



*Wesley A. Kuhrt*

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1917-1988

By Anthony J. Demaria

Wesley A. Kuhrt (fondly known as "Wes"), a long-term pioneer in the nation's aerospace industry, died October 19, 1988, in a car accident in Bloomfield, Connecticut, at age seventy.

He retired from United Technologies Corporation (UTC) in 1982 as senior vice-president-technology after forty-two years with the company. He continued to serve the company during his retirement as a consultant and a representative to the board of directors of Westland, a British manufacturer of helicopters. UTC became part owner of Westland in 1986.

Mr. Kuhrt held a number of increasingly responsible positions with UTC. He served as director of research of UTC's Research Center from 1964 to 1967; president and executive vice-president of Sikorsky Aircraft from 1968 to 1974 and from 1967 to 1968, respectively; and vice-president-technology with UTC from 1974 to 1979. His technical leadership role was vital in keeping UTC at the cutting edge of aerospace technology as well as in fields that were new to the corporation.

For almost two generations, he played an instrumental role in creating, formulating, and administrating research programs in gas turbine engines, rocket propulsion, nuclear propulsion, space nuclear power, high-power lasers, boron

filaments, composite materials, propellant chemistry, and fluid mechanics. In 1984 the UTC board of directors and senior management honored him by naming a new optics facility in West Palm Beach, Florida, the Wesley A. Kuhrt Optics and Applied Technology Laboratory.

Mr. Kuhrt was born in 1917 in New Haven, Connecticut, and grew up in Longmeadow, Massachusetts. He entered the Massachusetts Institute of Technology in 1935 and graduated with a B.S. and M.S. in aeronautical engineering in 1939 and 1940, respectively. He joined Pratt & Whitney Aircraft Division in 1940 and in early 1941 transferred to United Aircraft Research Laboratories (now United Technologies Research Center).

Due to diabetes, he was not able to join the armed services during World War II. He married Elaine Mae Jensen in 1946. They had three sons and two daughters. Mr. Kuhrt was a religious man and attended several different churches throughout his life. About 1978 he and his wife started a church in their home in Avon, Connecticut, along with four other couples. From this beginning the Valley Community Baptist Church in Avon was built, and between four and five hundred people now attend weekly services.

He enjoyed building things with his hands and had an extensive tool collection. He and his wife also enjoyed vacationing in Hawaii during the winter and the Adirondacks during the summer, and he played tennis and enjoyed golf. He was a devoted family man.

Mr. Kuhrt served in various capacities at the Research Laboratories, becoming chief of research activities in 1958, assistant director of research in 1963, and director of research in 1964 with overall responsibility for the direction and management of United Aircraft's central research organization. Under his leadership from 1958 to 1967, when he left to become executive vice-president of Sikorsky Aircraft, the Research Laboratories underwent dynamic program content growth and facilities expansion. The staff increased by approximately 30 percent, the floor space quadrupled, and

program emphasis shifted from a sole focus on mechanical engineering and aerodynamics to solid state physics, plasma physics, lasers, electromagnetics, microelectronics, material sciences, and advanced computing.

At Pratt & Whitney Aircraft, he made original contributions to the technology of air-cooled reciprocating aircraft engines, particularly with regard to supercharger systems, cooling requirements, and the interrelated thermodynamic effects of cooling and power output. During his early years at the Research Laboratories, he continued to make original contributions in the field of ejector cooling and other sophisticated concepts for advanced high-power reciprocating engines, including the use of cooling fans for the B-35, B-36, and P-47N aircraft and for helicopter engine installations.

He was instrumental in formulating and administering early gas turbine research programs at the Research Laboratories and in transferring this technology to Pratt & Whitney Aircraft Division. He was subsequently responsible for advanced research programs on axial-flow compressors, turbines, afterburners, and other axial-flow jet engine components that, in part, formed the basis for Pratt & Whitney's successful development of the twin-spool J-57 jet engine. He also helped establish the Research Laboratories gas dynamics laboratory, which has continued to serve the corporation since 1947.

Mr. Kuhrt was responsible for the administration of ramjet programs at United Aircraft Corporation (now United Technologies Corporation) and made original contributions to the design and evaluation of these propulsion systems. He also organized the original studies of nuclear engine cycles for aircraft propulsion. He also made significant contributions to studies of boron hydride fuels and to Air Force programs evaluating the feasibility of liquid-hydrogen fuel cycles that took advantage of the unique thermodynamic properties of hydrogen for optimizing propulsion system weight and specific power output. These efforts stimulated his invention in 1957 of a related cycle for a regeneratively

cooled liquid hydrogen-oxygen rocket engine in which gaseous hydrogen generated by the nozzle cooling process is used to drive the propellant pumps. This pioneering concept formed the basis for the design of the Pratt & Whitney Aircraft RL-10 rocket engine, which has proven to be uniquely successful on the Centaur space vehicle.

He also was instrumental in establishing and implementing the Research Laboratories' program on gas-core nuclear rockets. In the mid-1960s he established programs at the Research Laboratories for investigating high-power lasers, boron filaments, and composite materials.

Based on the original laser activity carried out by the Research Laboratories, the Pratt & Whitney Aircraft Division entered the design and development of high-power gas dynamic lasers and electro-optics system. The United Technologies Optical Systems organization, now under the Hamilton Standard Division of UTC, is the result of this early electro-optics system effort.

At Sikorsky he applied advanced technology in helicopter designs to improve the basic performance of these aircraft. These design techniques improved helicopter maintainability and reliability with a significant reduction in cost of ownership. Based on this effort, the Sikorsky UTTAS helicopter won for the company multibillion dollar contracts under the Army/Navy helicopter program. Under his guidance a new level of aerodynamic performance was made possible with the use of titanium spar and composite blade structure.

Mr. Kuhrt served on the board of trustees of Barrington College, Barrington, Rhode Island, and Northern Energy Corporation of Boston, Massachusetts. He was a member of the EPCOT Energy Advisory Committee; board of governors of the National Space Club; and the Subcommittee on Technology Policy (Research and Policy Committee) of the Committee for Economic Development, Washington, D.C. He also was a member of the American Helicopter Society, American Association for Advancement of Science, Army Aviation Association of America, National Space Club, National

Aeronautic Association, Navy League of the United States, and American Defense Preparedness Association. For his many technical contributions, he was named a fellow of the American Institute of Aeronautics and Astronautics and in 1980 elected a member of the National Academy of Engineering.