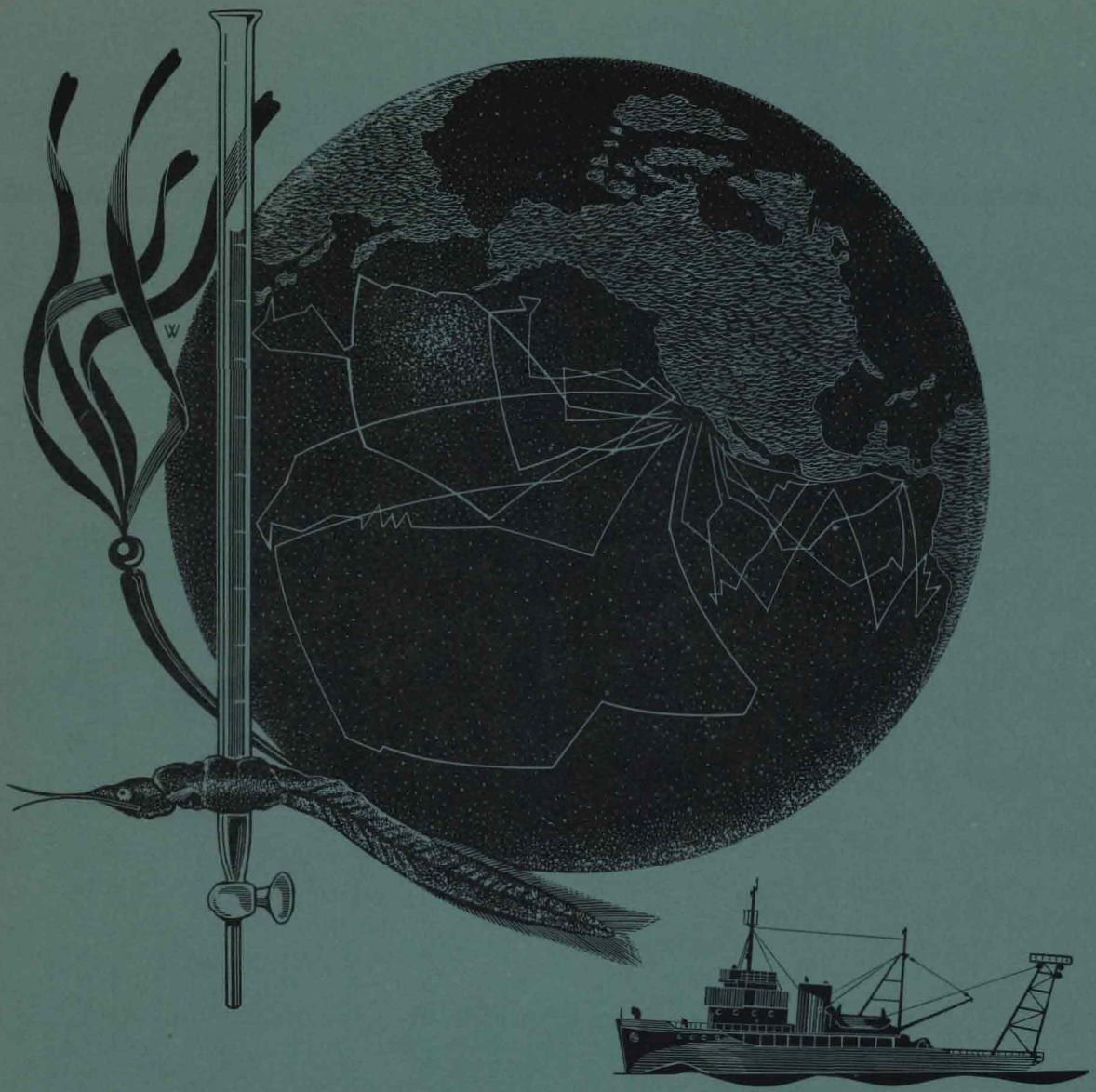
Mae A. McEwen (Mrs Geo. T.)



GRADUATE STUDY AND RESEARCH AT THE

SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIVERSITY OF CALIFORNIA

The Scripps Institution of Oceanography of the University of California offers graduate study leading to the M.S. and Ph.D. degrees in oceanography and related marine sciences. Scripps is the oldest American institution for research and instruction in oceanography. The academic staff includes more than 100 specialists in marine biology, geology, chemistry, and physics. The average enrollment is about 50 students.

