are some left in the present, who have looked up on Darwinism and teleology as enemies which must fight it out to the death. But in this volume we find Mr. Wallace both a Darwinian of the Darwinians and a teleologist of the teleologists. His conception of the author of the universe is that he is "at once all-wise, all-powerful, and all-good"; and he rejects most decidedly the idea that the universe is the outcome of the blind forces of nature, but urges that is "the foreordained method of a supreme mind." In the matter of pain he thinks that no evolutionist has ever gone to the root of the matter, which is that it has a definite purpose, and which purpose is strictly subordinated to the law of utility; and pain is never developed beyond what is strictly needed for the preservation of life. Much of our horror arising from the alleged cruelty of the universe is the result of the delusion that there is an immense amount of suffering and pain among the lower animals; and this delusion is the result of imagining that the lower animals are as sensitive to pain as we are; whereas the results of wide and careful observation lead us to conclude that "the probability is, that there is as great a gap between man and the lower animals in sensitiveness to pain as there is in their intellectual and more faculties." He tells us that no organ, no sensation, no faculty arises before it is needed, or in a greater degree than it is needed; and "this is the essence of Darwinism." So he thinks that both the theory of evolution and the facts of observation lead us to conclude that the lowest animals, such as insects, have no pain; and that of the higher animals is much less than we imagine. The real significance of pain is that it helps to preserve the life of man and it ministers to his higher faculties.

As we look through this book to find what was the chief purpose in the author's writing it there is not much difficulty in seeing that it is "that beyond all the phenomena of nature and their immediate causes and laws there is Mind and Purpose; and that the ultimate purpose is (so far as we can discern) the development of mankind for an enduring spiritual existence." He thinks too that we "can hardly escape from the old and much-derided view that this world of ours is the best of all possible worlds calculated to bring about this result."

The work is remarkable in many ways. It is the product of a remarkable per- [p. 24f] sonality; Dr. Wallace is eighty-eight years of age, and has had a unique history as a scientist. It is remarkable for its original thought and thought-provoked theories. It is remarkable that a man whose life has been given up to so great extent to the study of physical science should so firmly believe that spirit is the only cause and that God is all-wise, all-powerful, and all-good; and that this is the best of all worlds and that it is "the

only inhabited planet, not only in the solar system but in the whole stellar universe." It is sure to be one of the great books of the twentieth century.

F. W. C.

The Alfred Russel Wallace Page, Charles H. Smith, 2017.