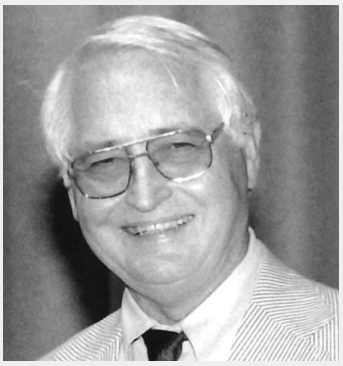
Obituary | Richard H. Lyon | *1929–2019*



Richard H. Lyon, former Acoustical Society of America (ASA) President and Gold Medal recipient and a key developer of statistical energy analysis, passed away peacefully on January 21, 2019, at the age of 89.

Born and raised in Evansville, IN, Dick graduated from Evansville College in 1952 as a physics major and did his doctoral thesis at the Massachusetts Institute of Technology (MIT), Cambridge, under Uno Ingard, on the turbulent excitation of strings, receiving his PhD in physics in 1955. Dick then joined the electrical engineering faculty at the University of Minnesota, Minneapolis, and in 1959 began a nine-month stay at the University of Manchester, UK, working with the statistician Maurice Bartlett on the statistical analysis of interacting vibrating systems. It was during this period that he combined his diverse background in physics, electrical engineering, and acoustics to formulate ideas that became the basis of his development of statistical energy analysis.

Returning from the United Kingdom, Dick joined Bolt, Beranek and Newman (BBN) where he continued his work on sound-structure interaction and also served as head of the Physical Sciences Division and corporate vice president. During his time at BBN, Dick made significant contributions to the field of structural acoustics, publishing more than 35 papers over 10 years.

In 1970, Dick joined the faculty of MIT as professor of mechanical engineering, where he headed the Division of Mechanics and Materials. Also in 1970, he joined Jerry Manning in forming Cambridge Collaborative, which specialized in the application of statistical energy analysis. His strong interest in and enthusiasm for acoustics inspired many of his students to pursue careers in the field and develop long-lasting ties with him. Dick retired from MIT in 1995 and devoted himself full time to his consulting firm, RH Lyon Corp, where he and others focused on vibration-based mechanism diagnostics, audio, quiet product design, and methods of designing for product sound quality.

The areas of Dick's research and contributions included statistical energy analysis of complex structures, acoustical scale modeling, signal processing for machinery diagnostics and remote sensing, statistical phase analysis, transducers, and sound quality; this diversity of study spoke to the great breadth of his interests and knowledge. During his career, Dick wrote 5 books, over 200 papers, and numerous technical reports. An avid sculler, he also took up learning the guitar in his later years. Of course, Dick being Dick, this led him to give an enthusiastic talk to the local ASA chapter titled "A Structural Acoustician Examines His Guitars."

Dick was a Fellow of the ASA and the Institute of Noise Control Engineering and a member of the National Academy of Engineering. Aside from the ASA Gold Medal, Dick also received its Silver Medal in Engineering Acoustics, the Rayleigh Medal from the Institute of Acoustics, and the Per Bruel Gold Medal for Noise Control and Acoustics from the American Society of Mechanical Engineers.

He is survived by his wife of 53 years, Jean Wheaton Lyon, children Geoffrey, Katherine, and Suzanne, and several grandchildren and great-grandchildren. Dick will be truly missed by all those who were fortunate enough to know and be inspired by him.

Selected Publications by Richard H. Lyon

Lyon, R. H. (1969). Statistical analysis of power injection and response in structures and rooms. *The Journal of the Acoustical Society of America* 45, 545-565. https://doi.org/10.1121/1.1911422

Lyon, R. H. (1983). Progressive phase trends in multi degree of freedom systems. *The Journal of the Acoustical Society of America* 73, 1223-1228. https://doi.org/10.1121/1.389269

Lyon, R. H. (1987). *Machinery Noise and Diagnostics*. Butterworth Publishing, Boston.

