

## DARWINISM AND DESIGN.

**"The World of Life: a Manifestation of Creative Power, Directive Mind, and Ultimate Purpose."** By Alfred Russel Wallace. London: Chapman and Hall. 1910. 12s. 6d. net.

THE celebration by the Linnean Society in 1908 of the jubilee of that memorable evening when Wallace's and Darwin's papers enunciating the principle of natural selection were simultaneously presented, and supported by Sir Joseph Hooker, will itself long be remembered by all who were fortunate enough to be present. For there, by rare exception to the swiftly changing course of human life, stood all three of the veteran leaders of British science, still hale in body and vigorous in mind—Wallace himself, Hooker and Galton. The first two are happily still with us, each busy upon the completion of the vivid initiatives of his strenuous prime, so that the first word of any review of a book like this before us must needs be not only of welcome to an ever-interesting and productive naturalist, but of congratulation to the man who, close upon his tenth decade, is still untiring as observer and worker in the concrete field, still fertile in thought and more than ever fearless in speculation. Here surely among all men living we have the very correlation of doctrine and life—the theory of evolution of life and race, of species and of civilisation, with its worthy exposition and illumination in as well as through a long individual career.

We come now to the book itself. The first chapter—"What Life Is and Whence it Comes"—raises boldly

the standard of vitalism against Haeckel and Huxley. "Life must be antecedent to organisation, and can only be conceived as indissolubly connected with spirit and with thought and with the cause of the directive energy everywhere manifested in the growth of living things." Next come three interesting and not too technical chapters on the distribution of plant species, and one on that of animals; and these sum up into an interesting presentment of the extraordinary diversity of the forms of life to be found in small areas and under almost identical conditions, and this alike in temperate and in tropical lands. The variation of species, its frequency and its amount, and the unending play of natural selection at every point and upon every detail, as might be expected, are strongly argued for. Modern theories of imitation and Mendelism are ruled out of court as "hopelessly inefficient", "ludicrously inadequate". Recent illustrative cases of natural selection and adaptation are cited, for our author can still cordially assimilate the cognate work of others and bring it to bear upon his own; and sections like those entitled "The Use of Mosquitos" or "The Origin of Bird-Migration" may be read with delight by any nature-loving schoolboy. In his chapter on recognition-marks he places these as of greater evolutionary importance than the much more discussed subject of mimicry.

But it is the second half of the book which will most interest the general reader. The condition and motive power to organic evolution is found in the earth's surface-changes; of which the many complexities are summed up with the old vigour. The main theses of "Man's Place in the Universe", that of the earth as cosmocentric, of life as unique, and of an overruling Mind, a Guiding Power, are briefly restated. Several chapters clearly enough review the increasing palæontological evidence for the progressive development of life throughout the past; but more personal utterances follow in his treatment of the objections to the Darwinian theory. Of these he selects as most important three: (a) How can the beginnings of new organs be explained? (b) How can variations be co-ordinated? (c) How have developments beyond utilitarian requirements been produced? The first of these he boldly dismisses as imaginary; since for him there are no abrupt beginnings. For the second he is confident that the known amount of variation would amply suffice for the adaptation of any dominant species to a normally changing environment; while for the third, he places great weight on Germinal Selection, as an important extension of the theory of Natural Selection. Darwin's doctrine of Sexual Selection, to which Wallace has long been an opponent, is once more demolished. "The idea of all these strange and beautiful developments of plumage, of ornaments, and of colour being primarily due to surplus vitality and growth-power in dominant species, and especially in the males, seems a fairly adequate solution of the problem." Further than this, our author follows Woodward, as he the American palæontologists, in their insistence upon the recurrence of characters of old age in species towards the end of their geological range, and this from graptolites and trilobites, from ammonites and other molluscs, to the great reptiles of the less remote past, and thence up to the exaggeratedly sabre-toothed tiger or the heavy-horned elk of comparatively recent times. But this, surely, is "neo-Lamarckianism", "bathmism"—anything but orthodox and traditional Darwinism. Far from being an extension of it, as our author calls it, it is surely a surrender to conceptions of life-progress combated by every other Darwinian and different altogether from those predominant in the past fifty years. True, they may be none the worse for that: but here surely we are assisting at a veritable mutation of Darwinism and no inconsiderable development of its co-discoverer and leading exponent. Nor does our author's contrast with Darwin and Darwinians end here. Birds and insects are reviewed "as proofs of an organising and directing life principle"; and the famous thesis which concluded his "Natural Selection" in 1870—that "some of man's physical characters and many of his moral and

mental faculties could not have been produced and developed to their actual perfection by the law of natural selection alone *because they are not of survival value in the struggle for existence*”—is not only restated but extended to “the whole World of Life”. “To afford any rational explanation of its phenomena we require to postulate the continuous action and guidance of higher intelligence; and, further, that there have probably been working towards a single end the development of intellectual, moral, and spiritual beings.” Paley surely could ask no more; but to the elaboration of this thesis, so astounding for a Darwinian, so contrasted against that “all-sufficiency of natural selection” of which we have heard so long, the remaining chapters are devoted; until at length he shows us the progress of evolution, as conducted by a whole hierarchy of spiritual existences, from the Infinite determining the broad outlines of the universe, through descending series of angels, each allotted its appropriate division of the creative task! Here in fact is the Demiurgos of old: here appear anew “thrones, dominations, principedoms, virtues, powers”; but where now is the great goddess Natural Selection? At least how much of her old sufficiency for the production of new species remains to her? At any rate, it can hardly be denied that, instead of the extension of Darwinism of which our author here speaks, here is the superlative limitation of it.

Is there any way of reconciling such contrasted teachings? Shall we simply cling to one position or to the other, or, with some, refuse faith to both doctrines, as offering us not only one mythology but two? Not so: we are now on the threshold of a new period of life-studies; a new conflict likewise, between physicist and vitalist theories, and by and by a new reconciliation also. We shall neither hold with the crudely physical materialism of one school nor revert to the naïve dualism of Mr. Wallace. But where shall we look for this reconciliation of physiology with psychology, no longer falling into mere necrology on the one side nor leaping into phantomology upon the other? We need a bio-psychology which will incorporate all the work of the observer and the experimentalist; yet this complemented by a psycho-biology which will interpret the subtler problems and processes of evolution also, and by less far-fetched agencies. The time for this is plainly approaching; and when it comes this many-sided veteran of the nature-sciences will be remembered to have been one of its heralds, as he was of natural selection in his youth.

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