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THE NATIONAL ACADEMY OF SCIENCES¹

PRESENTATION OF THE AGASSIZ MEDAL TO FRANK RATTRAY LILLIE²

In these times of exaggerated nationalism it is fortunate that we can still emphasize the internationalism of science. The Murray Fund of the National Academy of Sciences is peculiarly international in its foundation and purpose. It was established in 1911 by Sir John Murray, Canadian by birth, Scot by adoption, internationalist in science, to honor the memory of Alexander Agassiz, Swiss-born American, cosmopolitan as the ocean in his research work. Of the seventeen awards of the Agassiz Medal which have been made hitherto, fourteen were given to foreign oceanographers, three to American. Of the foreign awards, five went to Norwegians, two to Swedes, two to Danes, two to Britons and one each to oceanographers of Holland, Germany and Monaco.

¹ Meeting at Washington, D. C., April 22 and 23.

² The presentation of medals was made at the annual dinner, April 23.

The eighteenth award of this medal is to one who is a Canadian by birth, American by adoption and an internationalist in his sympathies and services, Frank Rattray Lillie, thirteenth president of the National Academy of Sciences. For twenty-six years he was director of the Marine Biological Laboratory at Woods Hole, Mass., and he was president of that institution from 1926 to 1939. During nearly half a century his research activities have been largely associated with marine biology and particularly with normal and experimental embryology and cytology, problems of fertilization and parthenogenesis, and during all these years he has stimulated or directed the research work of many hundreds of investigators. The Marine Biological Laboratory, one of the greatest institutions of its kind in the world, in large part owes its physical plant, its financial endowments and, best of all, its stimulating and cooperative atmosphere to his wise guidance and friendly supervision.

Recognizing the needs of the more extensive cultivation of the wide field of oceanography, he conferred with the late Dr. Wickliffe Rose, president of the General Education Board, on the needs of a more comprehensive provision for research in this science, and at the annual meeting of the academy in 1927 he introduced a resolution, "that the president of the academy appoint a committee on oceanography from the sections of the academy concerned to consider the share of the United States in a world-wide program of oceanographic research." The members appointed were William Bowie, E. G. Conklin, B. M. Duggar, John C. Merriam, T. Wayland Vaughan and F. R. Lillie, *chairman*.

The following year, through the efforts of Dr. Lillie and Wickliffe Rose, the General Education Board made a grant of \$75,000 to finance a thorough study of the problems as well as the needs of a comprehensive program of oceanography. Dr. Henry B. Bigelow was appointed secretary of the committee on oceanography to collect information and prepare a report on the present status of this science in America and Europe. This report was presented to the academy and to the Rockefeller Foundation and was later published in a volume of 263 pages. At the same time T. Wayland Vaughan made a special study of the status of oceanography in the Pacific area, and ultimately extended this to a survey of the "International Aspects of Oceanography," which was published in a quarto volume of 225 pages in 1937 with funds remaining from the original grant of the General Education Board.

After Dr. Bigelow's report had been carefully considered and generally approved and the decision had been reached to establish a central oceanographic station at the most suitable place on the Atlantic coast, the Woods Hole Oceanographic Institution was incorporated in 1930 and its board of trustees petitioned the Rockefeller Foundation for funds for building, equipment, research ship and endowment; one month later the foundation granted \$2,000,000 for this purpose and later added \$1,000,000 to the endowment.

As a member of the committee on oceanography and of the board of trustees, I know how much of all this success was due to the efforts of Dr. Lillie, and how little to the rest of those whose names were associated with his.

Dr. Lillie served as president of the Woods Hole Oceanographic Institution from its incorporation until his retirement at his own request last summer, when Dr. Bigelow, who had been director from the time of its foundation, was chosen president. In all this labor of awakening interest in oceanography, in securing large endowment, in building and equipping the station and in organizing its main lines of research, Dr. Lillie took the leading part ably seconded by Dr. Bigelow.

This is the leading privately endowed oceanographic institution in the world. Already it has drawn to itself many of the leading oceanographers of the world. Its research ship, the *Atlantis*, has sailed more than 150,000 miles on research voyages; more than 240 research papers and monographs have been published from the institution since its foundation. The National Academy of Sciences may well be proud of the fact that it took so important a part in sponsoring this notable institution, without any cost to itself.

For his important researches and his wise leadership in marine biology, for his enduring contributions to the science of oceanography in the founding and endowing of the Woods Hole Oceanographic Institution, for his modest but effective leadership in causing this country to assume its share in a world-wide program of oceanographic research, the committee on the Murray Fund presents to you, Mr. President, for the eighteenth award of the Agassiz Medal, Frank Rattray Lillie.

EDWIN G. CONKLIN

RESPONSE BY THE MEDALIST

THE chairman of the committee on the Murray Fund has stated so fully the reasons why I should be the recipient of this honored award that I hardly need to enter a disclaimer for the association of my name with the list of those who have previously been honored with this award—all distinguished and original contributors to the field of the ocean sciences. But I wish personally to emphasize the fact that I stand here this evening in a representative rather than in a personal capacity. The accomplishments have been, indeed, the work of many minds and hearts.

The roots of this occasion are bedded in the history of oceanography in America. They were planted by early seamen and navigators, and cultivated in the early surveys under our federal government, which called the first international conference for a uniform system of observations at sea held in Brussels in 1853. Lieutenant M. F. Maury, of the United States Navy, who had been instrumental in devising the first "Winds and Currents" charts of the oceans, summarized the scientific knowledge of the oceans up to 1855 in his classical work on "The Physical Geography of the Sea," in which he attempted to lay down a "system of philosophical research with regard to the sea."

At this time America was clearly leading in the organization of oceanographic research. We lost that position for many years in spite of much excellent detailed work by federal agencies, and by individuals, such as the former president of the academy, Alexander Agassiz. During this period a new and more comprehensive oceanography arose in Europe, and was organized under an International Council beginning about the first of the century, based quite largely on