William B. W. Rand.

William Bradford Whitehill Rand

1902–1988

By Elmer P. Wheaton

William B. W. Rand, a pioneer in offshore drilling, died in Santa Monica, California, on March 9, 1988, after a long illness. Dr. Rand was best known for his early offshore geological surveys of the California coast and the development of the methods and equipment for conducting such surveys.

Bill Rand was born in Salt Lake City, Utah, on January 17, 1902. His family moved to northern California in 1906. He earned an A.B. in geological sciences at the University of California, Berkeley, in 1926, and was then employed by Shell Oil Company in southern California as a field geologist until 1929. During the depression years of 1931 and 1932, he was head of the Geology Department of Sacramento California Junior College, after which he rejoined Shell Oil as a field geologist in southern California. During this time, he completed his studies for a Ph.D. in geological sciences at the University of California, Berkeley. His dissertation was titled "The Geology of Santa Cruz Island, Santa Barbara County, California." He worked for Shell Oil until 1945 and held many responsible positions, his last being regional geologist for the area east of the Mississippi River.

In 1946 he joined the Union Oil Company in California and was assigned the task of developing a program for an offshore geologic survey of the California coast. Bill assembled a unique team of professionals who knew the area: sea captains, small boatmen, fishermen, divers, and geologists. Together they con

verted a small navy surplus vessel into a geological exploration ship to obtain ocean bottom information that could be correlated with the seismic geophysical data.

In 1949 it became apparent that it would be necessary to find a way to get through the silty overburden to obtain samples of the ocean bottom formations. Bill came up with the idea of jetting through the overburden and exposing the formation. This jetting system worked very well, but it was soon realized that it would be necessary to core drill into the bottom formations to obtain the information needed. This new and challenging requirement of drilling in several hundred feet of water and through several hundred feet of overburden into the ocean bottom formations would require the design of new equipment.

Bill decided to form his own company, which he named "Submarex," to design the equipment that would accomplish this task and under contract make exploratory surveys for the various oil companies. He proceeded to design and install the first rotary drill rig mounted on a self-propelled vessel, which he named after his company. The *Submarex* drilled the first rotary core holes in the Pacific Ocean in 1951 and is credited with being the world's first offshore drill ship. This first ship had a small geophysical-type drilling rig mounted over the side of the ship with a steel grid runround for the roughnecks, who stood in knee-deep water while making connections or pulling the drill string. Bill's company then converted and operated a fleet of exploratory drilling vessels, with some of these vessels being equipped with a moon pool and a center-mounted derrick. The ships with side-mounted rigs could drill holes up to two thousand feet deep in the sea floor, while the center-mounted ones could drill to four thousand feet. One of his vessels drilled the first rotary core hole in the Atlantic Ocean in 1955. Bill and his company flourished and provided many innovations to offshore geological exploration, one being a device that Bill patented for taking oriented submarine cores.

Seeing 1958 bring decreasing exploratory activity, Bill turned his attention to consulting. He did consulting work for General Motors Santa Barbara Marine Laboratory and for various Japanese petroleum organizations on offshore exploration. In 1963

under a contract with the U.S. Coast and Geodetic Survey, he set an experimental submerged recording buoy on a three-point mooring in six thousand feet of water and conducted an associated bottom sampling and sea floor topographic investigation of the area.

In 1966 Scripps Institution was preparing a bid to the National Science Foundation for the Deep Sea Drilling Project. It was an absolutely unique undertaking, both scientifically and technically, and exceptional lead personnel would be required. Bill was considered a key candidate for the position of program manager because of his early and successful experience in the field and his education as a geologist. The only difficulty was the potential conflict of interest due to his offshore drilling company holdings. When it was discovered that he had sold his company and no longer had a conflict of interest, they persuaded him to join the Scripps project team. William A. Nierenberg, director emeritus of Scripps, has stated that Bill went to work immediately, preparing the specifications and bid package for the drilling ship and its operations with an ease and professionalism that was a key to the success of the project. Bill stayed with the project until after the first trial runs in 1967 and until he could see that the project was well under way and that he had trained an able successor.

He returned then to general consulting in offshore mineral recovery. He became a member of the National Academy of Engineering's Marine Board at its inception in 1965, actively serving on it until 1974. During this period, he made many important contributions to their studies. He was elected to the National Academy of Engineering in 1973. In 1976, due to illness, he discontinued his professional activities.

A member of Bill's exploration crew has said, "Bill was immediately popular aboard ship. Not only was he a gentleman, but he had that rare quality of a common touch with all the crew." All who were acquainted with Bill were impressed not only with his knowledge of offshore geology but also with his understanding of mechanics and his capability in designing and adapting equipment to work in the marine environment. He was a true pioneer in the field of offshore engineering.