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Central Atlantic
Oceanographic Station
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There was presented for approval a proposal for the support of a Central Atlantic Oceanographic Station.

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1. On May 24, 1928, the General Education Board appropriated \$75,000 to the National Academy of Sciences for a study of oceanography. A committee, consisting of F.R. Lillie, Chairman, W. Bowie, J.C. Merriam, F.W. Vaughan, E.G. Conklin, and B.M. Duggar, with H.B. Bigelow as Secretary, has been very active in studying the field and will present its report to the Academy in November. The report deals with the scope and aims of oceanography, the economic value of oceanographic investigations, and the present situation in oceanography in America and in Europe. Plans for the establishment of an Institute of Oceanography have been formulated by this committee and a formal request for support of the project to the Rockefeller Foundation is to be expected in the near future.
2. Studies of the ocean in its geological, physical, chemical and biological aspects have been made by a large number of different agencies. With the increase of knowledge has come increased realization of the fundamental importance of the field from the viewpoint of pure science and from the viewpoint of economic value. It is felt that the importance of the field is so great that a new and concentrated effort in the study of the ocean in all of its aspects should be made. In such a study the techniques of geology, physics, chemistry and biology find combined application. Conversely, particularly in the fields of biology and geology, fundamental knowledge of the basic sciences is to be gained through the oceanographic studies.
3. Phases of the geological study are, for example, submarine topography, sedimentation, and submarine dynamics. An understanding of the processes of formation of the vast volume of sedimentary rocks and their mineral content, and geological history in general, can be furthered adequately only through an intensive study of the processes now active in the coastal regions and ocean deeps. A few cores of length less than a meter have been taken of the ocean sediment. Even in this short distance there is great variation. Deeper cores are much needed as a basis of study of the physical, chemical and biological aspects of the formation of sedimentary rocks, and will furnish much needed information regarding ore deposition and petroleum formation. Some of the physical and chemical problems involve the ocean's response to solar radiation and atmospheric circulation, the distribution of temperatures, salinity, oxygen content, and particularly the general dynamics of

the ocean in determining the general drifts of water and more localized ocean currents. The distribution of life within the ocean is dependent upon the physical and chemical characteristics of different portions of the sea, which offers environments of widely differing character, from the blackness and high pressure of the depths to surface conditions, with a wide range of temperatures and oxygen content. The physical, chemical and biological studies are combined in the study and interpretation of the vast circulatory system within the ocean, which is the determining mechanism for earth climates. This circulatory system is little known or understood, either as to its general characteristics or as to its secular and periodic changes, which produce marked changes in climate, and are of fundamental bearing on the question of shifts in habitat of ocean life. In 1903 a shift in current produced an enormous outburst of arctic ice, and was followed by a temporary failure of cod and herring fisheries along the whole length of Norway. A shift in the antarctic current west of South America in 1925 produced a drastic change in climate, bringing about substantial precipitation in a large region which had been semi-arid during historic times. Sufficient data of even the most elementary phases of the work are not present. For example there exists, for the average of the open ocean as a whole, but one sounding for every 25,000 square miles. The topography of ocean bottom stands in close relationship to the climate determining distribution of ocean drifts and currents, which are altered in intensity and direction by changes in the bottom. Active changes in level are taking place in many regions, and the continual survey of these regions is of utmost importance in the study of great earth movements including earthquakes. Topography may now be rapidly determined by sonic depth finders.

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4. The formation of an Atlantic Oceanographic Station will furnish a valuable agency for the utilization and integration of the individual studies of the past and present in various phases of the work, and the existing agencies - for example, the Hydrographic Bureau of the Navy, the Coast and Geodetic Survey, the Carnegie Institution, the Scripps Institution of Oceanography, where studies are made in the Pacific, as well as the existing marine biological stations, will co-operate in the work of the Institute. International co-operation will proceed at first along normal scientific lines. After the work of the Institute is under way, an international organization on the oceanography of the Atlantic will undoubtedly be formed, corresponding to an existing international committee on the oceanography of the Pacific, and finally an international organization for the whole globe, but it is not thought wise to anticipate performance by organization.

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5. The definite proposal which will be presented in the near future is for the formation of an Oceanographic Station to be situated at Woods Hole, Massachusetts. The Station will have a permanent staff and as well will offer opportunities for visiting scientists to work on oceanographic problems. The work will in nowise duplicate the work at the Marine Biological Laboratory at Woods Hole, an institute which exists for the study of fundamental biology and whose capacity is already taxed for that purpose. On the other hand, co-operation with the Marine Biological Laboratory is desirable and will be furthered by the proximity. It is the plan to organize the Station in a manner analagous to the Marine Biological Station. A self-perpetuating board of trustees will be the body of final authority.

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6. It is expected that land for the building of the Station will be donated by the trustees of the Marine Biological Station. The present estimates of the cost of initiating the enterprise, with facilities for each department of the oceanographic work provided on a conservative scale, are approximately \$1,000,000 for building and endowment of the maintenance of the building and \$2,000,000 for endowment of the scientific work. Future expansions of the effort in various directions are to be expected, but are in no sense necessities. The officers recommend support of this enterprise by the Rockefeller Foundation in an amount sufficient to initiate the effort and feel that other agencies may properly be looked upon for expansions of the Atlantic Station if they in later years are proved desirable.

Whereupon it was, on motion,

RESOLVED that the Executive Committee be, and it is hereby, authorized in its discretion to make an appropriation for the formation of a Central Atlantic Oceanographic Station (1) of a sum not to exceed \$1,000,000 for building, equipment and endowment of upkeep of the building, and (2) of sums in no event to exceed a total of \$2,000,000 for endowment of the scientific work of the Station or for partial endowment together with annual grants over a term of years, each of such annual grants to be not greater than the difference between \$100,000 and the income at 5% on the amounts so appropriated for partial endowment.
