Snodgrass, James Marion
Biography

James Marion Snodgrass was born in Marysville, Ohio May 3, 1908, the son of William Howard Snodgrass and Clara May (Hopkins) Snodgrass. He received an A.B. degree from Oberlin College in 1931 and undertook postgraduate work at the University of Pennsylvania and Harvard University.

Trained as a physicist at Oberlin, Snodgrass worked as an assistant in psychology at the college from 1932-1934 and 1936-1937 under Professor Raymond H. Stetson. His work at Oberlin included the design and construction of physiological research instruments and work on physiological acoustics. After leaving Oberlin, Snodgrass became interested in biology and began graduate research at the University of Pennsylvania. He worked as a research associate at the Free Hospital for Women in Brookline, Massachusetts from 1938 to 1939 designing instruments under the direction of Dr. John Rock. He was an instructor at Oberlin College from 1939-1942.

Snodgrass joined the staff of the Division of War Research at Columbia in1942 then in San Diego beginning in May 1943. At Columbia, Snodgrass worked as a field engineer concentrating on flight operations and operations of airborne antisubmarine warfare (ASW) detecting equipment under military conditions. He also taught military personnel in ASW equipment and tactics. At the University of California Division Of War Research (UCDWR) in San Diego, Snodgrass concentrated on the installation of shipboard ASW training devices. He also trained naval personnel in sonar technology and ASW techniques, under the direction of Dr. Gaylord P. Harnwell.

Snodgrass traveled throughout the Pacific Theater between October 1943 and September 1945 as a civilian technician for UCDWR attached to the staff of commander destroyers, U.S. Pacific Fleet. His mission was to assist in antisubmarine warfare training and technical problems, and he carried this out by serving in the destroyer fleet. He was the author and technical advisor on three U.S. Navy films made at the end of the war on Air-Sea Rescue. Snodgrass received a citation from Admiral Chester Nimitz and was awarded the Pacific Asiatic Service Ribbon for ASW and Air Sea Rescue developments during the war.

Tired of sea duty, Snodgrass went to Cincinnati at the end of the war and from 1946-1948, he served as chief engineer, Motion Picture Sound Division, Dayton Acme Company.

Roger Revelle recruited Snodgrass for the Scripps Institution of Oceanography as an associate marine biologist in the Marine Biology Division in 1948. His initial assignment was to design, develop and construct instruments for biological, geological and geophysical research in the deep sea. Snodgrass was the first person to use transistors in deep sea oceanographic instrumentation. In 1950 he was promoted to Associate Research Biologist and became the head of the Special Developments Division. This division was charged with developing and adapting scientific instruments for use in oceanography. His research focused on instruments and instrument design. He is credited with the development of the first electronic deep sea oceanographic instrument,

the ocean bottom sediment temperature gradient recorder which was used by Sir Edward Bullard, Arthur Maxwell, and Roger Revelle to take heat flow measurements at sea. Snodgrass went to sea on MidPac Expedition in 1950, where those measurements were taken. He designed radiance and irradiance meters, and pressure equalized instruments. He developed the expendable bathythermograph (XBT) and advanced wire telemetry in oceanographic systems. Snodgrass was appointed Research Engineer and served as Head, Special Developments Division from 1958-1968.

