



IN MEMORIAM

John R. Whinnery
University Professor, Emeritus
Professor of Electrical Engineering and Computer Sciences, Emeritus
UC Berkeley
1916 – 2009

John Roy Whinnery, former dean of engineering at the University of California, Berkeley, and a distinguished innovator in the field of electromagnetism and communication electronics, died Sunday, February 1, 2009, at his home in Walnut Creek, California. He was 92.

Whinnery was born in Read, Colorado, on July 26, 1916, and moved with his family at the age of 10 to Modesto, California. His father continued his farming in California, but maintained an avid interest in electrical and mechanical systems. Whinnery's father had also bought and operated a light plant to generate electricity for a small town in Colorado, and that probably also played an influential role in the younger Whinnery's development.

By the time Whinnery graduated from high school in 1933, the Great Depression had already begun, and obtaining money to attend college was a struggle. The introduction to an oral history of Whinnery's life notes that he could only afford to attend a local junior college, but that he greatly impressed his instructors there. Those instructors knew that he would flourish at Berkeley, but funding remained beyond his reach. Unbeknownst to Whinnery, several of his teachers took up a collection and financed a scholarship to send him to the University of California, Berkeley. After transferring to UC in 1935, Whinnery proved those instructors right, graduating in 1937 with a bachelor's degree in electrical engineering and earning the University Medal, which is awarded to the top graduating senior at UC Berkeley. This is the campus's highest student honor.

Whinnery worked the next nine years at General Electric Corporation in Schenectady, New York. His earliest work focused on understanding discontinuities in electromagnetic wave devices. This research led to innovations in microwave amplifiers such as triodes, used in World War II communication devices and radar receivers. His later work in the microwave field was in traveling-wave tubes, including the backward-wave amplifier, which is still used in radar and satellite communications.

While at General Electric, Whinnery met Simon Ramo. They became coauthors and produced a textbook, *Fields and Waves in Modern Radio*, which was published in 1944. In 1946, Whinnery returned to UC Berkeley as a lecturer while working on his Ph.D. in electrical engineering, which he received in 1948. Upon earning his doctorate, he was immediately appointed an associate professor of electrical engineering, advancing to full professor in 1952.

Besides being recognized for his research, Whinnery is widely credited with helping to bring the study of applied electromagnetic theory to a broader audience with the pioneering textbook, *Fields and Waves in Modern Radio*. Later editions of the book took on the new title of *Fields and Waves in Communications Electronics*. It made electromagnetic theory understandable and accessible; modern editions of it still are used

in college courses today, 65 years later. In 1994, friends and former students surprised Whinnery at a celebratory event honoring the book's 50th anniversary by endowing a faculty chair in his name.

In the early 1960s Whinnery became interested in the emerging field of lasers and laser applications in communications. He and his students produced advances in ultrashort optical pulses, which can be used to study fast processes in materials and chemical reactions. He was recognized as one of the country's top experts on the fundamentals of quantum electronics.

Whinnery held a number of leadership positions while at UC Berkeley, including director of the Electronics Research Laboratory from 1952 to 1956, chairman of the Department of Electrical Engineering from 1956 to 1959, and dean of the College of Engineering from 1959 to 1963. He has been credited with driving the postwar transformation of UC Berkeley's electrical engineering department from the handbook era into a modern science-based program. He led in recruiting many outstanding faculty members and students, and fostered a culture of excellence and cooperation that characterizes the department to this day. Whinnery earned a national reputation in matters of engineering education and played a key role in the creation of the national Commission on Engineering Education.

During Whinnery's four-decade academic career at UC Berkeley, he was given the rare honor of being named University Professor, a special designation as a professor-at-large for all University of California campuses, which is considered the UC system's most prestigious recognition of scholarship. Only 36 faculty members, 14 of them from UC Berkeley, have been given that title since it was first awarded in 1960.

During leaves from Berkeley, Whinnery held positions as head of the Microwave Tube Research Division of the Hughes Aircraft Company from 1951 to 1952, participated in research in quantum electronics at Bell Laboratories in New Jersey from 1963 to 1964, and held visiting professorships at UC Santa Cruz and Stanford University. In 1959, he held a Guggenheim Fellowship at the Swiss Federal Institute of Technology (ETH Zurich).

In 1992, Whinnery's research contributions, excellence as an educator and record of service earned him the National Medal of Science, the nation's highest scientific honor, which was bestowed by President George H. W. Bush. The many other awards and honors Whinnery won over his lifetime include the Founder's Award of the National Academy of Engineering, the Medal of Honor of the Institute of Electrical and Electronics Engineers, the Lamme Medal of the American Society for Engineering Education, the Berkeley Citation, and the Distinguished Engineering Alumnus Award. He also earned the uncommon distinction of being elected to both the National Academy of Sciences and the National Academy of Engineering, and he served on the Science and Technology Committee on Manned Space Flight of the National Aeronautics and Space Administration (NASA) for the Apollo Space Program. Friends and colleagues point out that, despite his achievements, Whinnery remained remarkably unassuming.

In 2007, 20 years after Whinnery retired from UC Berkeley, the Department of Electrical Engineering and Computer Sciences dedicated a room in Cory Hall as the John R. Whinnery Room.

Outside his professional life, Whinnery was known for his love of writing poetry and children's stories, cultivating fine wines, and hiking in the mountains. He was an enthusiastic golfer, and he loved spending weekends on California's north coast with his family and friends.

Whinnery was preceded in death in 2007 by Patricia, his wife of 63 years. He is survived by three daughters, Carol Whinnery of Torrance, California; Dr. Cathy Whinnery of Berkeley; and Barbara Whinnery of Santa Monica; and three granddaughters.

Theodore Van

Duzer
2009

Charles K. Birdsall