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‘Literature. The Book of the Week.’

“The World of Life: A Manifestation of Creative Power, Directive Mind, and Ultimate Purpose.” By Alfred Russel Wallace, O.M., D.C.L., F.R.S. London: Chapman & Hall.

In his 88th year Dr. Wallace has produced one of the most important and interesting of his many works. It embodies, as he says in a preface, the conclusions of half a century of thought and work on the Darwinian theory of evolution. We read incidentally that he adheres to the doctrine promulgated in “Man’s Place in the Universe,” viz., that of all the planets of the universe ours alone is inhabited or habitable by living beings. To quote his own words:—

In like manner it may, and, I believe, will turn out, that of all the myriad stars the more we learn about them the smaller and smaller will become the scanty residue which, with any probability, we can suppose to illuminate and vivify habitable earths. And when with this scanty probability we combine the still scantier probability that any such planet will possess simultaneously, and for a sufficiently long period, all the highly complex and delicately balanced conditions known to be essential for a full life-development, the conception that on this earth alone has such development been completed will not seem so wildly improbable a conjecture as it has hitherto been held to be.

Under the domination of the same belief the present work has been written. Briefly, it may be said to have for its object the promulgation of a belief in the transcendent importance of the human race, as the crown of the edifice of creation. In courage Dr. Wallace has never been wanting, and he is not in the least dismayed by the opposition his views have encountered from other savants. He declines to be tied down to dicta founded on observations that have been proved and may at any time be checked. Tell him that he is giving too much rein to his imagination, and he will probably reply that the imagination might as well not be included among the Almighty’s gifts to the race if it is to be kept in fetters. Admitting the omnipotence as well as the benevolence of God, he yet maintains that the cosmos came not from the hands of God direct, but from those of “beings of a very high, and others of a very low, grade of intellect,” to whom Divine powers were delegated. These “angels” adopt various methods, some of which are known to the human race, and others unknown. The methods include national selection to which, in spite of Weismannism, Mendelism, and other isms, he pins his faith with as much confidence as ever. The theories of mutation and Mendelism he holds to be “ludicrously inadequate as substitutes for the Darwinian factors,” and as founded on phenomena which are “mere insignificant by-products of heredity, and seem to be essentially rather self-destructive than preservative. The persistency of Mendelian characters is the very opposite of what is needed amid the ever-changing conditions of Nature.” Natural selection, it is obvious, needs immense periods to do its work in. Dr. Wallace holds that the beginnings of life existed “myriads of years” before the forms of life with which we are acquainted had left their fragmentary remains on the rocks:—

Two different standards have always been taken to measure our knowledge of the approximate time which has elapsed since this earth became habited by vegetable or animal life. The physicists (like Lord Kelvin) base their calculations on the rate at which the earth loses, and has been losing, heat by radiation through its crust into space. Deductions on this basis are very various indeed. Sometimes it is asserted that since the period in which coal was formed about 400 millions of years must have now elapsed. Lord Kelvin places what is usually called the "age of the earth" somewhere in the neighborhood of 25 millions of years. On the other hand, biologists (like Huxley) demand a vastly greater period, owing to the extreme slowness of life-processes, and in this connection it may safely be maintained that the cooling of the earth does not take place by conduction from the heated interior through the solid crust, but by the escape of heated matter to the surface through hot springs, the flow of heated gases from volcanic areas, and outbursts of red-hot ashes and lava from volcanoes. If this is so, the period is lengthened very greatly, and the theory of Darwin correspondingly strengthened.

The author, however, is not afraid to meet the challenge of the anti-evolutionists to produce an instance of the developmental theory in visible operation. In the formation of new species, Nature, he assures us, has actually been detected:—

Among them is the development which has taken place, since the year 1419, on an uninhabited island near Madeira, of a new class of rabbit from some common rabbits which had been let loose there by Spanish voyagers. The new rabbit differs from the old in size, color, form of skull, and nocturnal habits. These changes result from changed environment.

For the absence of connecting fossilised links between various forms of animal life more especially between the secondary and tertiary beds, the author has an explanation which is not wanting in plausibility. Between numerous groups of giant reptiles and the much higher and more varied mammals of recent times there is a distinct gap:—

We have to remember that during this transition period "a large portion of our existing continents was dry land, the result being that the skeletons of very few of these unknown (missing) forms were fossilised; or, if there were any, they have been subsequently destroyed by denudation during the depression and elevation of the land which we know to have occurred

Why, too, has there been a simultaneous extinction on so complete a scale of many of the largest mammals all over the world in Pleistocene times? The huge crust of ice which covered a large part of the earth in the glacial period has been assigned as the reason. This might explain the phenomenon so far as the ice-covered area was concerned; but the area destructive was co-extensive with the entire earth:—

The explanation may be found in the agency of Man, whose ancestry may be traced back to a period of co-existence with extinct species of vast antiquity.

