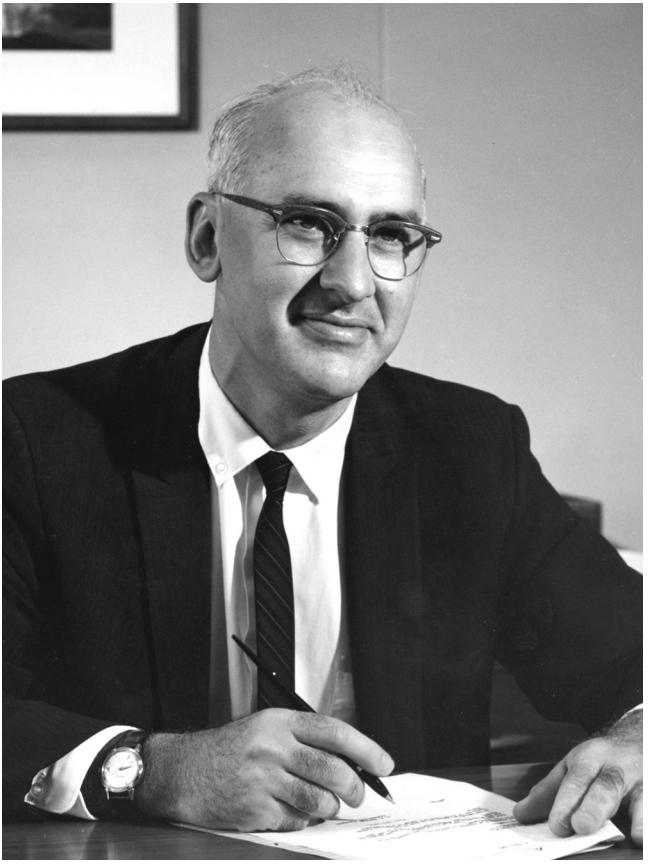

E. J. Barlow

EDWARD J. BARLOW

1920–2010

Elected in 1968

"For leadership in weapons systems and space systems studies."

SUBMITTED BY THE NAE HOME SECRETARY

EDWARD J. BARLOW, a renowned engineer in space systems studies, died February 3, 2010, at the age of 89.

Edward was born in East Orange, New Jersey, on September 5, 1920, to English parents Capt. John and Amy Bell Barlow of the Cunard steamship company. He won a competitive scholarship to Cooper Union School of Engineering in New York City and graduated summa cum laude in April of 1941 with a degree in electrical engineering. He went to work at Sperry Gyroscope Company in New York where he pioneered modifications to make shipboard compasses more accurate for the Navy when operating near the magnetic pole in the Aleutians.

At the conclusion of that project, Edward moved to the Sperry radar group on Long Island where he helped develop various types of radar, including Doppler radar for the war effort. In 1945, he carried out a technical mission on microwave radar and tube development in England and France. He was awarded the Sperry Graduate Scholarship for 1945–1946 and attended Columbia University.

As a hobby, Edward mastered the mathematics of quantum mechanics and relativity; he envisioned an experiment that could be used to test a specific aspect of the theory of relativity. He was invited to present his experimental design to the monthly Princeton Physics Department graduate seminar. Just as he was being introduced, Prof. Einstein came into the

room and sat in the first row. It was only then that Edward remembered that Einstein was on the Princeton faculty. Edward said that he "survived the presentation and a direct question from Einstein and got out with my life."

In 1948 Edward was recruited to join the fledgling RAND Corporation in Santa Monica, California, where he rose to be vice president of the Engineering Division specializing in air defense studies for the US Air Force. He distinguished himself for his ability to successfully manage large and complex studies that would affect the design of US defense forces for the ensuing decade. He managed a second defense study in 1954 that developed new philosophies and doctrines for air defense in response to the development of thermonuclear weapons. This study included work on anti-intercontinental ballistic missile (ICBM) early warning radar systems, wherein Edward specified the design of the specialized radar that was used in the Defense Early Warning network that was constructed across northern Canada. During his last two years at RAND, from 1958 to 1960, he was the director of interdisciplinary projects.

In 1960 Edward was recruited to join the newly formed Aerospace Corporation in El Segundo, California, where he was vice president and general manager of the engineering division, leading engineering studies on missile and satellite systems for the US Air Force and NASA. The corporation was organized and funded as a nonprofit company in the public interest to provide independent engineering reviews and objective leadership in the advancement of space science and technology for the government of the United States. In this work, Edward held high-level security clearances and, among other projects, helped develop the booster systems for the first orbital spy satellites in conjunction with Skunk Works at Lockheed in Sunnyvale, California. Another major project was the development of the Titan 3C heavy lift rocket system, which was "his baby." He also led the certification of the Titan missile for use in the Gemini program. He was in the blockhouse at Cape Canaveral for every launch and, on behalf of Aerospace Corporation as contractor, signed a document at T minus 30 seconds and counting that "the rocket will work."

In 1968, Edward was recruited by Varian Associates in Palo Alto to serve as vice president of the instrument division, which manufactured analytical instruments such as gas chromatographs and mass spectrometers in competition with Hewlett-Packard and PerkinElmer. He was successful in this private-sector job and retired in 1984.

During his career, Edward was a member of the President's Advisory Committee, Technical Capabilities Panel, the Advisory Panel on Aeronautics of the Office of the Secretary of Defense, and a special consultant to the Deputy Chief of Staff, Development, United States Air Force. He was chairman of the Aero-Space Vehicles Panel of the Air Force Scientific Advisory Board in 1960. He also served on the Space Technology Panel and the Ballistic Missile Defense Committee. He was a member of the Joint DOD/NASA Large Launch Vehicle Panel Group in 1961. He was elected to the National Academy of Engineering in 1968, and served for many years on the Report Review Committee of the National Research Council.

In the 1960s Edward was recognized by the city of Los Angeles for his work in civil rights and also by NASA for his service on the Rogers Commission that worked to help return the space shuttle to flight after the *Challenger* disaster. He was passionate about helping to return the space shuttle to flight because he was extremely interested in astronomy and cosmology, and the Hubble Space Telescope had not yet been launched. He knew that the Hubble would yield answers to major questions about the origins and age of the universe. He lived to be among the first humans to know the age of the universe at 13.7 billion years, plus or minus 200,000,000 years, and that Einstein was right, after all, about the cosmological constant, and that the universe is expanding under the influence of dark energy. He got the answers for which he worked most of his life to develop the rocket systems that would launch the great telescopes.

Edward was married for 50 years to the late Barbara Thompson Barlow. He is survived by his children, Jim, Anne, and John. He was a cold warrior who abhorred war and was a great American with a brilliant intellect and gift for both mathematics and management—a rare combination.