

WALLACE ON DARWINISM.*

DR. A. R. WALLACE was an independent discoverer of natural selection over thirty years ago, and the publication of a scientific memoir on the subject by him induced Darwin to publish his own researches and conclusions. These found expression somewhat later in the famous work *On the Origin of Species*, which, issued in 1859, has had the singular good fortune of converting the world in less than a generation. Darwin himself was ever ready to accord to Dr. Wallace more credit for his early statement of the law of natural selection than the latter was willing to claim. The rivalry in modesty of these two great men of science is one of the most pleasant chapters in the history of knowledge of nature. Dr. Wallace has continued to entertain the same deference for his illustrious compeer since Darwin passed away, and he gives a fresh proof of his respect by naming his re-statement of natural selection *Darwinism*.

In the preface, Dr. Wallace claims for his book "the position of being the advocate of pure Darwinism." In fact, we believe that he is more of a Darwinian than Darwin himself, in the rigidity with which he adheres to natural selection as a sufficient explanation of the great majority of the phenomena of the variation of species. In this comprehensive volume Dr. Wallace gives a statement of the grounds and reasons for believing that species have originated almost entirely through the struggle for existence, as they may be vindicated from the researches of the last thirty years, added to those of which Darwin gave an account. He has enlarged the scope of the argument by dwelling more

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at length than Darwin did on the evidence of the "variability of species in a state of nature." "Individual variability," he shows, "is a general character of all common and widespread species of animals or plants, and . . . this variability extends, so far as we know, to every part and organ, whether external or internal, as well as to every mental faculty. . . . The variation that occurs is very large in amount—usually reaching 10 or 20 and sometimes even 25 per cent of the average size of the varying part." To set forth the facts of this variation Dr. Wallace has used diagrams to a large extent. He has greatly strengthened Darwin's argument, as originally set forth, by this convincing exposition of variation of species in a state of nature. Reversing Darwin's order, he then proceeds to state more briefly the facts of the variation of domesticated animals and plants under cultivation. Without doubt, there is a distinct gain in having this change in the presentation of the two departments of variation. The struggle for existence is naturally presented first by both authors. Dr. Wallace considers that much error is committed in considering the ethical aspect of this struggle by those who dwell upon the pain it is supposed to cause, and he calls even Professor Huxley to account for propagating a mistaken view. "All this is greatly exaggerated; the supposed 'torments' and 'miserics' of animals have little real existence, but are the reflection of the imagined sensations of cultivated men and women in similar circumstances; the amount of actual suffering caused by the struggle for existence among animals is altogether insignificant." This position he would establish by showing that a violent and sudden death is in every way the best for animals, whose lives are full and happy. The struggle for existence "really brings about . . . the maximum of life and of the enjoyment of life with the minimum of suffering and pain. Given the necessity of death and reproduction . . . it is difficult even to imagine a system by which a greater balance of happiness could have been secured." Therefore we should cease to quote Tennyson on "Nature red in tooth and claw with ravine."

Dr. Wallace differs with Darwin in thinking that "natural selection is, in some probable cases, at all events, able to accumulate variations in infertility between incipient species." If this position can be established, the argument for natural selection gains not a little in force. To it he devotes a number of pages in Chapter VII, and then passes on to a condensed statement of those fascinating laws of the origin and use of color in animals and plants with which his name has been especially associated. Here, again, he diverges from Darwin, and allows no force to the latter's arguments for sexual selection as a cause of color development. Especially interesting in this portion of the work is the

explanation of the brilliant colors of certain female birds who are concealed in nesting and hence do not need to be protected by tame or mimic coloring. The subject of Chapter XII, the geographical distribution of organisms, is one which Dr. Wallace has made his own. Considering the geological evidences of evolution, he comes to the conclusion that "just as discovery progresses, gaps are filled up and difficulties disappear . . . the geological difficulty has now disappeared . . . this noble science, when properly understood, affords clear and weighty evidence of evolution."

It is chiefly in Chapter XIV, on "Fundamental Problems in Relation to Variation and Heredity," that Dr. Wallace goes beyond Darwin himself in his insistence upon the sufficiency of natural selection. The more recent Darwinians, of the generation which has grown up since the *Origin of Species*, have generally reverted to Lamarck's hypothesis of use and effort as a cause of variation, which serves to explain how the fittest originate. Natural selection selects the variations, but does not cause them to be. These younger naturalists have been reinforced by the great authority of Mr. Herbert Spencer. But Dr. Wallace has no superfluous respect for their arguments. He introduces his examination of the positions of the "American school of evolutionists," for example, by some quotations from Professor Cope, from which it seems to him clear that this school has "departed very widely from the views of Mr. Darwin, and in place of the well-established causes and admitted laws to which he appeals have introduced theoretical conceptions which have not yet been tested by experiments or facts, as well as metaphysical conceptions which are in capable of proof. And when they come to illustrate these views by an appeal to paleontology or morphology, we find that a far simpler and more complete explanation of the facts is afforded by the established principles of variation and natural selection." The highly metaphysical character of some of Professor Cope's ideas is indeed patent, but this objection does not apply to the neo-Lamarckianism as a whole, and we incline to believe that, were Darwin alive, he would concede far more to this new school of evolutionists than does Dr. Wallace.

Dr. Wallace would have approved himself a more thoroughly trustworthy guide had his last chapter on "Darwinism applied to Man" been left unwritten. But he was already amply recorded as holding to the chief ideas here stated. Having highly exalted natural selection all the way thus far, when he comes to man's intellectual and moral nature he proposes "to show that certain definite portions of it 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." This new law, however,

is not the law of effort or use, which naturally suggests itself, but an influence from "a world of spirit to which the world of matter is altogether subordinate." Could we interpret this general statement for ourselves, we should find little fault with it. But Dr. Wallace is well known as a sincere believer in spiritism, and his real meaning is one which we are disposed to believe more in accordance with spiritism than with science. His eagerness to accept Dr. Weismann's hypothesis of heredity in order to refute the new school thoroughly by showing that inherited characters are not transmissible, is quite as much proof of a metaphysical bias as any argument in Professor Cope's volume of essays, and his last pages where he speaks of the "crushing mental burthen" removed by his spiritualistic conception are not scientific, whatever else they may be. Acquired mental characteristics in man, he is obliged to allow, are inheritable, and this fact does not tend to strengthen Weismann's theory elsewhere.

Dr. Wallace's volume is an excellent companion for Darwin's original volume; it will be very helpful as a view of Darwinism today from the standpoint of a firm and fast believer in natural selection, but we do not feel that he has made a consistent argument, or that the new school need retreat from anything more than a part of their metaphysics.