Although formal courses are given (described in the University's Announcement of the Graduate Division), students receive much of their training from responsible participation in the research program of the Institution, at sea and ashore. Most of them hold research assistantships or other appointments.

FOR FURTHER INFORMATION, WRITE

The Director, Scripps Institution of Oceanography, La Jolla, California.

Since 1950, the Scripps Institution has sent eight major expeditions into the Pacific; their routes are shown on the chart above.

The "Spencer F. Baird" is one of the five ocean-going ships of the Institution's research fleet. The "Baird" has been specially fitted out for deep-sea research.

RESEARCH ASSISTANTSHIPS

A number of research assistantships (beginning at $1728 per year, half time) are available to students who are accepted. However, a new student should be prepared to support himself for at least the first semester.

ADMISSION OF STUDENTS

Students at the Scripps Institution must first be accepted by the Graduate Division of the Southern Section of the University. Applications may be obtained from the Office of the Graduate Division, University of California, Los Angeles 24, California.

An applicant must hold a bachelor's degree in one of the sciences or in mathematics or engineering, and must have had at least a one-year course in each of the following subjects: physics, mathematics, chemistry, and one of the biological sciences. He must also have sufficient preparation in foreign languages. Details of these requirements may be obtained from the University Catalog.

PROFESSIONAL OPPORTUNITIES IN OCEANOGRAPHY

The holder of a degree in one of the oceanographic specialties will be able to find career openings in such closely related fields as meteorology, geophysics, geochemistry, marine biology, as well as in general oceanography. Petroleum companies are seeking engineers and geological specialists with oceanographic training. Academic posts have been established in oceanography in a number of universities. Openings are available to trained oceanographers in a number of research institutions and in various branches of governmental service including the Navy Hydrographic Office, the Coast and Geodetic Survey, the Coast Guard, the Fish and Wildlife Service, etc.

PHYSICAL FACILITIES

The Institution operates five ships capable of extended trips to sea. In addition to the main campus in La Jolla, there is a field annex at Point Loma, where the ships are also based. Equipment for free diving is available for instruction and research.

The Institution benefits from the presence of three cooperating agencies also located on its campus: the University's Institute of Marine Resources, the South Pacific Fishery Investigation of the United States Fish and Wildlife Service, and the Inter-American Tropical Tuna Commission.

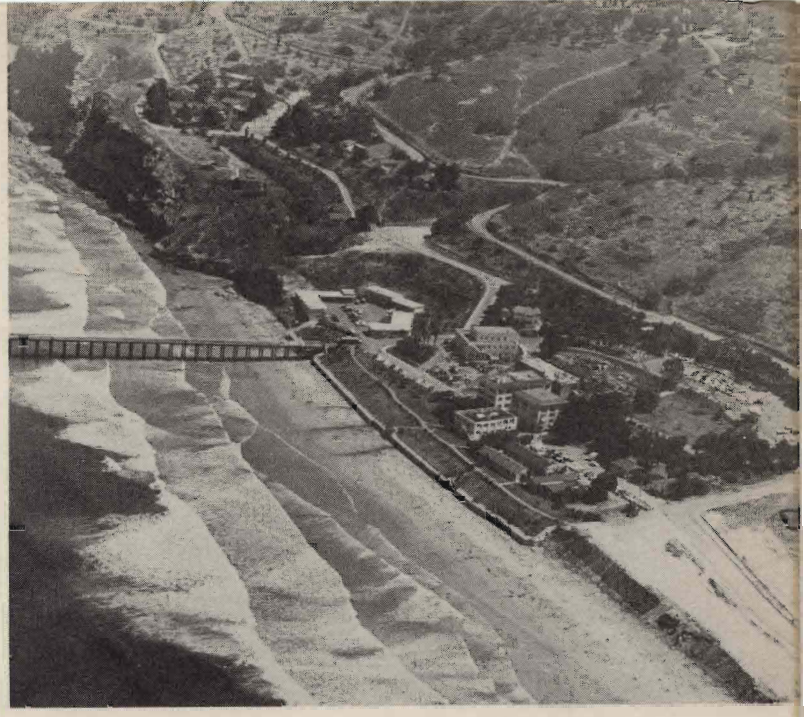
THE RESEARCH PROGRAM

The research program is supported not only by the University but also by contracts with the U.S. Navy, Army, and Air Force; and by funds from the State of California, the American Petroleum Institute, the Rockefeller Foundation, and other agencies. Although some of the research is of military interest, only a small fraction is "classified".

