

ROCK STARS

Kenneth Orris Emery (1914–1998): Pioneer Marine Geologist

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An example of Emery's inventiveness. The purpose of this strange contraption is lost to history but may have served as a sediment trap.

Birth and Formative Years

K.O. Emery was born in Swift Current, Saskatchewan, in 1914. His father, a carpenter and contractor, was there building barracks for World War I soldiers. The family followed construction jobs across the United States to New York, Oklahoma, and Texas, where K.O., as he was universally known, picked up his Texas accent and most of his schooling through early college years. During his senior year in high school, he collected, organized, and identified Cretaceous fossils from outcrops in the Fort Worth area. In high school, he enrolled in ROTC and earned the rank of major at graduation. He chose not to continue this program to an eventual Army commission, but the experience showed his natural talent for leadership.

K.O.'s excellent academic record earned him a one-year scholarship to any college or university in Texas. However, he decided to work to earn additional funds during 1932 and 1933 as manager of the local gas station, using the time between customers to read philosophy books. He attended North Texas Agricultural College, Arlington, in 1933 and studied there for two years. In the summers of 1934 and 1935, he and a college classmate hitchhiked and "rode the rails" to see the World's Fairs at Chicago and San Diego, where they scrounged for work in restaurants to earn living expenses.

Young Emery became interested in engineering and geology and upon the recommendation of a favorite geology professor, transferred to the University of Illinois in 1935. His intent was to combine geology and engineering into a major in mining engineering. Seeking funds for living expenses, he went to the Geology Department where he met Dr. Francis Shepard, who noted Emery's drafting expertise and recruited him to go to the U.S. Coast & Geodetic Survey offices in Washington, D.C., to work on maps of seafloor bathymetry (Curry, 2001). This confirmed K.O.'s interest in marine geology. He continued under Shepard's direction after his undergraduate years, earning an M.S. and Ph.D. Shepard was shifting his work to Scripps Institution of Oceanography, and much of K.O.'s work for his doctorate was also centered at that institution. K.O. received his Ph.D. from Illinois in 1941.

The difficult years spanning the Great Depression and World War II were "sink or swim" times for an entire generation and they greatly affected Emery's development as a person and scientist.

There are some interesting parallels between K.O.'s early years and those of Maurice Ewing (Wertenbaker, 2000), another Texan who also experienced the hard times of the Depression era and ultimately achieved international repute as a marine scientist. It is likely that the adaptability, initiative, and confidence to surmount any barrier—characteristics of both of these marine scientists—were a product of those tough times.

Early Career and Experiences

Emery and his best friend Robert Dietz were Shepard's graduate assistants and followed him to Scripps to become the first generation of "marine geologists" under his tutelage. The pay was poor but they managed to exist student-style in the "community house" on the old Scripps Campus with other graduate students. Shepard assigned them many tasks, one of which was to row him out on repeated trips to the Scripps and La Jolla Submarine Canyons. There, they took depth soundings using a heavy weight attached to a fishing line. K.O. would row, make the sounding, and lift the heavy weight back into the boat, while Shepard located the sounding using horizontal sextant angles between known locations on the beach. Dietz recorded the data. These studies resulted in the first detailed maps of the heads of submarine canyons. The main discovery was a great change in depth over time, showing that active marine processes were taking place.

K.O., like others in that pioneering generation, designed and built most of his own shipboard equipment to sample the seafloor. His earlier work as a mechanic in a gas station may have been a factor in his equipment-design success. His sea experience, begun in a rowboat, now progressed to the *E.W. Scripps*, a 110-foot schooner built for the Scripps Institution with support from the Scripps family. Early cruises off southern California and in the Gulf of California provided data that K.O. and Dietz used for their theses and doctoral dissertations. They worked with bathymetry and structure, seafloor sediments and rock, and phosphorite and marine clays, making discoveries that laid the basic groundwork for future marine geologists. However, geology was not the sole pursuit of these embryonic scientists. Ever the experimenter, K.O. talked Dietz into growing a mustache and