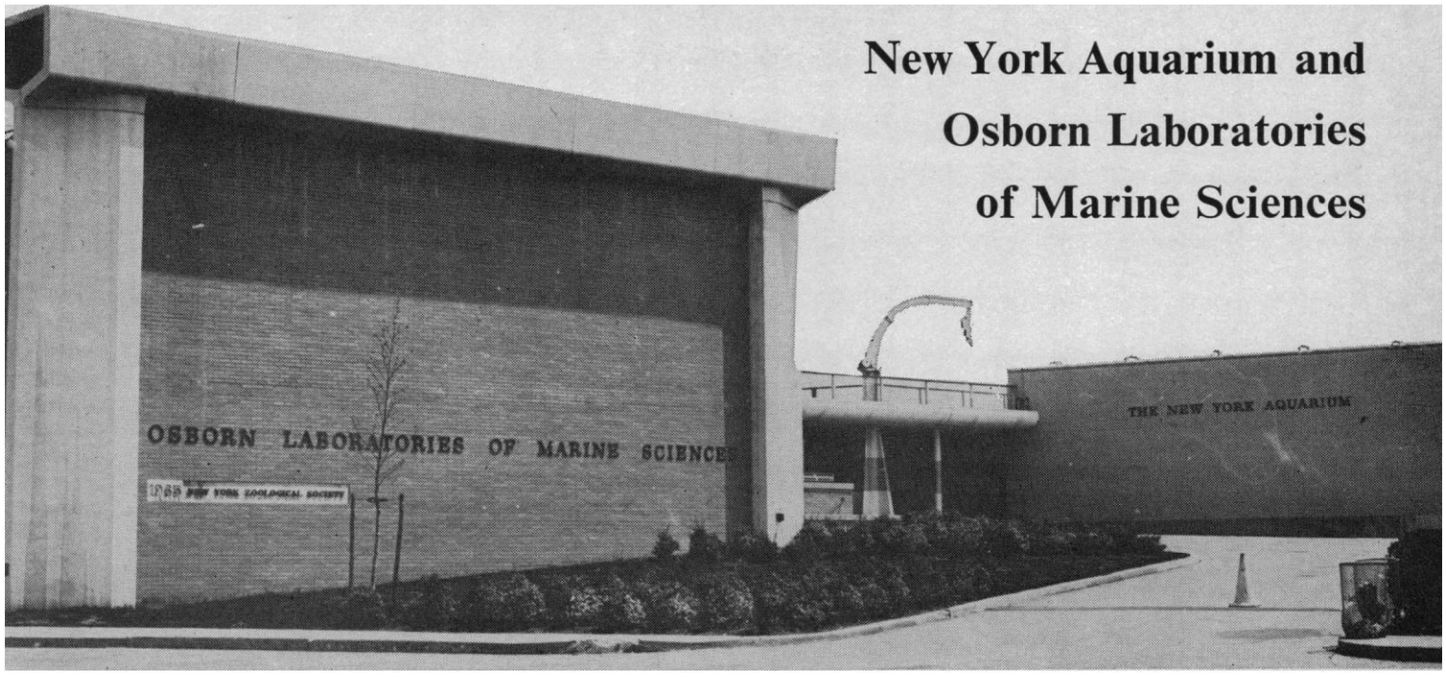


New York Aquarium and Osborn Laboratories of Marine Sciences

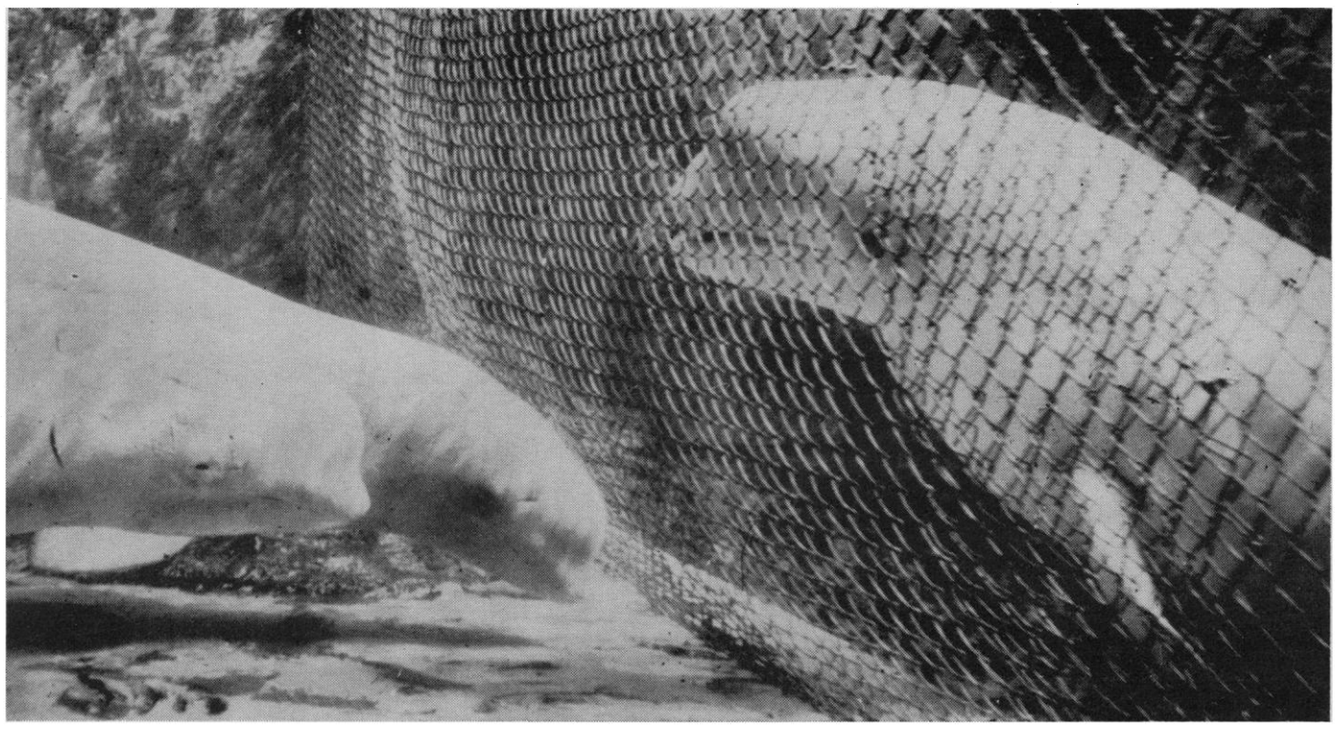
The Osborn Laboratories of Marine Sciences were formally dedicated on 28 September 1967. Unlike the newness of the bricks and mortar which enclose them, the Laboratories are a continuing phase in a developing process begun in 1896 when the New York Aquarium was first established. The tradition of research at the Aquarium goes back to these beginnings, when renowned naturalists such as Tarleton H. Bean and Charles Haskins Townsend directed the institution, and when experimentalists such as Thomas Hunt Morgan, Jacques Loeb, F. G. Sumner; G. H. Parker, and R. C. Osburn carried on research during the formative years of their brilliant careers. G. M. MacCallum, founder of the American School of Pathology, became the Aquarium's first pathologist in 1912. Other eminent men who have contributed to the scientific growth of the Aquarium were George M. Smith in comparative oncology, Homer W. Smith in renal physiology, David Nachmansohn in bioelectricity and neural biochemistry, Charles Breder in experimental ichthyology, and Myron Gordon in fish genetics. During the past 40 years more than 500 scientific papers have been published by the staff of the New York Aquarium and their collaborators on subjects ranging from strictly systematic and zoogeographic through those concerned with ecology, embryology, behavior, physiology, genetics, parasitology, pathology, biophysics, and biochemistry. The single common denominator of all these studies has been that they dealt with aquatic life.

The expansion of both the New York Aquarium and the Osborn Laboratories of Marine Sciences have afforded a union which is unique and highly advantageous. The Aquarium and its staff, with its extensive knowledge and facilities for the procurement and holding of all types of aquatic forms and the availability of various qualities of seawater, contribute greatly to the most basic requirement of research, that is, the obtaining and maintaining in healthy condition aquatic invertebrates and vertebrates from all parts of the world. Projected new exhibits, such as the whale-dolphin stadium, are being planned with built-in research facilities. The Laboratories, likewise, contribute to the well-being of the Aquarium's animals in the analysis of various disease processes, determination of water quality, and other ways. The complex of Aquarium and Laboratories, situated by the sea in one of the world's largest cities, has happily fused research, education, and culture.