The extent and nature of the research may be seen from the following list of some of the members of the scientific staff and their particular fields of interest:

MARINE GEOPHYSICS AND PHYSICAL OCEANOGRAPHY

Carl Eckart. Mathematical theory of turbulence. Dynamical theory of stratified fluids.
Roger Revelle. Geological and geophysical exploration of the earth beneath the ocean.
Walter H. Munk. Ocean waves and currents; the rotation of the earth.
Robert S. Arthur. Effects of islands on ocean waves; wave refraction; wave forecasting; nearshore temperatures.
Russell W. Raitt. Seismic exploration of the sea bottom; underwater sound.
Leonard N. Liebermann. Underwater sound; ultrasonics and fundamental properties of liquids; ionic propagation of very low radio frequencies.



The Scripps Institution is located on the ocean shore north of La Jolla. The 1,000-foot pier has been a landmark in the area for 40 years.

John D. Isaacs. Movements of organisms; physical and military oceanography.
Charles D. Wheelock. Acting Director, Institute of Marine Resources. Mineral and biological resources of the ocean.
Stanley S. Ballard. Optical and infrared instrumentation; crystal physics; spectroscopy; atmospheric and hydrological optics.
Alfred B. Focke. Director, Marine Physical Laboratory. Underwater and airborne sound; explosion phenomena.
Seibert Q. Duntley. Director, Visibility Laboratory. Environmental optics; image and flux transmission in water and atmosphere; optical transducers; visibility; adaptive and protective coloration.
Fred N. Spiess. Underwater acoustics; signal processing and nuclear physics.
Philip Rudnick. Physics and acoustics of the ocean; geophysics; statistics of noise.
Gifford C. Ewing. Physical oceanography of the surface and upper layers of the sea; techniques for aerial survey of the ocean.
Ronald G. Mason. Geomagnetism.
George G. Shor. Seismology; structure of the earth.
Paul L. Horrer. Oceanic circulation and abundance of marine fishes in the central north-eastern Pacific.
Townsend Cromwell. Physical oceanography; effect of water motion on chemical distributions and marine life.
Charles S. Cox. Wave motion and the air-sea boundary layer.

SUBMARINE GEOLOGY

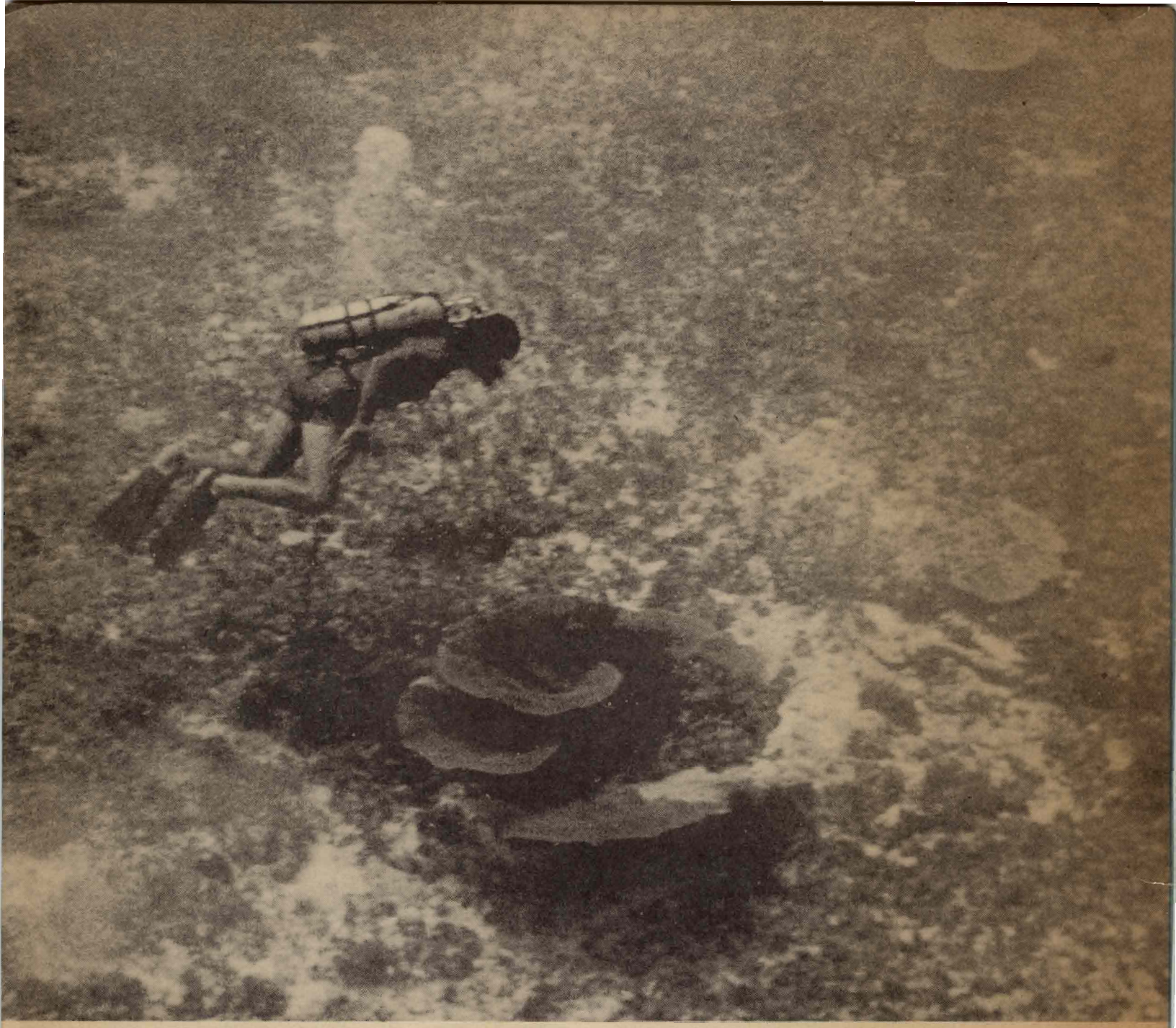
Francis P. Shepard. Shallow-water sediments and submarine topography. Director of Sedimentation Project of the American Petroleum Institute.
Milton N. Bramlette. Petrology of sedimentary rocks; stratigraphy, and applications to deep-sea cores.
Fred B Phleger. Ecology of foraminifera as related to oceanography and geology. Director of the Foraminifera Laboratory.
Douglas L. Inman. Sedimentation; beach and near-shore processes; waves and currents.
Henry W. Menard. Submarine topography.
Edwin L. Hamilton. Sea floor morphology and mass properties of sediments; planktonic foraminifera.

