toward the waterside! What an astonishing abundance and variety of both plant and animal life she bestows there! We have been too long content to say, "What a pity that so little of it is of any use to us!" But how much of the wild life of the upland is of any use to us? If we have found out how to manage in our own interest the products of the upland field, and have no water gardens, that is our own fault and not nature's. Earth yields her increase quite impartially. We have studied intensively the problems of the land, and only haphazardly those of the water.

Agriculture has its experiment stations in every state in the Union, doing for the crops of the land what ought next to be done for crops of the water. Valuable aquatic animals should be studied, as land animals have been, until we know every detail concerning their food, their enemies, both predatory and parasitic, their times and seasons, and the conditions that make for their increase. This means research—sustained research, which is the work for patient investigators. It will for the most part be done by men working alone, for nature does not yield up her secrets to a crowd, or even to a committee, but only to her humble and watchful devotee. After a discovery of a fundamental nature has been made, then cooperation is needed to learn the limits of its application. Life is a complex of changing factors, and environment is a complex of unstable conditions. A good method is a good method only locally and under certain conditions. It needs to be tried out, zone by zone, and province by province; and the cooperation of many hands in many places is often needed to find its limitations and its true economic value. Field laboratories like this should be maintained, if not in every state, at least in every principal region of North America, for the study of aquatic biology and for the development of a real aquiculture.

This laboratory will be of service to the great coastal region of the eastern United States, but it will especially serve Maryland; for the problems of the Chesapeake, due to conditions peculiar to the Chesapeake, can be studied best in the Chesapeake. The State of Maryland is to be congratulated on this enterprise. It is well conceived for the betterment of her vast aquatic resources. Here she provides facilities for research, for fact-finding, concerning these resources. It is quite safe to predict that this will prove to be one of her best investments.

It is altogether appropriate that this laboratory should be located here, near where that great American zoologist, William Keith Brooks, made his pioneer investigations and prepared his monumental work on the oyster. It starts with the goodly tradition of his excellent work. It will be well if this laboratory can retain his interest both in pure science and in its applications to human welfare.

OBITUARY

CARL LEO MEES

DR. MEES, who died on April 20, 1932, was born in Columbus, Ohio, on May 20, 1853, son of the Rev. Konrad and Elise (Adam) Mees. His father was a native of Germany and came to this country when a young man, settling first in New York and later going to Columbus, where he served one congregation for over 50 years.

Dr. Mees' early education was received from private instructors. At the age of about 11 years he entered the eighth grade of the public school and was graduated from the Columbus High School in 1869. While a student in high school he acted as assistant to Dr. Thomas C. Mendenhall, his instructor in physics, and from him received the inspiration which led him to specialize in physics and chemistry.

After completing his high-school work, Dr. Mees entered Starling Medical College in 1870, and in 1871 became assistant to Dr. Thomas G. Wormley, at that time one of the greatest authorities in the world on poisons and the foremost chemist in legal expert work in the United States. Dr. Mees' work was along the line of perfecting the methods of the detection and identification of human blood and tissues in suspected murder cases.

In the course of this work he devised and perfected a method of microscopic identification which was accepted throughout the profession. He was the first to succeed in photographing different kinds of blood for comparison and exhibition to juries. This work was standardized and accepted in the United States army and navy museum. Some 100,000 blood measurements were made by this method.

Dr. Mees took the medical course in Starling Medical College parallel with his work in chemistry and received his degree in medicine in 1875. However, he never practiced medicine. The two following years were spent in the Ohio State University, then known as the Ohio Agricultural and Mechanical College, where he devoted his time to the study of physics under Dr. Mendenhall. During this period he continued to act as assistant to Dr. Wormley and gave lectures upon the microscope in Starling Medical College and upon chemical laboratory practice in Columbus Medical College.

In 1875, Dr. Mees was elected professor of physics

and chemistry in the University of Louisville, now known as the Louisville Male High School. In 1880, he resigned his teaching position and went abroad for study. He spent some time in the University of Berlin under Helmholtz, Kirchhof and Hoffmann; also in South Kensington under Professor Frankland and in London under Dr. Tyndall.

