



In 2003, Scripps Institution of Oceanography will celebrate its first century of oceanographic exploration, research, and discovery. This feature is the third in a continuing series of articles that will present special features about the history of Scripps Institution and the science, people, ideas, and technology that have played major roles in its century of leadership.



This page, Eminent Scripps scientist Francis Bertody Sumner at work in the George H. Scripps Memorial Laboratory. **Facing page,** Giant black seabass caught from Scripps's "Biological Pier" on September 29, 1921, by S.W. Wood (right) and his grandson.



THE BIOLOGICAL COLONY



Scripps Institution of

BY JOE HLEBICA



Looking at La Jolla today, it is difficult to imagine Scripps Institution of Oceanography as it was 80 years ago. What is now part of the sprawling University of California, San Diego campus, situated in a picturesque community of worldwide renown, was then no more than an outpost in the remote chaparral.

By 1916, a small scientific colony was expanding around the main laboratory building of the Scripps Institution for Biological Research.

Construction of Scripps's first pier was complete and paid for, as was much of the early campus infrastructure, by local philanthropist Ellen Browning Scripps. Professor William Ritter, the institution's director, and his wife, Mary, were settled into a spacious new, two-story home overlooking the pier. (They had spent their first few years on campus living in the main laboratory building.) Other dwellings were springing up as well, giving the scientific enclave the



"The institution's kids," circa 1920



circa 1916

look of a frontier boom town. A dozen or so cottages were occupied by permanent staff, summer residents, and the families of both. Downtown La Jolla was distant and accessible only by a poorly maintained road, so children were informally schooled on site, and some residents grew their own food.

Looking back on the early days of this biological colony, Margaret Sumner, wife of renowned Scripps scientist Francis Sumner, remembered the "one-board" houses, built and furnished for \$1,000 each. "The roofs leaked badly at every pore in the heavy rains, and the wind blew through the cracks," she reminisced during a 1962 interview with Scripps historian Helen Raitt.

Mary Ritter described the cottages, some of which are still in use, as "truly masculine in their planning and conveniences." Her husband took a dutiful view: "When their cheapness is considered in the light of the clear desire of Mr. [E. W.] Scripps to make as large a portion of the funds as possible available for the main purposes of the institution, their simplicity can be accepted with much greater complacency." Thrift was evidently the watchword by which founding benefactor E. W. Scripps expected the institution to run; the cot-



Left, *Illustrations from Seashore Animals of the Pacific Coast published in 1921 and co-authored by Myrtle Johnson.*

Opposite page, *Myrtle Johnson in Scripps's "Little Green Lab," circa 1907. Inset, Specialized tools used as dissecting kit.*

tages were furnished with five-dollar iron beds, four-dollar couches, and burlap curtains.

E. W. was so gratified by the spartan campus that he envisioned a planned community growing up around it. This he outlined in an essay with the curious title, *An Odd Place: A New Town Where High Thinking and Modest Living Is To Be the Rule*. Of E. W.'s plan, which was to include a schoolhouse, clubhouse, and 20 or 30 rental cottages, very little actually came to pass. However, his name for it stuck, and "Ellentown"—honoring his half sister—remains the unofficial name of a residential neighborhood immediately north of the institution.

One aspect of E. W.'s scheme that came to pass was the renting of the institution's cottages to visitors. "The kind of settlers most desired," announced E. W., "are those retired professional, literary, and other quiet people who naturally seek association with scientific men."

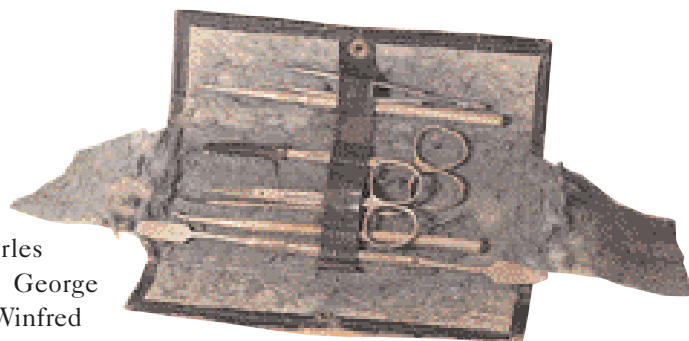
At least one family lived up to E. W.'s lofty ideals—the Clarks of Reno, Nevada. Walter Ernest Clark was president of the University of Nevada's Reno campus. He spent summers at Scripps along with his wife, Euphemia, and their four children. One child was Walter Van Tilburg Clark, who became a scholar, author, and amateur naturalist. In 1940 he wrote the classic western *The Ox-Bow Incident*.

