

## ALEXANDER AGASSIZ, FOR.MEM.R.S.

ALTHOUGH the great American oceanographer had reached the age of seventy-five, few of his friends were prepared to hear of his death, which appears to have taken place, somewhat suddenly, on board the s.s. *Adriatic* on March 28, while on a voyage back to the United States.

The distinguished son of a famous father, Alexander Agassiz was born in Switzerland but naturalised in America; yet, so cosmopolitan was he in his tastes and habits, that if ever an individual deserved the title of "a citizen of the world" he was the man. Up to the age of thirteen, he was educated in his native land, but, proceeding to the United States in 1848, he went to the Harvard University, where—as a student in chemistry and engineering—he obtained his degree of B.Sc. at the age of twenty-two. After spending a short time as a member of the United States Geological Survey, young Agassiz became a mining expert, and so successful was he in this profession that, acquiring possession of valuable properties in the Lake Superior region, he rapidly made a very large fortune in connection with the copper mines.

The love of natural-history studies, however, which he inherited from his father, soon made itself felt; at first he assisted his father as curator of the Museum of Comparative Zoology at Harvard. As his wealth increased, he was able to benefit that institution, not only by specimens collected during his extensive travels and by defraying the cost of many expensive publications, but also by gifts of money up to 100,000*l.* After the death of his father he acted as curator of the museum for eleven years. Beginning with the study of marine ichthyology, he subsequently came to be acknowledged as a great authority on the Echinodermata, so that, on the return of the *Challenger* expedition, he was asked to undertake the report on the Echini collected during the voyage.

But the work for which Alexander Agassiz will be chiefly remembered was that which, during nearly forty years, he carried on at his own expense in connection with oceanography. The United States Government, with the greatest liberality and consideration for the interests of science, allowed him from time to time the use of their surveying vessels, the captains of which were instructed to place themselves virtually under the orders of Agassiz himself. The naturalist, aided by a staff selected and paid by himself, carried on soundings and dredgings in every part of the globe, special attention being devoted to the study of coral reefs. Beginning, in 1877, with the study of the Gulf of Mexico, the Caribbean Sea, and the Atlantic coast of America, Agassiz continued his work in 1880 by investigating the surface fauna of the Gulf Stream. Besides working out the details derived from the study of collections made during these voyages, the results of which were published in connection with the Harvard Museum of Comparative Zoology, Agassiz wrote a well-illustrated account of his work, "The Three Voyages of the *Blake*," in two volumes.

In 1891 Agassiz transferred his attention to the western shores of the United States and Central America, investigating the seas around the Sandwich Islands, and paying special attention to the coral reefs there, between 1892 and 1894. His explorations were extended during 1895-6 to the Great Barrier Reef of Australia, and in 1897-8 to the Fiji Islands. In 1899 and 1900 he was able to undertake a cruise among the various groups of coral-islands lying between San Francisco and Japan. In 1901-2 Agassiz commenced

his study of the Indian Ocean, paying especial attention to the Maldivé Islands and their surroundings; and, in order to complete the examination of portions of the Pacific that he had not already visited, he devoted the years 1904-5 to a cruise among the important island-groups of the eastern half of the Pacific Ocean.

The intervals between his several voyages were occupied by Agassiz in the study of his enormous collections and the preparation of memoirs dealing with the results obtained. These were issued, regardless of expense as to their illustration, in the publications of the Boston Society's Museum of Comparative Zoology. No fewer than thirty volumes of memoirs and fifty-three volumes of bulletins are devoted to the results obtained from the study of these collections by Agassiz and the various specialists who assisted him. His own favourite place of work was Paris, where rooms were always allotted to him in the Museum of Natural History, and he had the fullest access to scientific libraries.

Of the value and importance of the results of these voyages it is impossible to speak too highly. Perhaps the most striking of the conclusions arrived at by him are those relating to great movements which have taken place in the bed of the Pacific in comparatively recent geological times. This is evidenced by the numerous upraised coral-reefs which, following Dana, he described; in many of these the limestone rock, now at elevations of 1000 feet and upwards, has been more or less completely converted into dolomite.

It is not necessary, in face of the above statement of facts, to add that Agassiz was a man of indomitable energy. He thought as little of crossing the Atlantic as we do of crossing the Thames, and death met him at last while still "on the move." Of his courage, a remarkable example is told concerning an altercation he had with a military officer in a crowded restaurant in Germany; on that occasion he did not hesitate to resent an insult by a blow, though fortunately any serious result from the rash act was prevented by the interposition of a number of judicious friends of the officer, aided by American and English visitors who were present. In early life, Alexander Agassiz exhibited something of the dogmatic habit of mind that distinguished his illustrious father; but, mellowed by age and constant intercourse with other men, he became in after life strikingly open-minded and ready to listen to arguments, even those that told against his most cherished convictions. Those who were privileged to enjoy his friendship in his later life knew him as a man of ardent enthusiasm, restless energy, and charming bonhomie, but also as one patient in discussion, and always ready to listen to facts and reasonings from whatever quarter they came. His generosity was unbounded, and he was always ready to place his abundant materials at the service of young men who were qualified and willing to engage in their study.

In every scientific circle of Europe, as well as in those of America, Alexander Agassiz was well known, and in all of them his loss will be deeply mourned. In France he received the Légion d'Honneur, and in Germany the Order of Merit. In this country he was for many years a Foreign Member of the Royal Society. Only last year the Royal Geographical Society awarded him the Victoria research medal, and we may fitly conclude this notice with the verdict of the president in announcing the award—a verdict in the justice of which all must agree—"He has done more for oceanographical research than any other single individual."

JOHN W. JUDD.