



## ROBERT A. FUHRMAN

1925–2009

Elected in 1976

*“For contributions to the design and development of the Polaris and Poseidon underwater launch ballistic missile systems.”*

BY SHERMAN N. MULLIN

SUBMITTED BY THE NAE HOME SECRETARY

**R**OBERT ALEXANDER FUHRMAN, retired vice chairman, president, and chief operating officer of Lockheed Corporation, died on November 21, 2009, in Pebble Beach, California. He was 84 years old.

Bob was born on February 23, 1925, in Detroit, Michigan, and was educated in the Detroit public school system. He enlisted in the U.S. Navy in 1942, which selected him to attend the University of Michigan. He received a bachelor of science degree in aeronautical engineering in 1945. Bob never forgot what the Navy and Michigan did to enable his career. In his words, “I graduated in a sailor suit, was commissioned, and sent off to aviation officers school, where I learned how to analyze a jet engine, take it apart, and put it back together.” He was then assigned to the Naval Air Test Center, Patuxent River, Maryland, as a flight test project engineer, an exciting assignment for a 21-year-old junior Navy officer. He cherished this experience for the rest of his life.

Discharged from the Navy in 1949, Bob became a civilian instructor at the Navy Test Pilots School and concurrently attended the University of Maryland, receiving a master of science degree in fluid mechanics in 1952.

Recruited by Ryan Aeronautical Company, Bob, his wife Nan, and their two children moved to San Diego. He contributed to the design of experimental vertical takeoff aircraft and other advanced aircraft designs, progressing to chief technical engineer. However, he did not see the future he desired and decided to move on.

Recruited in 1958, Bob joined the rapidly growing Missile Systems Division of Lockheed Missiles and Space Company in Sunnyvale, California, as systems engineer on the Polaris fleet ballistic missile project, at that time the highest-priority project in the U.S. Navy. This was a major turning point in his career, moving from traditional aeronautical engineering to system design of missile and space systems, initially the development of pioneering submarine-launched ballistic missiles. He promptly developed a productive relationship with the Polaris technical director, Captain Levering Smith, USN (1910–1993), later vice admiral. Captain Smith made their mutual objective clear: Make decisions, based on system design trade studies, to deliver Polaris missiles ready for installation in the first fleet ballistic missile launching submarine, the *USS George Washington*, by June 1960. The Navy–Lockheed Polaris program team achieved this. In July 1960 the Navy submarine *USS George Washington* successfully launched two Polaris A1 missiles and in November was operational at sea in the U.S. Atlantic Fleet. Bob became chief engineer in 1966 and vice president and general manager in 1969.

In 1970 Bob was abruptly appointed president of Lockheed Georgia Company in Marietta, where the C-5A Galaxy transport aircraft, being developed for the U.S. Air Force, had encountered major problems. Working with the Air Force, he restructured the program and it moved successively to completion. He was proud of taking a C-5A aircraft to the Paris Air Show in 1971 and showing it to the world.

He was then given another tough assignment, becoming president of Lockheed California Company in Burbank, where the L-1011 TriStar commercial airliner program was in deep trouble, primarily due to the sudden 1971 bankruptcy of jet engine supplier Rolls Royce. This had led to the L-1011

production line being shut down and massive layoffs. Under these conditions Bob took over leading the recovery. With the British government rehabilitating Rolls Royce, he contributed to getting L-1011 TriStar development completed and initiating production deliveries to several major airlines. He was also responsible for two major Navy aircraft programs: development of the S-3A Viking carrier antisubmarine warfare aircraft and production of the P-3C Orion maritime patrol aircraft. As an inspiring leader of a company under great pressure, he reached out continuously to recognize talent and grow the fundamental strength of the company. His humility, down-to-earth attitude, and broad knowledge gained him wide respect and restored morale in the company.