THE COLONISTS

But who were the "scientific men" E. W. assumed would naturally attract the attention of the outside world?

Throughout the 1910s and 1920s, pioneering research was performed at Scripps by a host of biologists, physicists, and chemists. In

addition to Ritter, the roll call included Charles Kofoid, Ellis Michael, George McEwen, Eric Moberg, Winfred Allen, and Francis Sumner. But E. W.'s assumption was not entirely correct; not all the scientists were men. Scripps women who held doctorates in these early days included Myrtle Johnson, who coauthored *Seashore Animals of the Pacific Coast*, published in 1921; Olive Swezy, who assisted deputy director Kofoid in completing his monumental treatise on dinoflagellates; and Christine Essenberg, a librarian who spent her off-duty hours researching zooplankton.



Plankton were a major focus of study for all of the institution's biologists, from Ritter on down. But it was the young and energetic Ellis Michael who is credited with accomplishing the most on the subject during this period. His work on the seasonal movements and distribution of certain plankton was considered by Ritter to be of great value to the general biological and oceanographic survey that was the institution's mandate.

Working with the Stanford-trained physicist George McEwen, whom Ritter selected to head studies of physical oceanography, Michael devised new methods and technologies for collecting and cataloging plankton. During 1913 and 1914, Michael and McEwen compiled field data that had been gathered during the

