

Darwin on Coral Reefs *

THE APPEARANCE of a new edition of Darwin's noted work on coral reefs, at this time, is an event of some importance in science. The first edition appeared in 1842, long before the essay on the 'Origin of Species' had made its author famous. In the earlier work, however, the writer's capacity for patient observation and keen deduction was apparent; and the new and striking theory which he put forth to explain the origin of the numerous 'atolls,' or coral islands, which lie scattered like vast 'fairy rings' over the surface of the Great Ocean, was so probable and so well supported by facts, that it at once received the assent of the scientific world, and soon came to be regarded as an established truth in cosmology. It held this position, almost unassailed, for nearly forty years. Then, suddenly, sharp attacks, nearly simultaneous, were made upon it from various quarters. The theory supposed that the atolls were situated in an 'area of subsidence,' where high islands, surrounded

* The Structure and Distribution of Coral Reefs. By Charles Darwin. Third edition. With appendix by Prof. T. G. Bonney. \$2. New York: D. Appleton & Co

by 'fringing reefs,' had gradually sunk, while the encircling reefs were by the polyps steadily built upward, until at last nothing remained, in each case, but the great coral ring, enclosing a lagoon where the island had formerly risen. The modern objectors, however, affirm that the appearances in the regions where the coral reefs and atolls are found indicate not subsidence but elevation, or else no change of level, and that a new theory is therefore needed to account for their formation. Darwin himself lived just long enough to learn of these objections, and to receive them with a good-humored smile and a remark which indicated the source and nature of their weakness. In another quarter, however, their reception was very different. The opponents of evolutionary doctrine—who, like the opponents of Galileo's astronomy, had unreasonably made a religious question of a mere system of science—welcomed the objections with a childish outburst of delight. The great theorist, they argued, is shown to have been mistaken in his earlier hypothesis, which was thought to have been so firmly established. We may, therefore, safely assume that he was also mistaken in his later doctrine. This conclusion, even if the premises were true, would by no means follow. The fact that Newton's theory of light is no longer received does not in the least affect the universal acceptance of his theory of gravity.

In this new edition, Mr. Francis Darwin has taken care that the question shall be reconsidered in the manner most worthy of his father's memory and character—that is, by a careful and impartial examination of all the facts and arguments adduced on both sides. This work has been performed by the eminent editor, Prof. Bonney, in an admirably judicial spirit. When the opposing views and authorities are thus compared and weighed together, the immense preponderance on the Darwinian side becomes at once apparent. As most persons must be guided in a question of this nature by the judgment of experts, it will probably be deemed sufficient to say that Prof. James D. Dana, whose well-known work on 'Corals and Coral Reefs,' coupled with his unequalled opportunities of observation, places him unquestionably first among authorities on this subject, pronounces without hesitation, after a thorough review of all the objections, in favor of Darwin's theory.