In 1882, he was called to the professorship in physics and chemistry at the newly organized Ohio University in Athens, remaining in that position until 1887.

In September, 1887, Dr. Mees was called to the position of assistant professor of physics under Dr. T. C. Mendenhall, who had just previously become president and professor of physics at Rose Polytechnic Institute, Terre Haute, Indiana. In 1889 he was made professor of physics. After the resignation of Dr. Mendenhall in 1890, he acted as chairman of the faculty until Dr. Eddy assumed the presidency in 1891. He was made acting president in 1894 and elected president in 1895, in which position he served until his resignation in September, 1919, when he was made president emeritus.

Dr. Mees was general secretary of the American Association for the Advancement of Science in 1889, secretary of Section B of the same, 1888, president of Section B, 1896, and president of Section E in 1920.

JOHN B. PEDDLE

SCIENTIFIC EVENTS

SURVEY OF THE INDIAN OCEAN

ARRANGEMENTS are being made to send an oceanographical expedition to the Arabian Sea and North-West Indian Ocean next year. Funds for the expedition, according to a correspondent of the London *Times*, have been provided by the trustees of the late Sir John Murray, F.R.S., of the Challenger Expedition, 1872–76, from certain moneys set apart by him in his will, and a committee, including Dr. Allen, of Plymouth Marine Station, Admiral Douglas, the hydrographer of the Navy, and representatives of the Royal Society and the Natural History Museum, has been formed under the chairmanship of J. C. Murray, with J. Stanley Gardiner, professor of zoology at the University of Cambridge, as secretary.

The Indian Ocean was chosen for the expedition after a set of questions had been sent to the leading oceanographers of all countries. It was pointed out that Sir John Murray had always regarded the survey by the Challenger Expedition of the oceans of the world as incomplete owing to the omission of the Indian Ocean. The work in this ocean was to have been provided for by the Indian Government, and was under consideration when the war broke out in 1914, since when financial conditions have made it impossible. Only one out of the many subsequent deep-sea expeditions—namely, that of the German *Valdiva*—had traversed the Indian Ocean, though the islands and their banks and slopes had been investigated in 1905 by H.M.S. *Sea Lark*. These enclose an area of a general depth of 2,500 fathoms, the Arabian Sea, in which there are few soundings save on the direct steamship lines from Aden to Bombay and to Colombo. The collections of deposits from the floor of this sea are relatively fewer than in any other region, as shown in the great Murray collection of deep-sea deposits in the British Museum. Their peculiar variation has been held to indicate recent subsidences of the ocean floor, which is also an area of great chemical changes. The south coast of Arabia is peculiarly bare of coral reefs, and this indicates unfavorable conditions for shallow-living animals, which require investigation, while the deeper-living animals of the same region are practically unknown.

The expedition will be under the leadership of Colonel Seymour Sewell, director of the Indian Museum at Calcutta, and will leave in August, 1933, to work throughout the Northwest monsoon, returning in April, 1934. The Arabian Sea will be traversed on several lines between Africa and India, and special investigations will be made of the Gulfs of Omar and Aden, leading respectively to the Persian and Red Seas.

The main objects for investigation by the expedition will be the topography of the ocean bottom by echo soundings, to discover whether there are any traces of the continental land areas that are supposed to have stretched westwards from India and to have formed the hypothetical continent of "Lemuria," and also to ascertain whether there are ridges and peaks in this semi-enclosed ocean, such as the Meteor Expedition found in the Atlantic. The study of the zonal distribution of the marine fauna every 50 or 100 fathoms downwards is to be attempted, special attention being paid to the fauna at Murray's Mud Line and to its relationships to currents and food supplies.

Temperature, salinity, oxygen-content and other chemical observations will be made at stations on all the traverses, both on the surface and at various depths. In particular, it is hoped to ascertain thereby the general circulation of the waters in the Arabian Sea, how far there is an inflow from the Antarctic and surrounding seas to balance the heavy evaporation; these will be checked by taking samples of the floating fauna at different depths, in which there may well be the young transparent eels which have been