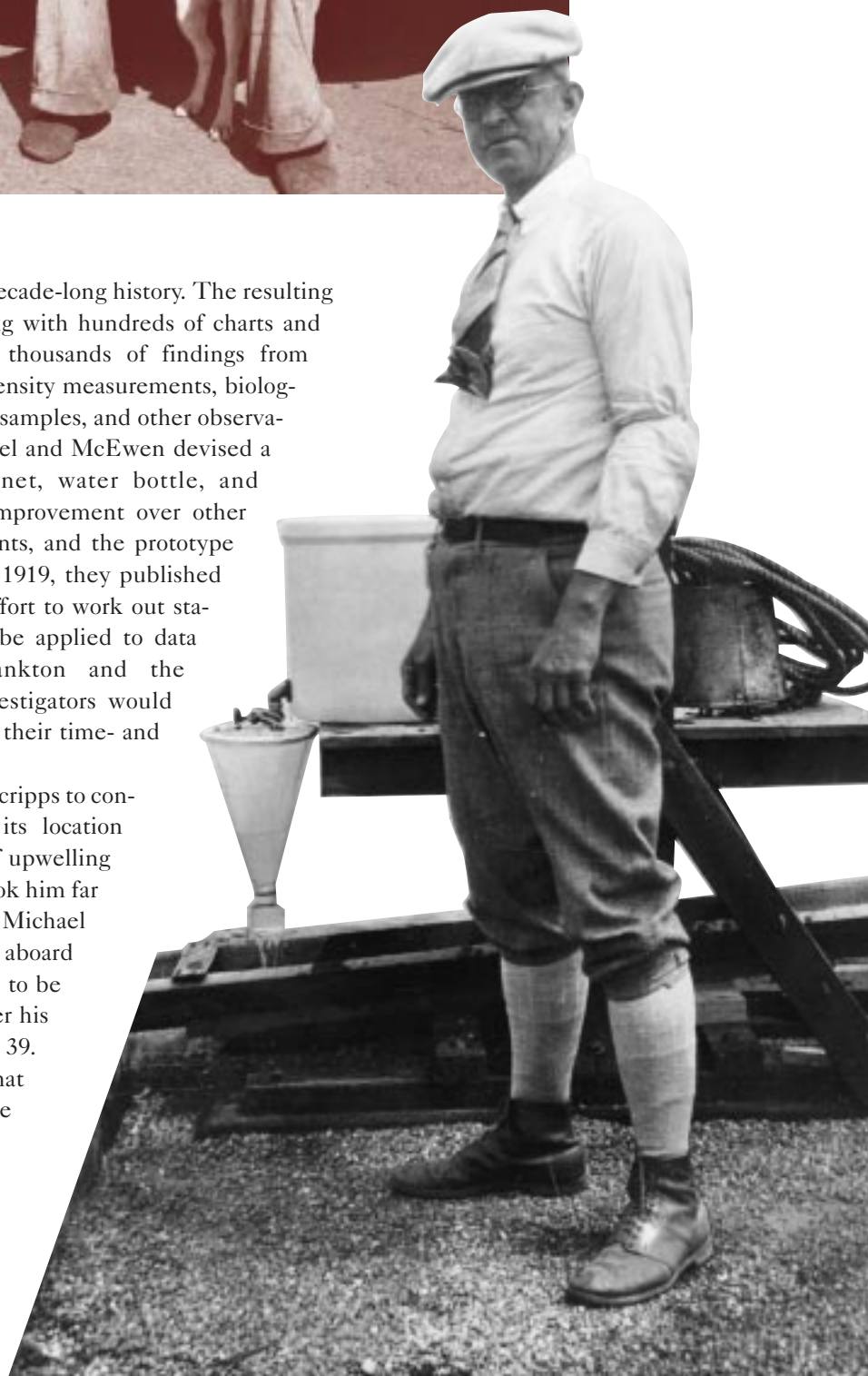


Left, Francis Sumner and son Herbert during one of many field trips conducted by the senior scientist. **Below,** Winfred E. Allen, sampling water on the pier, studied phytoplankton from 1917 until retiring from Scripps in 1946.

station's then decade-long history. The resulting publication, along with hundreds of charts and graphs, included thousands of findings from temperature and density measurements, biological net hauls, water samples, and other observations. In 1916, Michael and McEwen devised a combined plankton net, water bottle, and thermometer—a vast improvement over other such collecting instruments, and the prototype for those in use today. In 1919, they published the results of a four-year effort to work out statistical methods that could be applied to data assembled on various plankton and the environment. Subsequent investigators would be greatly indebted to them for their time- and energy-saving methods.

Michael was one of the first at Scripps to conduct science from the pier, and its location allowed him to observe the effects of upwelling on plankton movement. His studies took him far from the institution as well. In 1920 Michael made a collecting trip to the Caribbean aboard E. W.'s yacht *Kemah*. Unfortunately, it was to be his last great foray into science. Shortly after his return he became ill and died at the age of 39.

He was eulogized by Ritter, who believed that only the passage of time would fully reveal the significance of his accomplishments in the field of marine ecology.



NEWS GETS OUT

A protégé of George McEwen, graduate student Eric Moberg began important research at Scripps in marine chemistry. Along with McEwen's studies of the physics of the ocean, Moberg helped broaden the institution's focus from plankton to general oceanography. And it must have seemed that anything was possible in the new field. While passing a night in 1922 collecting water samples from Mission Bay, Moberg and McEwen were mistaken for bootleggers. They made the news after being questioned by prohibition officers regarding the contents of their collecting bottles.

It wasn't exactly a public-relations coup for Scripps, but many events were, as reported by the institution's official publicity secretary, Winfred Allen. Allen started at Scripps as a summer resident in 1917 and performed extensive studies of diatoms and other phytoplankton. A few years later his duties were expanded to include the filing of press reports on research at Scripps.

One of the institution's most newsworthy programs involved weather prediction. In his capacity as Scripps's first physical oceanographer, George McEwen was interested in the

relationship between ocean temperatures and climate. Thus began groundbreaking research on long-range weather forecasting. Beginning in 1912, weather records were kept at a number of points along the North Pacific coast with the cooperation of private and government agencies. By 1918, McEwen had evidence to support a

theory that temperature fluctuations affected coastal seasonal rainfall. Scripps began publishing its forecasts of winter precipitation, which brought a great deal of attention to the institution. The U.S. Weather Bureau helped gather and analyze data, while the San



circa 1925



Top, Director William E. Ritter (left) with colleagues and staff during the institution's dedication on August 9, 1916. **Right**, Student researcher Ellis Michael aboard Alexander Agassiz, 1908.



Left, Francis Sumner's "mouse house" where generations of field mice were raised for research. **Below**, Author Walter Van Tilburg Clark spent boyhood summers at Scripps.