The common ancestor of man and the anthropoid apes must date back to the Miocene, if not to the Eocene, period; and spears of flint or even of tough wood were amply sufficient, as they are now in Java and elsewhere, to destroy the largest and most formidable animals.

With the existing definitions of life Dr. Wallace is not satisfied, and accordingly he ventures upon one of his own:—

Life is that power which, primarily from air and water and the substances dissolved therein, builds up organised and highly complex structures possessing definite forms and functions. These are preserved in a continuous state of decay and repair by internal circulation of fluids and gases; they reproduce their like, go through various phases of youth, maturity, and age, die, and quickly decompose into their constituent elements. They thus form continuous series of similar individuals; and, so long as external conditions render their continuance possible, seem to possess a potential immortality.

In a bird's-eye sketch of the great life drama, in the course of which we have glimpses of the side-paths of nature-study, we are shown the operation of the great principle of the "survival of the fittest," effected by the destruction of one species by another. This leads to the question, "Is Nature cruel," to which a fascinating chapter is devoted:—

At first sight there would seem to be very little doubt about the matter. Huxley seems to have had none. He spoke and wrote of the myriads of generations of herbivorous animals which have been tormented and devoured by carnivores, of the carnivores and herbivores alike being subject to all the miseries incidental to old age, disease, and over-multiplication, and the more or less enduring suffering which is the meed of both vanquished and victor. Huxley concludes that "since thousands of times a minute, were our ears sharp enough, we should hear sighs and groans of pain like those heard by Dante at the Gate of Hell, the world cannot be governed by what we call benevolence. But neither theologian nor biologist has ever gone to the root of the problem by considering the very existence of pain as being one of the essential factors in evolution; as having been developed in the animal world for a purpose; as being strictly subordinated to the law of utility; and therefore, never developed beyond what was actually needed for the preservation of life.

That this is, in the words of Dr. Pangloss, "Le meilleur des mondes possibles," is a conclusion our author finds it impossible to escape. The whole system of life development, that of the lower providing food for the higher in ever-expanding circles of organic existence, is the only way by which nature could have produced its final achievement in Man:—

If it is, as I urge, the fore-ordained method of a supreme mind, then it must with equal certainty be the best, and most certainly the only method that could have subsisted through the immeasurable ages, and could have then produced a being capable in some degree of comprehending and appreciating it. For that is the glory and distinction of man. But how, one may ask, does all this apply to the question of pain and cruelty? One of the principles much insisted on by Darwin is that no organ, faculty, or sensation can have arisen in animals except through its utility to the species. The sensation of pain has been thus developed, and must therefore be proportionate in each species to its needs, not beyond those needs. No other animal needs the pain sensations that we need; it is therefore absolutely certain that no other possesses such sensations in more than a fractional degree of ours. Hitherto the problem has never been considered from this point of view, the only one for the evolutionist to adopt. Hence the ludicrously exaggerated view of men of such eminence, and usually of such calm judgment as Huxley—a view almost as far removed from fact or science as the purely imaginary and humanitarian dogma of the poet—

The poor beetle, that we tread upon,
In corporal sufferance finds a pang as great
As when a giant dies.

Whatever the giant may feel, if the theory of evolution is true, the "poor beetle" certainly feels an almost irreducible minimum of pain, probably none at all.

Dr. Wallace is on difficult ground when, in the promulgation of his optimistic gospel he seeks to find some use for mankind in all phenomena. One great reason for the existence of water is the production of an endless variety of mountain, plain, and river scenery “for the delectation of all the higher faculties of man!” Dr. Wallace is the first authority we have ever known to say a good word for the ubiquitous mosquito. No violent exception need be taken to his suggestion that mosquitoes, as food for birds, “minister to the existence of song and plumage whereby the eye and ear of man are charmed.” But from the standpoint of human welfare, what ultimate purpose is to be found in the blood parasites that slay their thousands by the sleeping sickness; in the Californian poison-vine, a scratch with which produces eczema over the entire body; or in the mucana bean of Zambesia, whose spires exude such a skin-torturing powder that the tortured native who treads on him will, to relieve the agony, take his chance in a river haunted with crocodiles? It may be that science will find a solution for these now disconcerting problems. For his own part Dr. Wallace finds signs, not of one purpose only, but of many purposes, controlling the labor of conscious beings outside what we know of nature:—

We conclude, therefore, that there are now in the universe infinite grades of power, infinite grades of knowledge and wisdom, infinite grades of influence of higher beings upon lower. Holding this opinion, I have suggested that this vast and wonderful universe, with its almost infinite variety of forms, motions, and reactions of part upon part, from suns and systems up to plant life, animal life, and the human living soul, has ever required and still requires the continuous co-ordinated agency of myriads of such intelligences.

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The Alfred Russel Wallace Page, Charles H. Smith, 2014.