

Darwinism: An Exposition of the Theory of Natural Selection, with Some of its Applications. By ALFRED RUSSEL WALLACE, LL.D. London and New York, Macmillan. 12". \$1.75.

DARWIN, in the greatness of his unselfish candor, receded somewhat from the claims of his theory of natural selection, yielding to certain adverse criticisms; and now Dr. Wallace, who had independently originated the same theory, shows anew his own magnanimity in coming to the rescue in a volume entitled "Darwinism." The book is opportune, and worthy of its distinguished author, who is a recognized authority. Addressing all intelligent readers, it surveys the whole subject, confining this for the most part, however, to Darwinism pure and simple, which, as given in the title of Darwin's first enunciation, is the "origin of species;" namely, from pre-existing species by natural selection. Dr. Wallace has the advantage of reviewing the subject "after nearly thirty years of discussion, with an abundance of new facts and the advocacy of many new and old theories," especially from the pens of noted investigators and leading evolutionists.

This limitation to evolution of species, in twelve of the fifteen chapters, avoids many perplexing questions, and gives simplicity and unity to the argument. The author regards the main proposition, in its application to existing or comparatively recent species, as all that can be proven, every thing beyond that lying in the region of probable conjecture. The difficulties, popular or scientific, relate chiefly to the origin of the larger divisions of the organic kingdom, the first development of complex organs, and the like. All this is too remote and too imperfectly recorded to be entirely solved; yet he believes that the generic and ordinal differences among plants and animals are of the same nature as those found in many groups of species, only greater in amount. As we rise to classes and sub-kingdoms, the difficulty is much increased, and we may reasonably doubt whether a radically distinct plan of structure is due to the action of the same laws that have developed species.

In the second chapter, on the struggle for existence, old and new facts are presented, ending with an ethical vindication of nature. In the third the variability of species is illustrated by statistical diagrams and otherwise, showing that it supersedes and offers always and everywhere material that is plentiful for natural selection, rather than slight and rare, thus obviating one of the common objections to transmutation of species. After discussing in further chapters the subjects of artificial and natural selection, and after meeting certain objections (the utility of all specific characters being especially asserted, with some qualification, and the swamping effects of intercrossing denied), the author treats of infertility of crosses, and sterility of hybrids, and opposes the "physiological selection" of Romanes. Going a step further than Darwin, he regards infertility as beneficial under certain circumstances, and increased by selection. Four chapters are given to color, exhibiting the author's well-known views as to its origin and its uses, re-enforced by Alfred Tylor's observations on structural decoration. Darwin's theory of sexual selection of the ornamental is rejected, there being, for example, no evidence, except to the contrary, "that slight variations in the color or plumes, in the way of increased intensity or complexity, are what determines the choice."

The concluding chapters consider geographical distribution; the geological evidences of evolution; certain fundamental problems of variation and heredity, with criticism of the recent speculations of Spencer, Cope, Karl Semper, and Geddes, referring particularly to the improved Lamarckian doctrine, lately revived, that acquired characters are inherited; and, finally, Darwinism applied to man.

The descent of man from some ancestor common to him and the anthropoids is advocated, but it is argued that the law of continuity does not require that the human mind has been developed by the same causes that account for man's physical structure. As the glacial age introduced into the earth's history a new cause, with new effects, so a new agency is needed to explain the appearance of the higher faculties, which are not necessities of our earthly existence, and "appear almost suddenly and in perfect development in the higher civilized races." A new cause manifested itself first in organic life, next in sensation and consciousness, and last in a rational and moral being; and these manifestations of life "probably depend on different degrees of spiritual influx." The Darwinian theory, carried to logical conclusion, does not, in the judgment of Dr. Wallace, oppose, but lends decided support to, the spiritual nature of man.

Such are the principal topics of interest. Others, as, for example, an offered solution of complex modes of cross-fertilization of plants, might be mentioned. A regret may be expressed, that, in treating of variability, the author has confined himself too much to variation in mere proportions of form and color; also, that, on the subject of habits and instincts, he has not taken into consideration the quickness and permanence of sense-association and of associated impulses in animals, remarkably illustrated, for instance, in the dog-and-geese incident from the *Revue Scientifique* lately given in our pages. But the work is as comprehensive as might be expected in view of its special purpose.