



# F. Robert Naka

## *Pioneer of Stealth Technology*

B.S. EE '45

F. Robert Naka has been trusted with some of this country's most closely guarded secrets despite the fact that in 1943 he was forcibly imprisoned by the U.S. government in the Manzanar Japanese "relocation" camp in California. He was released after 9 months and allowed to study at the University of Missouri where he ulti-

mately received a B.S. degree in Electrical Engineering in 1945. Naka is widely regarded as an expert in reconnaissance, surveillance, and communications. He worked for more than 40 years with great distinction in defense and intelligence for this nation. During the 1950's and 1960's he worked on radar technologies for the U2 spy plane and was the sole designer of radar absorbing "stealth" material used on the SR-71 Blackbird reconnaissance aircraft. In the 1970's Naka served as the Deputy Director of the National Reconnaissance Office (NRO) and as Chief Scientist for the Air Force. Naka has served on numerous government advisory and scientific boards, including the NASA Space Program Advisory Council and the U.S. Air Force Scientific Advisory Board. He is a member of the National Academy of Engineering and received the Air Force Exceptional Service Medal on four separate occasions.



F. Robert Naka,  
the father of  
stealth technology

## Military Intelligence

Pioneer of classified stealth technology was once classified an enemy.  
By Teresa Tignor Gilbreth

**“He was removed from his family and familiar surroundings, came to Columbia, got right to work, applied himself diligently, and became a leader in his field.”**

--Charles Zurheide, BS EE '44,  
friend of Bob Naka

F. Robert Naka, BS EE '45, has been trusted with some of the country's most closely guarded secrets. Widely regarded as an expert in reconnaissance, surveillance, communications and command systems, he served six years in the U.S. Air Force, including three years as chief scientist. Working closely with the country's intelligence community, he developed stealth technology for the famous U-2 spy plane. His status as one of the “most trusted Americans” soared when he ran the National Reconnaissance Office—the secret spy satellite organization that the U.S. government would not admit existed.

But his status in 1942 was a different story.

### An American Prisoner

A UCLA sophomore pre-engineering major during World War II, Naka was one of approximately 120,000 Japanese and Japanese-Americans on the West coast who were forcibly removed from their homes and relocated to camps in the interior of the country.

Japan bombed Pearl Harbor in December of 1941, and in February 1942 then President Franklin Roosevelt signed an executive order excluding all people of Japanese ancestry from America's Pacific coast.

“It was very depressing to be labeled as a dis-

trusted, unwanted American in the only country I ever knew. I do not have any pictures of this experience as they took our cameras away.”

Born in California, Naka was included in the 62 percent of detainees who were U.S. citizens. First-generation Japanese immigrants, Naka's parents were prevented from applying for citizenship by the Gentleman's Agreement of 1907 and the Alien Exclusion Act of 1924. Naka's father had earned a master's degree in economics and worked in a trans-pacific passenger and freight steamship company in Los Angeles. Naka and his parents were taken to the Manzanar Relocation Center in Owens Valley, Calif.

“Relocation center” was a euphemism for an American concentration camp. There was a barbed wire fence around the camp and armed soldiers in watchtowers with search lights at night. The labor in the camps was supplied by the inmates. My first job was as a junior cook, and my last job was as foreman of the diesel oil distribution crew.”

“About 30 barracks were grouped into a block with families living together in one room about 30 ft. by 30 ft. in area. In the middle of the block, there were two latrine and shower buildings, one for men and one for women. For modest Japanese women, this was a source of agony and embarrassment. There was a mess hall in one corner of the block. We lined up for everything.”

## An American Student, Again

During that time, the American Friends Service Committee, or Quakers, formed the National Japanese American Student Relocation Council and persuaded colleges outside the exclusion areas to take interned college students into their communities and vouch for their safety. After one month of imprisonment, the Quakers had arranged for Naka to enroll at Ohio State University in the fall. These plans fell through when Ohio State students rioted in objection to Japanese Americans being on campus.

"The student riot was finally quelled when a Japanese-American student got up in his saddle shoes and said, 'We are just like you.'"

In February 1943, after nine months of imprisonment, Naka enrolled in the University of Missouri-Columbia College of Engineering.

"I felt the committee and the University of Missouri had taken on a brave act in a time of need. But I also felt trepidation of further mistreatment. As it turned out, when I arrived at Missouri, I was just another student."

