

BOOK REVIEWS AND NOTICES.

DARWINISM : An Exposition of the Theory of Natural Selection with some of its Applications. By ALFRED RUSSELL WALLACE. London and New York : Macmillan & Co. 1889.

No one could discover from a perusal of this book that Mr. Wallace had come near to anticipating Darwin in the statement of the great theory to which the latter has given his name. Not only is Mr. Wallace silent as to his own part in the matter, but he declares that the whole educated public has come to accept the origin of species from other allied species by the ordinary process of natural birth as unquestionable, and that "this vast, this totally unprecedented change in public opinion has been the result of the work of one man." He maintains enthusiastically that Darwin is "the Newton of Natural History," and that his discovery has not only thrown a flood of light on the process of development of the whole organic world, but has also "established a firm foundation for all future study of nature." Such generous suppression of all personal jealousy under circumstances involving the most illustrious crown of fame that this generation has bestowed, strongly prepossesses the reader in Mr. Wallace's favor.

The aim of his work is to restate the theory of the origin of species, supporting it by selections from the enormous mass of evidence that has accumulated since Darwin wrote, and to examine the attempts that have been made — not indeed to overthrow the theory, for that can hardly be said to have been seriously attempted — but to minimize the agency of natural selection and to subordinate it to laws of variation, of use and disuse, of intelligence and of heredity. Although many of the questions considered, such as the effect of isolation, the "swamping" results of intercrossing, the sterility of hybrids, and the extent to which variations exist, are of interest chiefly to professed naturalists, yet the facts that are brought forward as throwing light upon these questions are too striking to be uninteresting to any reader. On the other hand, the evidence for natural selection, as a principle, consists largely of matter with which naturalists are well acquainted, but which has a peculiar fascination for those who are not familiar with the subject, or who have not considered the significance of these facts. No one can read without delight the wonderful instances of adaptation related in the chapters upon "The Origin and Uses of Colour in Animals," and "Warning Coloration and Mimicry." In collections of evidence of this character there is a singular blending of the pleasure arising from the intrinsic charm of the facts with that arising from their aptness as proofs. As modern states rival one another in the assiduity with which they build armored vessels that can resist heavy ordnance, and then invent ordnance that can demolish these vessels, so throughout nature there is an incessant contrivance of defensive and offensive structures and faculties, a never-ending process of adaptation to the requirements of the struggle for existence. Although Mr. Wallace is not gifted with a particularly graphic style, — his style is, indeed, to us nearly indistinguishable from that of Darwin, — yet he develops his argument with such judgment and skill, and with such a wealth of knowledge, that its effect is overwhelming.

We shall select a single instance illustrating the theory of warning colors, which is instructive because the power of predicting what will

happen in a given case is a test of the truth of a theory. Mr. Belt found in Nicaragua a little frog "gorgeously dressed in a livery of red and blue, which did not attempt concealment, and was very abundant, a combination of characters which convinced him that it was uneatable. He therefore took a few specimens home with him, and gave them to his fowls and ducks, but none would touch them. At last, by throwing down pieces of meat, for which there was a great competition among the poultry, he managed to entice a young duck into snatching up one of the little frogs. Instead of swallowing it, however, the duck instantly threw it out of its mouth, and went about jerking its head as if trying to get rid of some unpleasant taste."

On one point Mr. Wallace is more Darwinian than Darwin—the development of male ornament under the influence of female preference. He argues that in the struggle for existence any attempt to select mere ornament would be utterly nugatory, unless the most ornamented always coincide with "the fittest" in every other respect; while, if they do so coincide, then any selection of ornament is altogether superfluous. In fact, as he maintains, ornament is the natural product and direct outcome of superabundant health and vigor, and female selection is a superfluous explanation. We do not clearly see why it should not be at least a co-operating cause, nor how the many cases of unornamented males are to be accounted for; but this is a question for professed naturalists to deal with.

