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'Wallace on Evolution. Darwinism Without Materialism.'

Darwinism: An Exposition of the Theory of Natural Selection, With Some of its Applications. By Alfred Russel Wallace, LL.D., F.L.I., etc. With Map and Illustrations. 12mo, pp. xvi. 494. Macmillan & Co.

In this volume Mr. Wallace presents a lucid and closely connected survey of the theory of Natural Selection, first as originally propounded by Darwin, and next as tested by the observation, research and analysis of thirty years of scientific progress. No better exponent of Darwinism could be found, for while Mr. Wallace, as is well known, independently worked out the theory which Darwin, by his fuller elaboration, obtained the credit for, the distinguished author of "The Malay Archipelago" has been one of the most magnanimous and loyal contributors to the fame of his great colleague. He has not at any time been a servile follower of Darwin; from the first he held dissentient views upon several minor points, nor has the lapse of time produced any change in his conclusions on these questions. In the present work he develops his individual views, and at the same time examines all the principal objections which, since the appearance of "Origin of Species," have been raised against Darwin's great hypothesis.

Among the more important new contributions to the establishment of Natural Selection brought forward by Mr. Wallace is a quantity of evidence regarding variations of organisms in a state of nature. It was objected that Darwin obtained the main evidence for his theory from observation of domesticated animals and cultivated plants, and it was suggested that the processes by which domestication and cultivation had been attained, perhaps, had a great deal to do with the production of the phenomena ascribed by Darwin to natural selection. Mr. Wallace meets and disposes of this objection by showing that the laws which obtain in domestication are equally operative in a state of nature. By a series of diagrams the extent and character of the variations in many wild species are clearly indicated, and the regularity and uniformity of the law is exhibited. In the arrangement of his subject Mr. Wallace has certainly added to the clearness and force of his argument as a whole by beginning with consideration of the "Struggle for Existence," which, as he justly observes, "is really the fundamental phenomenon on which natural selection depends, while the particular facts which illustrate it are comparatively familiar and very interesting." There is, indeed, nothing in the operations of nature at once so fascinating and perplexing as this struggle for existence. Mr. Wallace combats the view which sees in this incessant conflict a nature "red in tooth and claw with rapine," and argues ingeniously that the enormous destruction of life which is constantly going on by no means necessarily implies a like amount of suffering.

He says: "Now there is, I think, good reason to believe that all this is greatly exaggerated; that the supposed 'torments' and 'miseries' of animals have little real existence, but are the reflection of the imagined sensations of cultivated men and women in similar circumstances, and that the amount of actual suffering caused by the struggle for existence among animals is altogether insignificant. "Animals," he proceeds, "are entirely spared the pain we suffer in the anticipation of death— a pain far greater, in most cases, than the reality." This is an assertion equally impossible to prove or disprove, like most of the assertions about the feelings and faculties of animals. There is, however, some evidence for the theory that animals have if not always, sometimes, a premonition of death which causes them to exhibit much

terror and uneasiness. How Mr. Wallace can believe that animals which have to be on the watch continually against mortal foes can have "an almost perpetual enjoyment of their lives" is hard to understand. Surely when they are fleeing for their lives they cannot be enjoying themselves greatly, and flight from many enemies forms a great part of their activity and is in most cases their sole recourse and dependence. In the next place he thinks that "there is much evidence to show that violent deaths, if not too prolonged, are painless and easy"; and he argues from the few instances known of the effect upon men of seizure by one of the great carnivores, that probably in all such cases a hypnotic effect is produced upon the victim." Even if we allow this possibility, there are plenty of cases in which nature appears to have deliberately set out to make the death inflicted both painful and tedious. Take in illustration those parasites which are imbedded by their parents in the tissues of living organisms, and which, when hatched, proceed to consume the vitals of their involuntary hosts. There is here no ground for believing in any hypnotic effect, but the infliction of cruel suffering must be inferred.

