

SCIENCE

Darwinism: an Exposition of the Theory of Natural Selection, with some of its Applications. By Alfred Russel Wallace. (Macmillan & Co.)

THE lively discussions that have during the last few years arisen between the various sects of evolutionists have revealed the somewhat astounding fact that the work least studied in these days is the "Novum Organon of biology," Mr. Darwin's 'Origin of Species.' To Darwin, as to Milton, it seems that we may apply the remark of Voltaire with regard to Dante, "Sa réputation s'affirmira toujours, parcequ'on ne le lit guère." As Mr. Thiselton Dyer has lately pointed out, the proper title of Mr. Darwin's book is 'The Origin of Species by Means of Natural Selection.' In the course of thirty years this principle of natural selection has become overlaid by various suggestions, for some of which, such as the theory of sexual selection, Darwin was himself responsible. We need not now enumerate the rest, of which some are more intelligible than others, and some based on facts and others on fancies or misconceptions. Among those philosophers who have applied or had applied to them various party epithets, but all of whom have professed that Darwin was their prophet, Mr. Wallace has remained true to the theory which he enunciated independently of Darwin, and which he still regards as the most satisfactory explanation of the majority of biological facts. "Although," he says,

"I maintain, and even enforce, my differences from some of Darwin's views, my whole work tends forcibly to illustrate the overwhelming importance of Natural Selection over all other agencies in the production of new species. I thus take up Darwin's earlier position, from which he somewhat receded in the later editions of his works, on account of criticisms and objections which I have endeavoured to show are unsound. Even in rejecting that phase of sexual selection depending on female choice, I insist on the greater efficacy of natural selection. This is pre-eminently the Darwinian doctrine, and I therefore claim for my book the position of being the advocate of pure Darwinism."

Mr. Wallace has certainly succeeded in re-establishing natural selection in many places whence it has been thought to have been dethroned, and he has supplied as masterly a compendium of the evidence in favour of his case as we could have expected even from himself. In many instances, indeed, he cites phenomena which have already been used in support of the doctrine which he holds; but he adds so much that is new, and he writes in so charming and simple a style, that his readers more than he are to be congratulated on the latest service he has rendered to the science he has served so well.

In one important matter we must, however, venture to disagree with him. When Mr. Wallace comes to apply what he characteristically calls Darwinism to man, he finds that natural selection will not account for the origin and development of the mathematical, musical, and artistic faculties. He believes so completely in natural selection as the cause of changes beneficial to the organism, that he admits no other natural cause, or, at any rate, he makes no attempt to seek for one. He says that the Darwinian theory "teaches us that we possess intellectual and moral faculties which could not have been so [i.e., by the law of natural selection] developed, but must have had another origin; and for this origin we can only find an adequate cause in the unseen universe of Spirit." Granting that natural selection is not the cause of these special faculties, it by no means follows that some other natural process may not be; but such a process, if it be discoverable at all, is to be found only by recognizing our present ignorance and keeping a sharp watch for phenomena which may help us in our search. By handing them over to the "unseen universe of spirit" we lose all hold on the origin of these faculties, and give up to non-matter phenomena which are expressions of the activity of living protoplasm.

One of the most interesting questions with which Mr. Wallace deals is that of variation within the limits of a so-called species, and he has collected a large amount of information on this subject, which he illustrates by some ingenious diagrams. So long as "species" were held each to have had separate ancestors, variations were, of course, regarded as signs of distinct ancestry. During the last thirty years, however, "species" have been studied in a very different way, and we wonder that Mr. Wallace does not cite the high-water mark of the change, which found expression in an essay by Prof. Huxley, written nearly ten years ago. Discussing the character of the dog family, Prof. Huxley said:—

"The suggestion that it may be as well to give up the attempt to define species, and to content oneself with recording the varieties of pelage and stature which accompany a definable type of skeletal and dental structure in the geographical district in which the latter is indigenous, may be regarded as revolutionary; but I am inclined to think that, sooner or later, we shall have to adopt it."

At the very next meeting of the Zoological Society to that at which Prof. Huxley's paper was read, Col. Godwin-Austen commenced a memoir with the following words:

"In certain groups of the Mollusca the many forms run so closely into the other that it is not easy to find differences sufficiently well marked to characterize even the genera."

An experienced entomologist, Mr. A. G. Butler, nine years ago declared his opinion that in time it will be impossible to decide, without rearing from the egg, whether any form is a species, a hybrid, or a variety. Much evidence as to variations will be found in the reports on echinoderms and sponges in the 'Report on the Collections of H.M.S. Alert.' Numerous other cases might also be cited in support and extension of those which are given by Mr. Wallace.

The fact, then, that species vary considerably must be accepted, and the next question that arises is, What are specific marks?

The idea that the characters used are often of a kind with which natural selection had nothing to do is vigorously demolished by Mr. Wallace. He points out that Mr. Darwin has shown for plants that "almost every detail is found to have a purpose and a use." On the other hand, it must be admitted that forms are often described as "species" which are really the same as, or but slight varieties of, forms already given specific rank. These are expressions of that

power
By which we multiply distinctions, then
Deem that our puny boundaries are things
That we perceive, and not that we have made.

And the moral is that formulators of new theories of the origin of species should, like Darwin and Wallace, first get to know something about species themselves.

We do not purpose to go through this book, for every lover of natural history will read it for himself. As there may, nevertheless, be others who may read this notice, and who regard the doctrine of natural selection as a physical expression of the poet's picture of

Nature red in tooth and claw
With ravine,

we cannot conclude without a reference to what Mr. Wallace calls the ethical aspect of the struggle for existence. He believes that "the 'torments' and 'miseries' of animals have little real existence, but are the reflection of the imagined sensations of cultivated men and women." Animals are entirely spared the pain we suffer in the anticipation of death; violent deaths, if not too prolonged, are painless and easy.

"As a rule animals come into existence at a time of year when food is most plentiful and the climate most suitable..... They grow vigorously, being supplied with abundance of food; and when they reach maturity their lives are a continual round of healthy excitement and exercise alternating with complete repose..... This normal state of happiness is not alloyed, as with us, by long periods—whole lives often—of poverty or ill-health, and of the unsatisfied longing for pleasures which others enjoy, but to which we cannot attain."

Is not this a happier existence than the lives of the Pope of Rome, the Czar of all the Russias, or the Chief Secretary for Ireland?

We cannot take leave of Mr. Wallace without again giving expression to our sense of the service which he has rendered to Darwinism by the publication of this book, nor without wondering at the self-denying manner in which he still regards his own valuable contributions to the great theory of natural selection.