Diego Chamber of Commerce helped get the results out to the business community.

McEwen's pioneering efforts to link studies of the ocean and the atmosphere proved more significant than even he might have predicted. Scripps continued forecasting weather into the mid-1930s, when the U.S. Weather Bureau took over the effort. During the 1940s, military meteorologists were trained at Scripps, and by the 1970s, climate monitoring had become one of the institution's most important research programs.

THE MOUSE HOUSE

In recent years, population genetics has become an important focus of research at Scripps, but the first such project was launched at the biological colony in 1913. More surprising than the year, however, was the subject—mice.

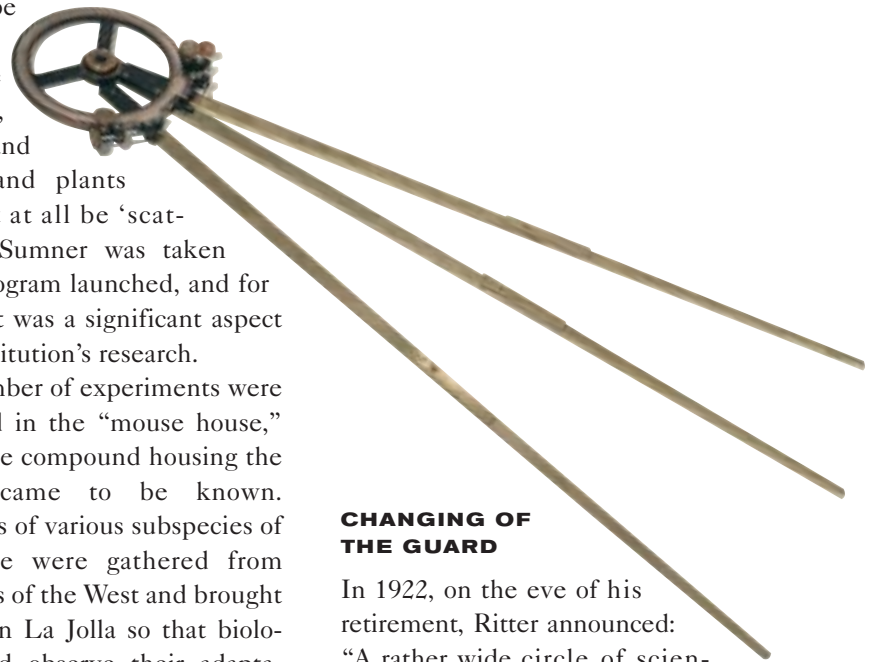
Francis Sumner proposed a program to determine the environmental influences on heredity in a genus of field mouse. In a 1913 letter to Ritter, Sumner, then a naturalist with the U.S. Fisheries, boasted, "A very rich reward awaits the institution that blazes the trail in experimental evolution." Ritter's cautious reply was that the institution's board of directors were unlikely to allocate resources to such a "scattered" departure from marine science. But Sumner was

fortunate in his timing. The state legislature was about to grant additional funds to the institution with the understanding that new research staff be hired and that programs be expanded.

Going back to the board, Ritter explained, "If the question of the relation of organisms to their environment be the coordinative principle, work on land animals and plants would not at all be 'scattered'." Sumner was taken on, his program launched, and for 17 years it was a significant aspect of the institution's research.

A number of experiments were conducted in the "mouse house," as the large compound housing the rodents came to be known. Specimens of various subspecies of field mice were gathered from other parts of the West and brought together in La Jolla so that biologists could observe their adaptations to changes in climate.

Sumner's observations supported Darwinian theory—still widely disputed at the time—and Ritter reported to the university that his research was "a more serious effort to combine critical work in the taxonomy, distribution, and genetics of a single species than has hitherto been made."



CHANGING OF THE GUARD

In 1922, on the eve of his retirement, Ritter announced: "A rather wide circle of scientific men in America are now convinced that [Scripps] ought to be treated as a nucleus for an oceanographic institution worthy of the largest ocean on earth."

Though many agreed, the question remained as to who might steer Scripps on this bold new course from biological colony to becoming the nation's first ocean-


graphic institution. The answer came when the University of California offered the directorship to Harvard-trained geologist Thomas Wayland Vaughan.