The Osborn Laboratories of Marine Sciences is a multi-disciplinary facility which is concerned with the wide gamut of the sea—from studies on the micronutrients at the base of the food chain to the most highly developed marine mammals. The Laboratories have been specifically designed for the following disciplines: pathology, microbiology, physiology, pharmacology, bioorganic chemistry, virology, tissue culture, embryology and teratology, pollution, planktonology, radiobiology, genetics, and vertebrate biology.

Ross F. Nigrelli, director of both the New York Aquarium and the Osborn Laboratories of Marine Sciences, and coworkers are investigating the origin and nature of tumors and cancer, and viral, bacterial, mycotic, protozoan and helminthic diseases of fishes in captivity and under natural conditions. They are presently studying a fungal epizootic in flounders from the North Atlantic.

Martin F. Stempien, Jr., assistant to the director of the Laboratories and bioorganic chemist, and his associates are concerned with the isolation, characterization, and biochemistry of substances derived from marine sponges. In addition to interest in substances possessing antibiotic, toxic, and antiviral activities, research is being directed toward the formulation of a system of taxonomy for the phylum based on the biochemical characteristics of the species. George D. Ruggieri, S.J., coordinator of research and chemical embryologist, and coworkers are studying embryogenesis in marine invertebrates and vertebrates. They are also analyzing the steroid saponins from a wide range of echinoderms and testing these and the various biologically active substances obtained from other marine forms on the growth patterns of various marine organisms. Jack T.



Beluga whales at the New York Aquarium.

Cecil, virologist, and his group are endeavoring to unmask naturally occurring viruses in marine organisms and cultivating cells from tissues of clams and other marine invertebrates. They have also used cells in culture to assay the marine biotoxins extracted from echinoderms and sponges. Eva K. Hawkins, algologist, has studied the gradual and quantitatively predictable changes of distinct cell types in the growth of certain marine algae: she is presently studying the ultrastructural characteristics of cellular changes during morphogenesis. Vincent R. Liguori, microbiologist, and his group are concerned with the isolation, identification, and role of bacteria and molds in disease processes in marine organisms and especially the role of microorganisms in the cycle of elements and nutrients in aquaria and the sea. Kenneth Gold, plankton ecologist, and assistants are isolating marine planktonic ciliates and other ecologically important phagotropic and heterotropic protozoa to determine protozoan-phytoplankton relationships. They are also determining the effects of vitamins on marine primary producers with special emphasis on thiamine in seawater. They are studying the effects of sewage, industrial, pesticidal, and radioactive pollutants on productivity of the New York Bight. Klaus Kallman, geneticist, and his group are conducting studies on *Xiphophorus*, strains of which have been maintained for 35 generations. This freshwater fish is the best genetically understood vertebrate. These animals are being used to study the effects of inbreeding on pigment formation, organ transplantation, and the evolution of the sex chromosome mechanism. Myron Jacobs, neuroanatomist, in collaboration with investigators from the Communication Research Institute of Miami, Geigy Research Laboratories, and Harvard Medical School, is preparing brain atlases of the bottlenose dolphin and studying fiber degeneration in cranial nerves of various cetacea. Harry A. Charipper, histologist, is at present undertaking the preparation of histological atlases of experimentally important fish.

In addition to these facilities, the U.S. Navy maintains a Naval Applied Science Laboratory in the Aquarium for the study of fouling organisms. Members of the staff of the Osborn Laboratories of Marine Sciences have already initiated studies on the bioadhesive secreted by barnacles. They are seeking to identify the chemical nature of the cement and its site and mode of synthesis.

Many of the staff of the Laboratories hold appointments at New York colleges and universities. In the last 25 years more than 50 students from these institutions have been sponsored for advanced degrees by members of the staff. The research facilities of the Osborn Laboratories of Marine Sciences and the New York Aquarium are also available to visiting scientists and their graduate students from the colleges and graduate and medical schools in and around New York City and from abroad.

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See Science, *22 September 1967, for details about registration and hotel reservations for the AAAS Annual Meeting. Additional reports on events or symposia taking place during the AAAS Annual Meeting appear in the following issues of* Science: *22 September, "Evolution of the Earth's Atmosphere"; 29 September, "Terrestrial Adaptation in Crustacea"; 6 October, "Behavioral Research—New York Zoological Park; 13 October, Weather Modification"; 20 October, "Hazards of Iodine-131 Fallout in Utah"; and 27 October, "New York Botanical Garden—Research and Education."*