Lyon, R. H. (2000). *Designing for Product Sound Quality*. Marcel Dekker, New York.

Lyon, R. H., and DeJong, R. G. (1995). *Statistical Energy Analysis*, 2nd ed. Butterworth-Heinemann, Boston.

Lyon, R. H., and Maidanik, G. (1962). Power flow between linearly coupled oscillators. *The Journal of the Acoustical Society of America* 34, 623-639. https://doi.org/10.1121/1.1918177

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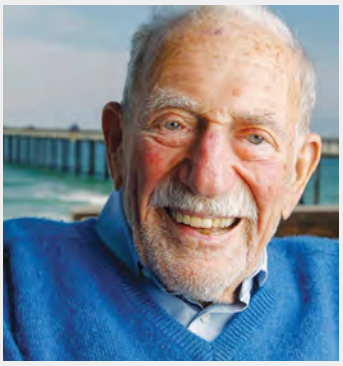
Obituary | Walter H. Munk | *1917–2019*



Walter H. Munk, an oceanographer and geophysicist who made seminal contributions to ocean acoustics, physical oceanography, and geophysics over a career spanning nearly 80 years, died at his home in La Jolla, CA, on February 8, 2019, at the age of 101.

Walter was born on October 19, 2017, in Vienna, Austria. He was sent to the United States at age 14 to finish high school. After an unhappy time at a financial firm in which his grandfather was a partner, he applied to the California Institute of Technology (Cal Tech), Pasadena, graduating in 1939 in applied physics. Walter first came to the Scripps Institution of Oceanography, University of California, San Diego, La Jolla, in 1939 for a summer job. He obtained a master's degree from Cal Tech in 1940 before returning to Scripps, where the director, Harald Sverdrup, accepted him as a PhD student.

Believing that war was imminent, Walter enlisted in the Army. He was discharged in December 1941, one week before Pearl Harbor, to join the University of California Division of War Research. During the war, Walter and Sverdrup developed a system to forecast wave conditions in preparation for the Allied landings in Africa. Their methods successfully predicted that the conditions for the D-Day landing in Normandy would be rough but manageable. Walter received his PhD in 1947. He spent his entire career at Scripps, founding and serving as director of the La Jolla Laboratories, Institute of Geophysics and Planetary Physics, from 1962 to 1982.

Walter made contributions to so many fields that there are some who think that there was more than one Walter Munk. In the early 1950s, he made fundamental contributions to our understanding of the wind-driven ocean circulation, coining the term "ocean gyres." He then became interested in the irregularities in the earth's rotation (wobble and spin), which form an elegant remote sensing tool from which one can infer information about the Earth's core, its air and water masses, and global winds. He made pioneering measurements of ocean swell (1958–1968) and deep-sea tides (1964–1974). He was one of the initiators of 1962 Project MOHOLE to drill into the Earth's mantle. In the early 1970s, Walter and Christopher Garrett devised the Garrett-Munk formulation of the ocean internal wave spectrum. In the mid-1970s, he was lured into the world of ocean acoustics through his participation in JASON (a scientific advisory group to the Department of Defense), which at the time was working on antisubmarine warfare. He was among the first to realize that internal waves cause sound-speed fluctuations, leading to fluctuations in acoustic signals. He, together with Carl Wunsch, invented ocean acoustic tomography to study the ocean mesoscale. He subsequently proposed that acoustic transmissions be used to study ocean warming on global scales and led the 1991 Heard Island Feasibility Test (HIFT) in which transmissions from near Heard Island in the southern Indian Ocean were recorded on receivers in both the Pacific and Atlantic. The HIFT was followed by the decade-long Acoustic Thermometry of Ocean Climate (ATOC) series of experiments in the North Pacific.

Walter received every conceivable honor, from the National Medal of Science to the Kyoto Prize to the Crafoord Prize. He was an Honorary Fellow of the Acoustical Society of America. The United States Navy and The Oceanography Society established the Walter Munk Award for Distinguished Research in Oceanography Related to Sound in the Sea in his honor.