In 1973 Bob returned to Lockheed Missiles and Space Company as executive vice president, becoming president in 1976. Over the next decade he was the inspired leader of this major developer and producer of classified space systems, missile systems, and a wide range of advanced technologies. He thrived on competition for new systems development programs and was pleased when Lockheed won the National Aeronautics and Space Administration's Hubble Space Telescope program in 1977. He mentored many outstanding engineers, two of whom ultimately became chief executive officers of Lockheed and its successor in 1995, Lockheed Martin. Needless to say, both were systems engineers of the first rank.

Bob was elected to Lockheed's board of directors in 1980, serving to 1990. He became president and chief operating officer of Lockheed Corporation in 1986, moving to the new corporate offices in Calabasas, California. He oversaw four large operating groups: aeronautical systems, missiles and space systems, electronic systems, and information systems. He retired in 1990, after 38 years at Lockheed. Throughout this period he made significant contributions to the transformation of Lockheed from an aircraft company to becoming one of the major aerospace corporations in the world.

Like one of his Lockheed engineering heroes, Willis Hawkins (1913–2004), Bob Fuhrman never really retired. He

was an active senior advisor to Lockheed Corporation and its successor, Lockheed Martin Corporation, to the end of his life. His extensive work from 1991 to 2009 covered a wide range, primarily in support of the U.S. Department of Defense. In Bob's view an engineer's responsibility was unbounded. He was much sought after as an advisor to the government because of his ability to look at complex issues objectively. He was viewed as a true gentleman, strategic thinker, and roll-up-your-sleeves contributor. Some of his major contributions follow.

He was on the Defense Science Board for several years, participating in numerous major studies, chairing several of them. In 1992, commissioned by the director of Central Intelligence, he chaired a classified task force to improve the functioning of the National Reconnaissance Office (NRO), particularly in the area of its direct support of operational U.S. military forces. He advocated that the existence and purpose of the NRO be made public, which it was. In the 1990s he served for six years on the Defense Science Board Task Force on Acquisition Reform, where he spoke with authority and carried much weight with his peers.

For the National Research Council, Bob organized the Air Force Studies Board and was its chairman for several years. Later he led a task force on the Air Force C-17 transport aircraft program, which made significant contributions to resolving its technical and program management problems.

He served on the board of directors of the Charles Stark Draper Laboratory (formerly the Instrumentation Laboratory of the Massachusetts Institute of Technology).

Throughout his career Bob was a dedicated member of the American Institute of Aeronautics and Astronautics (AIAA). He was elected a fellow and later an honorary fellow. In 1978 he was the AIAA von Karman Lecturer in Astronautics. He was the AIAA's president in 1992. When asked to serve, he said *yes*, that it was his duty to serve his profession. As president he traveled extensively and achieved improved coordination with the International Aeronautical Federation and with the Royal Aeronautical Society, of which he was a fellow. The

AIAA staff loved him because of his positive attitude and willingness to cooperate.

Bob Fuhrman was one of the foremost aerospace systems engineers and managers of the 20th century, with major contributions to the development of missile systems, space systems, electronic systems, military aircraft, and commercial aircraft. He pioneered systems engineering as a fundamental and pragmatic technical and management discipline, essential to achieving the technical, schedule, and cost objectives of aerospace programs of high national priority.

He was an optimistic, inspiring leader and a determined problem solver throughout his career. For over three decades he nurtured a flock of engineers and managers whose technical achievements were diverse and significant. For the two decades that followed, he was continually involved as a trusted advisor to the U.S. government on defense policy matters, particularly acquisition of new systems. He was widely respected for his disciplined contributions. He was much loved by the staff members who supported these efforts.

A longtime resident of Pebble Beach, California, Bob was devoted to his growing family. His first wife, Nan McCormick Fuhrman, died in 1988. He is survived by his second wife, Nancy Richards Fuhrman; his sister, Eloise Schmidt; three children from his first marriage—Lee Ann Kahl, Richard Fuhrman, and William Fuhrman; two stepchildren—Michelle Aliotti and Scott Richards; nine grandchildren—Alexis, Brennan, Robert, Rebecca, Ricky, Ryan, Ali, Madalynn, and Gaspare; and one great-grandchild, Ryder.