Snodgrass was especially concerned about radio frequencies for communications at sea. In the mid-twentieth century, ships, satellites and oceanographic instruments including buoys used radio frequencies for communication. However, laboratories experienced difficulties obtaining radio frequencies for this use. Radio frequencies were controlled nationally by civil and defense authorities, but neither bureaucracy was responsible for assigning radio frequencies for scientific research. Radio frequencies in the HF spectrum were essential for long range communications at sea, including the transmission of oceanographic data, but these were controlled internationally. Snodgrass successful spearheaded an effort to obtain exclusive radio frequencies for world-wide oceanographic and meteorological use. This required a decade of effort on international commissions and committees. He served on the Air-Sea Interaction Panel of the National Academy of Sciences 1961-1962. He served as U.S. representative to the Intergovernmental Oceanographic Commission (IOC) in 1962. He chaired the IOC Working Group on Communications beginning in 1962 and chaired the IOC Joint Meeting of Experts on Telecommunications, Oceanography and Meteorology concerning Radio Communications Requirements at Paris in September 1963. He represented the IOC at the Maritime World Administrative Radio Conference in Geneva in 1967. He chaired the World Meteorological Organization/Intergovernmental Oceanographic Commission panel of experts on telecommunications in 1968. He was a member of the Committee on Radio Frequency Requirements for Scientific Research, Ocean Engineering. Snodgrass's effort resulted in allocation of radio frequencies for scientific use, but also new methods of using the radio frequency spectrum to make more efficient use of a given working radio channel and the concept of time sharing. Fred N. Spiess noted that Snodgrass played a significant role in the introduction of satellite navigation into ocean science.

Throughout his career, Snodgrass was active as a consultant to industry. He served as a consultant for General Motors Defense Systems, Bendix Pacific, General Dynamics-Convair in San Diego, Sandia Corporation and many other companies prominent in electronics during the 1960's. His work on radio communications and telemetry required that he frequently visit and interact with engineers and scientists at laboratories throughout the world.

Snodgrass worked closely with marine biologists to develop collection devices and instruments for their use. He served as a special consultant to the American Institute of Biological Sciences. In the early 1970's this community became concerned about ocean pollution, and Snodgrass became interested in instruments and means to measure pollution. Snodgrass began work developing an unmanned instrument package including sensors that could take continuous measurements at sea and could be used in large-scale

studies of marine pollution. Snodgrass participated in the first meeting of the Integrated Global Ocean Station System (IGOSS) in 1969. Snodgrass chaired the WMO/IOC Panel of Experts on Telecommunications. This was the beginning of his long participation in IGOSS and its many subgroups.

While Snodgrass worked well with Scripps Director Roger Revelle, he often had conflicts with Revelle's successor William A. Nierenberg. Nierenberg was pushing the Scripps Institution to expand its computer facilities and install computers in oceanographic research vessels. Snodgrass left Scripps and accepted a position as Senior Technical Director of Ocean Data Systems, Inc. (ODSI) of San Diego. He retired from the Scripps Institution of Oceanography on June 1, 1975.

Snodgrass received many honors during his career. He was named Man of the Year, by the National Telemetering Conference in 1966. He received the Distinguished Public Service Award from the U.S. Navy in 1968 for outstanding contributions in the field of oceanography. He received the Compass Distinguished Achievement Award of the Marine Technology Society in 1968, the year he served as director of the MTS. He was a fellow of the Instrument Society of America. He was a member of many associations including the Acoustical Society of America, the American Association for the Advancement of Science, the Institute of Electrical and Electronic Engineers, the Instrument Society of American, and Sigma Xi. Snodgrass was a charter member of the Marine Technology Society. He held patents for many scientific instruments.

Snodgrass was the author of many scientific papers. He served on the Editorial Board of the Journal of Marine Research and as an editorial consultant for Undersea Technology. He also served as a consultant for a film entitled, World Ocean Data Network: A Proposal. This 17-minute film summarized man's relationship to the marine environment and proposed a mechanism for collecting data from the marine environment. The film was produced by Cascade Pictures of California, Inc and translated into several languages. It was presented at the Maritime World Administrative Radio Conference (WARC) of the International Telecommunications Union (ITU) in Geneva in 1967.

Snodgrass married Eleanore Catherine Zwerner on July 23, 1936. They had two children, William Louis and Marian Louise (Mrs. Clemens Deisenhammer). The family lived for many years on Gravilla Street in La Jolla, but the Snodgrasses retired to the Casa de Manana in La Jolla. They were active members of the La Jolla Presbyterian Church and many clubs including the Torch Club of La Jolla. James worked with young members of the Junior Oceanographers Corps.

James Snodgrass died at the age of 86 in La Jolla on November 9, 1994 after a brief illness.