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### THE WORLD OF LIFE.\*

As a summary and completion of his half-century's work on Darwinian Evolution, Dr. Wallace's new volume is of special interest alike to those who are familiar with his contributions to scientific literature and to those whose acquaintance with these is not so intimate as they should like it to be. Bare of technicalities, and written in a popular style, the book will appeal to a wide circle of readers. Intellectually and otherwise it is characterised by a freshness surprising in an almost nonagenarian production.

About one-fourth of the book is taken up with the distribution of plant and animal species—a very interesting sketch of the causes and conditions of distribution over the earth's surface. The author observes that every detail of the wonderful modifications of structure, function, and coloration described has "been due to general laws in operation for countless ages, and that every minutest character, as they occurred through successive variations and became fixed in each species, had a definite purpose, that is, were of *use to the creatures which exhibited them.*" This characteristic of *use*, well shown in the chapter on Variation and Heredity, is viewed as an expression of the Mind in Nature for which Dr. Wallace craves the recognition of science. In the exposition of Heredity, Galton's numerical law of inheritance and the law of recession towards mediocrity are used to explain why men of genius often have parents who are not distinguished, and why the children of notable men do not usually equal their fathers in ability. Modern Mutation and Mendelism are lightly touched upon and dismissed as "hopelessly inefficient."

Dealing with the power of Increase as a factor in Natural Selection almost equal in importance to the constant variation going on in Nature, the author refers to a plant that Kerner says might (under the necessary conditions) cover in three years an area equal to 2,000 times that of the land surface of the globe. He further illustrates this factor with the case of Paramecium, one of the infusoria, which multiplies so rapidly that if it *could* keep on increasing for about two years would produce, in bulk, enough to fill a sphere *larger than the known universe.*

In another part of this delightful book may be seen a surprising account of the maligned mosquito's importance in the economy of Nature. It is in the Arctic regions, of all unexpected places, that the *Culex damnabilis* of Rae has its existence justified—in that land of marvellous transformation scenes where for eight or nine months of the year every plant and bush within the Arctic circle is

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buried in snow, which melts away before the approach of summer at the rate of some four miles an hour, and disappears in a week ; where in other twelve hours the wood-anemone is in bloom, and in twenty-four hours the golden flowers of the marsh-marigold open : that paradise described by Seebohm, where perpetual day smiles on sea and river and lake, where animal and vegetable life flourishes, brilliant flowers and birds of gay plumage and melodious song abounding as in no other part of the whole world.

The last six chapters are more directly related to the first one, and are explicitly teleological: "Proofs of Organising Mind," "Is Nature Cruel?" "The Purpose of Diversity," are chapter-headings sufficiently suggestive. It is impossible in so short a review to consider the "New Teleology." Dr. Wallace's fascinating illustrations of design in Nature are essentially Paleyan. But both Wallace and Paley may be justified scientifically upon the basis of a true criterion of the nature of Intelligence, wheresoever manifesting.

WILLIAM BUIST.

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