Munk was preceded in death by wife Judith, who died in 2006, and daughter Lucian, who was born with a heart defect and died at the age of 7 in 1961. He is survived by daughters Edie of La Jolla and Kendall of State College, PA; three grandsons Walter, Lucien, and Maxwell; and current spouse Mary Coakley Munk.

A more complete account of Walter's life, including a list of selected publications, is available in Spindel, R. C., and Worcester, P. F. (2016). Walter H. Munk: Seventy-five years of exploring the seas. *Acoustics Today* 12, 36-42.

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Obituary | Robert Daniel Sorkin | *1938–2018*

Robert Daniel Sorkin, 81, a scholar, educator, and avid sailor, passed away on Friday, December 28, 2018, in St. Augustine, FL. He was a Fellow of the Acoustical Society of America and past associate editor of Psychological Acoustics.

Bob was born in Manhattan and lived in the Bronx, NY, and Maplewood, NJ. After graduating from the Carnegie Institute of Technology, Pittsburgh, PA, he earned a PhD in psychology from The University of Michigan, Ann Arbor. Bob was a professor at Purdue University, West Lafayette, IN, and then moved to the University of Florida, Gainesville, to chair the Department of Psychology, with a dual appointment in industrial engineering. He also served in the Air Force Office of Scientific Research and the Air Force Research Laboratory as a senior scientist.

Bob published over 50 research articles and a book in areas of auditory perception, alarm detection, and decision theory. He was awarded four US patents.

Under the influence of his mentor W. P. "Spike" Tanner, Bob extended the theory of signal detectability to matching procedures in psychophysics. He applied this to characterize the listening process as a multichannel detection process. Multichannel listening evolved into an interest in warning systems. His early work examined the auditory detection of uncertain signals and monaural detection of signals with uncertain time distribution and frequency. By examining the detection of a monaural signal presented against the presence or absence of a contralateral sound, he determined the effect of the interaction of binaural listening channels.

Several papers published with his students examined optimized alarms based on detection with automated likelihood detectors monitored by human observers. This interest in how observers operate on available information led to an examination of group decision strategies. Although much of his early work was in psychoacoustics, Bob was really a "signal detector." His applications of signal detection theory led to the extension of his work to the development of auditory and tactile alarms such as would be applicable in factories and airplane cockpits.

If one is to install an alarm, someone else will surely turn it off. He postulated the reason for this is that the criterion set for the automatic alarm created a high false alarm rate. This led to the development of the concept of a likelihood alarm in which there is a situationally aware criterion set for the automated alarm.

Examining the relationship between observers and their decisions naturally led to the question of how decisions by individuals and groups evolve. In 2004, he published a paper in which he extended the theory of signal detectability to an analysis of group decision making.

In 2007, he retired as Emeritus Professor of Psychology and of Industrial and Systems Engineering and moved to St. Augustine. Bob is survived by his wife Nancy, with whom he shared 58 happy years, two children, five grandchildren, and his brother Barry. He was predeceased by his brother Bernard.

Selected Publications by Robert Daniel Sorkin

Kantowitz, B. H., and Sorkin, R. D. (1983). *Human Factors: Understanding People System Relationships*. John Wiley & Sons, New York.

Sorkin, R. D. (1962). Extension of the theory of signal detectability to matching procedures in psychoacoustics. *The Journal of the Acoustical Society of America* 34, 1745-1751.

Sorkin, R. D. (1965). Uncertain signal detection with simultaneous contralateral cues. *The Journal of the Acoustical Society of America* 38, 207-212.

Sorkin, R. D. (1989). Why are people turning off our alarms? *The Journal of the Acoustical Society of America* 84, 1107-1108.

Sorkin, R. D., Luan, S., and Itzkowitz, J. (2004). Group decision and deliberation: A distributed detection process. In D. J. Koehler and N. Harvey (Eds.), Handbook of Judgment and Decision Making. Blackwell, Oxford, UK, pp. 464-484.

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