



J. Robert Naka

F. ROBERT NAKA

1923–2013

Elected in 1997

“For the development of national security systems and for contributions in materials and sensor technologies for advanced military systems.”

BY CURT H. DAVIS

SUBMITTED BY THE NAE HOME SECRETARY

FUMIO ROBERT NAKA, former deputy director of the National Reconnaissance Office (NRO) and a pioneer in the development of stealth technology for concealing military aircraft from enemy radar systems, passed away at the age of 90 on December 21, 2013, in Concord, Massachusetts.

Bob, as he was called by his family and friends, was born July 18, 1923, in San Francisco to Kaizo and Shizue Kamegawa Naka. He grew up in Los Angeles and lived most of his adult life in Boston and Washington, DC.

Although his father wanted him to study law, Bob was interested in engineering and enrolled in the University of California, Los Angeles (UCLA) at age 16. His sophomore year was interrupted, however, by World War II when he and his family were imprisoned in 1942 at the Manzanar Relocation Center for Japanese-American citizens. About this difficult time in his life he said, “It was very depressing to be labeled as a distrusted, unwanted American in the only country I ever knew.”

After spending nine months in the military-style internment camp, Bob was released in 1943 through the efforts of the National Japanese American Student Relocation Council and the American Friends Service Committee so that he could attend the University of Missouri in Columbia. There,

he recalled, "I was just another kid on campus. I made good grades and was very popular. The experience made me whole again, for which I have been very grateful to the American Friends Service Committee." He graduated with a bachelor's degree (1945) and went on to complete his master's degree (1947), both in electrical engineering, at the University of Minnesota.

In 1951 he earned his doctorate in electron optics from Harvard University and immediately accepted a position with the Project Lincoln Presentation Group (later Lincoln Laboratory) at the Massachusetts Institute of Technology. He led a very small group of engineers that invented the first electronic circuit to detect analog radar signals for the Distant Early Warning (DEW) line radars deployed across the Arctic regions of North America. This circuit replaced the necessity of human visual detection of approaching enemy aircraft on radar scopes.

He also invented the radar concept of "cumulative probability of detection," which he applied to the beam scan sequence of large, fixed detection antennas for the Ballistic Missile Early Warning System (BMEWS) to warn of a possible attack from Soviet intercontinental ballistic missiles (ICBMs). And in October 1957 he was instrumental in designing the Millstone Hill radar that tracked Sputnik, the world's first artificial satellite. Engineers later employed this radar transmitter design for BMEWS tracking radars at the Thule Air Force Base in Greenland, Clear Air Force Station in Alaska, and Royal Air Force station in Fylingdales, England.

Bob's deep expertise in radar systems led to his selection in 1956 to work in secret on the U-2 reconnaissance aircraft. His pioneering contribution to that effort was the development of classified methods to reduce the aircraft's radar cross section to help it evade detection by Russian radar systems. As one of the leading pioneers of this new "stealth technology," he was later summoned to the top secret Project Oxcart, where he worked on radar-absorbing materials applied to the Lockheed A-12 reconnaissance aircraft, which ultimately became the famous Lockheed SR-71 Blackbird.

In 1959 he accepted a position with the MITRE Corporation to form a research laboratory. Eventually, he became technical director of MITRE's Applied Science Laboratories, where he was responsible for about a quarter of the company's business, overseeing departments for radar, communications, and data processing, among others.

In 1968 the commanders of Air Force Systems Command and Air Defense Command appointed Bob director of a highly classified study to improve the surveillance of objects in space. In one of the most comprehensive studies of its type ever performed, Bob's team compared the capabilities of projected space-based assets with aircraft- and ground-based alternatives and concluded that space-based systems were the most cost-effective for early warning and space surveillance. The group's final report recommended a system that, after several iterations, eventually became the Space-Based Infra-Red System (SBIRS). SBIRS is used to this day to provide early warning of the launch of ICBMs and other ground-based missile systems.

In 1969 the president of MITRE, John McLucas, became under secretary of the Air Force and director of, at that time, the top secret National Reconnaissance Office (NRO). Bob joined him with the public title of deputy under secretary of the Air Force for Space Systems, but he actually served as deputy director of the NRO.

During his three years there, Bob oversaw the launch of several new national security space systems and chaired many technical committees. As chair of the "Naka Panel," he worked to devise, and then implement, a successful strategy that significantly improved overhead collection of foreign signals intelligence. He was widely recognized for his ability to manage and encourage disparate NRO program offices to collaborate, but he considered the increase in the number of days in orbit of national photoreconnaissance satellites his greatest achievement at the NRO.

He then spent three years (1972–1975) as director of detection and instrumentation systems at the Raytheon Corporation, while also serving on the Air Force Studies Board

of the National Research Council. He was next appointed chief scientist of the US Air Force and served in that position until 1978, when he became corporate vice president of the Science Applications International Corporation (SAIC).

From 1978 to 1988 he also served as a director, consultant, or member of a number of high-technology aerospace companies and defense groups—the Institute for Defense Analyses, Simmonds Precision Products, Hercules Aerospace Corporation, GTE Government Systems Corporation, the Aerospace Corporation, CAE Electronics, and CERA Incorporated, where he was president and CEO through 2000. He was also a member and vice chair of the Air Force Scientific Advisory Board (AFSAB) for 20-plus years between 1975 and 1998.

Over more than a half-century Bob was active on numerous industrial, scientific, and government advisory boards, including the NASA Space Program Advisory Council. In the early 1990s he chaired an MIT summer study on space-based radar that thoroughly examined use of satellite radar to track aircraft, including stealth aircraft, and in 1996–1997 he chaired an AFSAB ad hoc committee that drafted a significant report on *Space Surveillance, Asteroids and Comets, and Space Debris*. He also served on the Global Positioning System (GPS) Independent Review Team (IRT), whose charter called for in-depth study of GPS-related issues and recommendation of solutions to appropriate military officials.

Bob's work was recognized with a variety of honors during his lifetime. He was selected for the US Air Force Exceptional Service award three times (1972, 1975, 1988), and in 2009 was inducted into the Air Force Space Command's Space and Missile Pioneers. He received the University of Missouri's Honor Award for Engineering in 1971, its Faculty Alumni Award in 1984, and an honorary doctor of science degree in 2008.

The incredible story of Bob's life and career—from government-enforced incarceration in a Japanese-American internment camp in World War II to stealth technology pioneer and deputy director of the NRO—is both sobering and uplifting. At the outset of his adult life he was perceived as a

threat to his country, completely distrusted, and imprisoned as a result. But through the kind efforts of some of his fellow countrymen, he was given both a reprieve and an opportunity. He seized that opportunity and, in a very short time, was entrusted with his country's greatest secrets during the height of the Cold War. Through it all he demonstrated admirable personal strength, perseverance, a high degree of intellect and adaptability, and a willingness to work hard and collaborate with others on matters of considerable importance to our national security.

Reflecting on his mindset during those years, Bob described his motivation: "What made me work for the government that had deprived me and my family of civil liberties? The issue was survival, not bitterness. America is the only country I had and knew. I had to succeed."

Bob was a wonderful human being, kind and generous, and his personal sacrifice and service to his country should never be forgotten.

He was preceded in death by his wife and college sweetheart, Patricia Neilon Naka (1923–2006), and is survived by their four children—David (and Betsy; Baltimore), Holly Walden (Farmington, CT), Michael (and Karen; Littleton, MA), Peter (and Jean; Fairfax, VA)—and nine grandchildren: Alex, Isabelle, Adalyn, Zhenya, Elizabeth, Jeremy, Matthew, Naomi, and Marie.