The principal value of this work for most readers lies in its lucid and succinct statements of Darwinian theory, and in its classification of facts according to their availability as evidence. On this account it will be found a convenient manual for the use of those who desire to be informed of the present state of scientific thought upon these important subjects. For a large class of readers, however, its interest will chiefly consist in the emphatic expression of the author's opinions upon certain collateral matters. Many writers have dwelt upon the struggle for existence as presenting so vast an amount of cruelty and pain as to be revolting to our humanity, and as rendering the belief in an all-wise and benevolent Ruler of the universe impossible. The author quotes the language of a brilliant writer, Mr. Winwood Reade:—

"Pain, grief, disease, and death, are these the inventions of a loving God? That no animal shall rise to excellence except by being fatal to the life of others, is this the law of a kind Creator? It is useless to say that pain has its benevolence, that massacre has its mercy. Why is it so ordained that bad should be the raw material of good? Pain is not the less pain because it is useful; murder is not less murder because it is conducive to development. Here is blood upon the hand still, and all the perfumes of Arabia will not sweeten it."

In opposition to this view, which has been recently advanced by Professor Huxley as fatal to the theory of the benevolent government of the world, Mr. Wallace boldly asserts that there is good reason to believe that the supposed torments and miseries of animals have been greatly exaggerated, being chiefly the reflection of the imagined sensations of cultivated men and women in similar circumstances, and that the amount of suffering caused by the struggle for existence among animals is altogether insignificant. His chief points are the freedom from the anticipation of death enjoyed by animals, resulting probably in the almost perpetual enjoyment of their lives; the absence of pain in cases of death by

violence ; and the positive pleasures with which the lives of most animals are filled. For the development of this argument we must refer our readers to the book itself. The conclusion is that the struggle for existence really brings about the maximum of life and the enjoyment of life with the minimum of suffering and pain.

While Mr. Wallace fully accepts the descent of man from some ancestral form common to man and the anthropoid apes, he wholly repudiates the conclusion that the spiritual nature of man has been derived under the same laws of variation and natural selection. He claims that there are a number of mental faculties which either do not exist at all, or exist in a very rudimentary condition in savages, but appear almost suddenly and in perfect development in the higher civilized races. The characteristics of these faculties are inconsistent with the action of the law of natural selection in their production, and some other cause is necessary to account for them. This cause is man's spiritual nature ; and to the objection that this is calling in a new cause, the reply is made that there are at least three stages in the development of the organic world when some new cause must have come into operation. These stages are : first, the change from inorganic to organic ; second, the introduction of sensation or consciousness ; and, third, the appearance of the moral nature in man. This view is summed up in a spirited passage, from which we extract a few sentences : —

“ Those who admit my interpretation of the evidence now adduced — strictly scientific evidence in its appeal to facts which are clearly what ought *not* to be on the materialistic theory — will be able to accept the spiritual nature of man as not in any way inconsistent with the theory of evolution, but as dependent on those fundamental laws and causes which furnish the very materials for evolution to work with. They will also be relieved from the crushing mental burthen imposed upon those who — maintaining that we, in common with the rest of nature, are but products of the blind eternal forces of the universe — . . . have to contemplate a not very distant future in which all this glorious earth — which for untold millions of years has been slowly developing forms of life and beauty to culminate at last in man — shall be as if it had never existed ; who are compelled to suppose that all the slow growths of our race struggling towards a higher life, all the agony of martyrs, all the groans of victims, all the evil and misery and undeserved suffering of the ages, all the struggles for freedom, all the efforts towards justice, all the aspirations for virtue and the well-being of humanity, shall absolutely vanish, and, ‘ like the baseless fabric of a vision, leave not a wrack behind.’ ”

To Mr. Wallace and those who hold with him, the universe is a grand, consistent whole, adapted in all its parts to the development of spiritual beings capable of indefinite life and perfectibility. What is termed “ evil ” on the earth may be the most efficient means of this development, for we know that the noblest faculties of man are strengthened and perfected by struggle and effort. The warfare against physical evils in the midst of danger has developed courage and industry ; by the battle with moral evil, in all its hydra-headed forms, the nobler qualities of justice and mercy and humanity and self-sacrifice have been steadily increasing in the world. Such having been man's development in the past, he has before him a still higher future.

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