



E. H. Heston

EBERHARDT RECHTIN

1926–2006

Elected in 1968

“For developments in missile and space technology.”

BY WANDA M. AUSTIN

EBERHARDT RECHTIN was assistant director of the Jet Propulsion Laboratory (JPL); Assistant Secretary of Defense; chief engineer of Hewlett-Packard; president and chief executive officer (CEO) of The Aerospace Corporation from 1977 to 1987; professor of industrial and systems engineering, aerospace engineering, and electrical engineering systems at the University of Southern California (USC); and a principal proponent of making system “architecting” a profession. Dr. Rechtin died on April 14, 2006, at the age of 80.

The adjective “visionary,” which is sometimes used to describe the careers of pathbreaking engineers, could scarcely be more applicable than in recounting Rechtin’s achievements. He was a principal architect of NASA’s Deep Space Network, which ultimately enabled us to communicate with distant planetary spacecraft, and his contributions to the field of systems architecture are used by engineers throughout the world. During his presidency at Aerospace, the Global Positioning System (GPS) was first activated following many years of research and development. Rechtin realized the possibility that GPS could be used for much more than its initial military and defense applications; today, GPS is used in virtually every facet of our daily lives. Above all, Rechtin was firmly committed to applying his considerable knowledge and skills to improving

and maintaining the defenses and national security interests of the United States. He considered these efforts his personal contribution to securing democracy against totalitarianism.

Rechtin was born January 16, 1926, in East Orange, New Jersey, the son of a naval architect and a marine engineer. He received his B.S. (honors, 1946) and Ph.D. (cum laude, 1950) in electrical engineering from California Institute of Technology (Caltech). He served in the U.S. Navy from 1943 to 1946 and remained an officer in the Naval Reserve until 1958.

In 1948, while still working on his doctorate, Rechtin began work for the National Aeronautics and Space Administration (NASA) JPL, where he remained until 1967. His tenure at JPL coincided with the dawn of the Space Age, and his work on the Deep Space Network was complemented by his participation in other NASA projects. The Deep Space Network is a worldwide array of large-dish antennas that can track radio signals that originate millions of miles away in space. The network became operational in the early 1960s and was used to help transmit images from the Moon during the Apollo landings. Rechtin remained a lifelong advocate of space exploration, insisting that humans had reached a point in history at which they needed to be part of a system greater than anything here on Earth.

In 1967, Rechtin became the director of the U.S. Department of Defense (DOD) Advanced Research Projects Agency, which was later renamed Defense Advanced Research Projects Agency (DARPA). He subsequently held posts as principal deputy in the office of Defense Research and Engineering (1970) and assistant secretary for telecommunications (1972).

Rechtin left DOD in 1973 to become chief engineer at Hewlett-Packard, where he remained until 1977, the year he was elected president and CEO by the board of trustees of The Aerospace Corporation in El Segundo, California. Aerospace is a federally funded research and development center that operates in support of national security, civil, and commercial space programs.

During his tenure at Aerospace, Rechtin expanded the corporation's work on national security space programs and continued its existing advisory role to the U.S. Air Force on

project development for a variety of defense-related space systems, such as GPS. Rechtin retired from Aerospace in 1987 and was president emeritus at the time of his death. After his retirement, he said that if he was remembered for only a single achievement during his career at Aerospace, he hoped it would be for expanding career opportunities for women and minority employees during his presidency.

That same year (1987), Rechtin was named professor of engineering at USC, where he was a tireless advocate for recognizing systems architecting as a distinct discipline; he established the first program in systems architecting within the engineering department. Rechtin retired from teaching in 1994 as professor emeritus of electrical engineering and received an honorary doctorate from USC in 2005. In 2007, the USC Viterbi School of Engineering initiated an annual Rechtin Keynote Lecture in honor of his contributions to engineering.

Rechtin was elected a member of the National Academy of Engineering (NAE) in 1968. He was also a fellow of the American Institute of Aeronautics and Astronautics (AIAA), Institute of Electrical and Electronic Engineers (IEEE), and the American Association for the Advancement of Science. He was a member of the International Academy of Astronautics, and the Institute of Environmental Sciences.

He received numerous awards and honors during his career, including the IEEE Alexander Graham Bell Medal (1977); NASA Medal for Exceptional Scientific Achievement (1965); Distinguished Public Service Medal (1973), awarded by DOD; the AIAA Robert H. Goddard Astronautics Award (1991) and Aerospace Communications Award (1969); Pioneer Award from the International Council on Systems Engineering; CalTech Distinguished Alumni Award (1984); and the Navy Distinguished Public Service Award (1983).

Rechtin's services were often sought in an advisory capacity because of his wide-ranging expertise. He was extremely proud of his membership on the U.S. Air Force Scientific Advisory Board and his service on advisory panels of the North Atlantic Treaty Organization (NATO). He also chaired the Chief of Naval Operations Industrial Advisory Committee

on Telecommunications and the Naval Studies Board of the National Research Council.

Rechtin was the author or co-author of scores of scientific and engineering technical papers during his long career. His books include *Systems Architecting: Creating and Building Complex Systems* (Prentice Hall, 1990) and (with Mark Maier) *The Art of Systems Engineering* (CRC Press, 1996) and *The Systems Architecting of Organizations: Why Eagles Can't Swim* (CRC Press, 1999).

An enthusiastic supporter of the arts and an accomplished musician in his own right, Rechtin played the violin, piano, and classical guitar. He loved chamber music and had participated in chamber music groups since his college years. A great improviser on the piano, he composed many pieces for the enjoyment of his family. A complement to his musical abilities was his considerable talent as a dancer. Rechtin was also an outdoor enthusiast, conservationist, and nature lover, and he enjoyed hiking in the High Sierras of California.

Rechtin was a longtime resident of Rolling Hills Estates, California. He was a loving husband to his wife of 55 years, Deedee, and a devoted father to their five wonderful children: Mark Rechtin of San Pedro, California; Andrea Rechtin of Albany, California; Julie Rechtin of Aiden, California; Nina Meierding of Ventura, California; and Erica Bauermeister of Seattle, Washington.