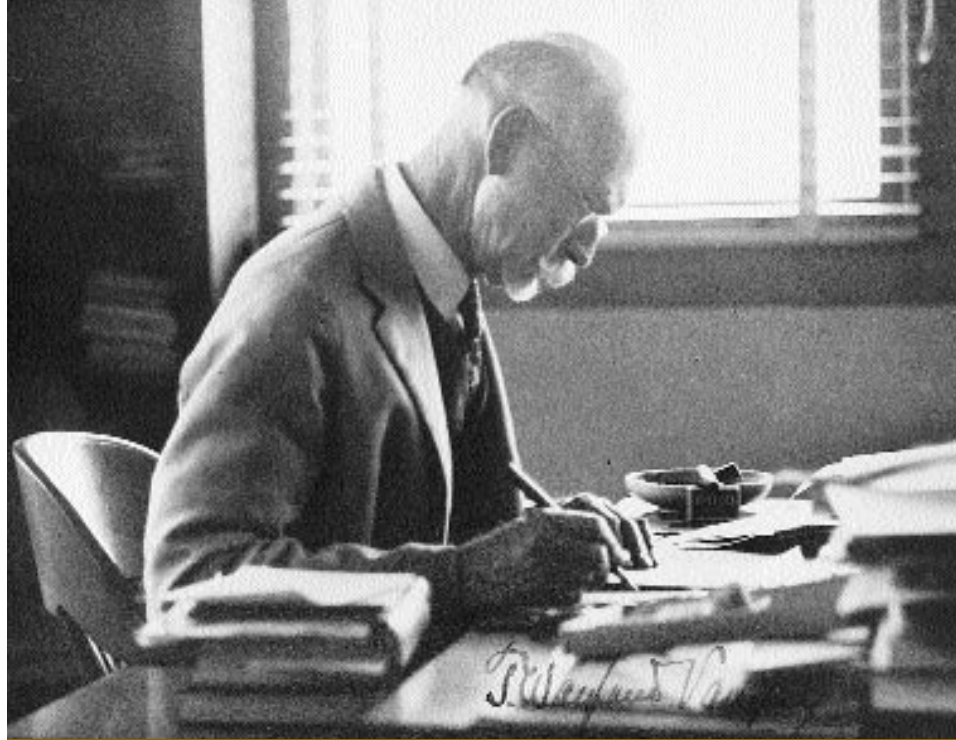
Accepting the post in 1924, Vaughan broadened the institution's research objectives to include marine sediments and the chemistry and bacteriology of the sea. He expanded the educational mission and sought international recognition for Scripps. Appointed chairman of the International Committee on the Oceanography of the Pacific in 1926, his vision was clear in a statement of committee goals: "Each country should develop a program of research, lay-



The Sigsbee sounding machine for measuring bottom depth during a 1904 cruise aboard the U.S. Fisheries steamer Albatross.

ing special stress on that part of the Pacific Ocean adjacent to and readily accessible from its shores."

This vision was to set Scripps's course as a prominent seagoing institution in the decades ahead. 



A HISTORIAN'S VIEW by Keith R. Benson

Following World War I, the National Research Council appointed a committee to study the need for oceanographic work during peacetime. It quickly identified the lack of oceanographic programs in the U.S. and the lack of any comprehensive understanding of America's surrounding oceans. The major aim was not education, but research into the basic questions of oceanic conditions and oceanic life. One of the members of the committee was **Thomas Wayland Vaughan** (above), who was named to succeed Ritter as director of Scripps Institution for Biological Research when he announced his retirement in 1923.

Not surprisingly, as soon as Vaughan arrived in La Jolla in 1924, he renamed the laboratory Scripps Institution of Oceanography to reflect an oceanographic orientation and new direction for the La Jolla station. Using his contacts in Washington, D. C. Vaughan was able to obtain some funds in 1930 from the Rockefeller Foundation, when it funded the initial development of Woods Hole Oceanographic Institution. Along with the University of Washington in Seattle, Scripps had finally become identified as one of the leading research centers in oceanography, thus marking its full incorporation within the oceanographic community.

Keith R. Benson is a professor of the history of science at the University of Washington. He has studied the history of marine biology stations in the U.S. and Europe, and recently became involved with an international community of scholars working on the history of oceanography.