MARINE BIOLOGY

Carl L. Hubbs. Natural history of marine vertebrates; systematics, distribution, ecology, and evolution of fishes; fish management; ocean temperatures; hydrographic and climatological history; human ecology.
Claude E. ZoBell. Bacterial physiology and ecology; hydrostatic pressure as a biokinetic factor; effects of microorganisms on chemical and biological conditions in the sea.
Denis L. Fox. Comparative physiology, biochemistry, and biophysics of marine organisms, with relation to nutrition and organic cycles in the sea; pigmentation and light-sensitivity of marine animals.
Martin W. Johnson. General marine biology; ecology, distribution, and systematics of zooplankton; life histories of benthic and pelagic forms.
Adriano A. Buzzati-Traverso. Population genetics, population dynamics, and experimental evolution; physiological genetics and taxonomics by means of paper chromatography.
Francis T. Haxo. Comparative physiology and biochemistry of algae; algal pigments; photosynthesis.
Theodore J. Walker. Behavior of fishes and the comparative morphology and physiology of their sensory systems.
Milner B. Schaefer. Ecology and population dynamics of marine fishes; physical and biological oceanography.
Elbert H. Ahlstrom. Fish population dynamics; abundance and survival, taxonomy and ecology of fish eggs and larvae.
Joel W. Hedgpeth. Hydrobiology and systematic zoology of invertebrates; history of oceanography.
John C. Marr. Population biology of pelagic marine fishes.
Grace L. Orton. Morphology, development, and evolution of vertebrate larval stages; systematics and evolution of fishes and amphibians.
Theodore W. Widrig. Applied mathematics and statistics.
Beatrice M. Merwin. Nutrition of phytoplankton; physiology of bioluminescence in dinoflagellates.

MARINE CHEMISTRY AND GEOCHEMISTRY

Norris W. Rakestraw. Changes in the composition of sea water in the course of biological and geochemical cycles.
Edward D. Goldberg. Chemical composition of marine waters, sediments, and organisms. Instrumental methods of inorganic analysis.
Gustaf O. S. Arrhenius. Sedimentation; stratigraphy, mineralogy, and chemistry of marine sediments; geochronology.
Warren S. Wooster. Descriptive physical and chemical oceanography of the Pacific Ocean and adjacent seas.



A Scripps scientist, using self-contained underwater breather apparatus, hovers over a giant coral of the South Seas. The photograph was taken on Capricorn Expedition, 1952-53.