The weakest point in Mr. Wallace's position, however, is this: that he omits all references to the only evidence we possess which has the force of certainty, namely, the experience of mankind. Now we know beyond controversy that the struggle for existence as it operates in the human race does produce the most widespread, constant and bitter suffering, that the survival of the fittest is accomplished in a large proportion of instances through the slow yielding of the weak and unfit to the incidence of torturing diseases; that the process of ascent from animalism to civilization has involved the slaughter of millions under every condition of pain and torment; that even in civilization a considerable percentage is doomed to an existence consisting far more of pain than pleasure; that, in short, so far as our own experience indicates, Nature never hesitates to inflict either physical or mental suffering, and in no case shows any case or regard for individual life, and but little, as Tennyson pointed out long ago, for the type even. The optimism of Mr. Wallace is no doubt cheerful, but what the world demands from naturalists is perfectly candid and impartial presentation of facts, and from such a presentation of facts it is not practicable to declare the sanguine inferences here advanced. Whether the pain and suffering which appears inseparable from organic life is a means to a higher end than we can perceive, is of course an important and deeply interesting question, but it is not concerned here. All that we have to do with in this discussion is the matter of fact, and we think it must be conceded that as regards this Mr. Wallace's arguments are inconclusive.

The final chapter, which deals with Darwinism as applied to man, is a departure, or perhaps it should be said an extension, of Darwin's theory. Here Mr. Wallace parts company with the materialists, and repudiates the partial and defective reasoning which makes a mere animal of man. He says: "I fully accept Mr. Darwin's conclusion as to the essential identity of man's bodily structure with that of the higher mammalia, and his descent from some ancestral form common to man and the anthropoid apes. The evidence of such descent appears to me to be overwhelming and conclusive." He admits also that the laws of variation and natural selection, acting through the struggle for existence and the constant need for more perfect adaptation to the physical and biological environments, "may have brought about, first, that perfection of bodily structure in which he is so far above all other animals, and in co-ordination with it, the larger and more developed brain by means of which he has been enabled to utilize that structure in the more and more complete subjection of the whole animal and vegetable kingdoms to his service." But Darwin goes much further, deriving man's moral nature and mental faculties, too, by gradual modification and development from the lower animals. "Although, perhaps, nowhere distinctly formulated, his whole argument tends to the conclusion that man's entire nature and all his faculties,

whether moral, intellectual, or spiritual, have been derived from these rudiments in the lower animals, in the same manner and by the action of the same general laws as his physical structure has been derived." This conclusion appears to Mr. Wallace "not to be supported by adequate evidence," and accordingly he devotes some space to its discussion.

The argument from continuity, which is Darwin's strongest, is met here with the consideration that "to prove continuity and the progressive development of the intellectual and moral faculties from animals to man is not the same as proving that these faculties have been developed by natural selection; and this last is what Mr. Darwin has hardly attempted, although to support his theory it was absolutely essential to prove it." He illustrates this by geological analogy. Thus, when Lyell wrote his "Principles of Geology" the modelling of the earth's surface not due to volcanic action was attributed to upheaval and depression, subaerial and marine denudation. When the action of glaciers came to be studied, however, many phenomena were seen to be due to this cause. "There was no breach of continuity, no sudden catastrophe; the cold period came on and passed away in the most gradual manner, and its effects passed insensibly into those produced by denudation or upheaval; yet none the less a new agency appeared at a definite time, and new effects were produced which, though continuous with preceding effects, were not due to the same causes." He proceeds then to show that certain definite portions of man's intellectual and moral nature "could not have been developed by variation and natural selection alone, and that, therefore, some other influence, law or agency is required to account for them." He selects the mathematical, musical and artistic faculties for illustration, and undertakes to demonstrate, by close reasoning, that these faculties "are altogether distinct from those other characters and faculties which are essential to man, and which have been brought to their actual state of efficiency by the necessities of his existence." He sums up by saying: "The special faculties we have been discussing clearly point to the existence in man of something which he has not derived from his animal progenitors—something which we may best refer to as being of a spiritual essence or nature, capable of progressive development under favorable conditions."

The theory of the spiritual nature of man, Mr. Wallace holds, is not in any way inconsistent with the theory of evolution, as interpreted in these pages, and few of his readers will dispute the force of his argument or the logical derivation of his conclusions. He has indeed written an admirable volume, in an equally admirable style, and it is in no way discredited by the fact that it differs from most presentations of evolutionary doctrine in according the first place to spirit, which is given a thoroughly scientific status, and the second place to matter, the limitations to which are clearly magnified and definitely indicated.

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The Alfred Russel Wallace Page, Charles H. Smith, 2015.