There were a handful of Japanese-American students at MU, but not all had come through a relocation center like Naka had. Jesse Wrench, the professor designated to watch over them, invited the students to his home for a Sunday afternoon tea.

Naka was a successful student at MU, and he says the engineering professors were very complimentary and supportive. He worked his way through school waiting tables and as a student assistant in math, grading papers for the head of the math department.

He quickly made friends and got involved in extracurricular activities. He was business manager of Missouri Shamrock magazine and member of the Engineers' Club and student chapter of the American Institute of Electrical Engineers. He was elected to Tau Beta Pi and president of its Missouri Alpha Chapter and to the Druids, he was made a Knight of St. Patrick Magna Cum Laude. Naka is a member of Sigma Xi.

His former classmate, Charles Zurheide, BS EE '44, remembers that at that time the campus was filled with ASTP (Army Specialized Training Program) trainees and there was potential for significant conflict like there was in Ohio. Zurheide has admired his friend and colleague over the years. "He was removed from his family and familiar surroundings, came to Columbia, got right to work, applied himself diligently and became a leader in his field."

Zurheide is retired chairman of the board of Zurheide-Hermann, Inc., a consulting engineering firm in St. Louis. As engineering alumni, they have served together on the For All We Call Mizzou campaign leadership team and the Dean's Engineering Advisory Council, of which Naka was a founding member.

Naka graduated from MU in 1945, just as the war ended. His parents were released from Manzanar

Relocation Center, but the only job his father could find was working as an accountant in a Chicago Hotel. He was underemployed, but at least employed. Some compensation for property losses was paid in 1948, but most internees were unable to fully recover their losses.

"The evacuations were hasty and harsh. They [Japanese and Japanese-Americans] could only take what they could carry, so forced sales of possessions at prices far below true value were common. Sometimes they only had three days notice before relocation."

## An American Dream

Naka earned a master's degree in electrical engineering at University of Minnesota, where he met his future wife, Patricia Ann Neilon, and fell in love with her sweet Virginian accent. She was born in Minneapolis and raised in Roanoke, Va. He then went to Harvard University and earned a doctorate in electron optics in 1951.

"I believe I lived out my version of the American Dream. I married my college sweetheart, we raised four children, we both have had successful professional careers, contributed to our community and achieved a comfortable lifestyle."

His first job was at Massachusetts Institute of Technology's Lincoln Laboratory, where he led the team that developed the first "automatic analog radar signal detection" equipment to be installed in a radar fence along the polar North American land mass to warn of possible secret bomber attacks. Then he was asked to solve some problems on the U-2 high altitude spy plane.

"In 1956 I was still working at Lincoln Laboratory when Edwin H. Land, the inventor of Polaroid cameras, approached the director and said, 'We have a terrible problem, and I want to meet three of the smartest people you have on electromagnetics and radar.' Suddenly I was thrust into the U-2 program, which supposedly only 200 people knew about."

He joined the MITRE Corporation in Bedford, Mass., in 1959, and in 1961 he was asked to visit Lockheed's Skunk Works to solve a problem on a new Mach 3 reconnaissance aircraft the company was producing for the CIA. As a result, he was the sole designer of electromagnetic materials for one aspect of radar cross section (RCS) reduction, now often referred to as "stealth technology," of the Oxcart aircraft from which the two-seat SR-71 was derived.

From 1969 to 1972 he was deputy director of the National Reconnaissance Office. His activities there remain largely classified, but he did begin research on what became a major new imagery satellite.

After returning to industry for a few years, as director of detection and instrumentation systems at the Raytheon Company in Massachusetts, he became the 20th chief scientist of the Air Force in 1975. His first job as chief scientist

was to look at a new issue facing the Air Force—the question of whether or not it should continue to operate its own strategic reconnaissance aircraft and what it should do with them.

During his tenure, Naka in many ways became the chief scientist for U.S. Army in Europe, improving cooperation between the Army and the Air Force. He served more than three years, longer than any previous chief scientist.

Naka has served on the boards of directors of industrial firms and on numerous government advisory and scientific boards, including the NASA Space Program Advisory Council and the U.S. Air Force Scientific Advisory Board. He is a senior member of the Institute of Electrical and Electronics Engineers, a member of the National Academy of Engineering and Fellow of the Explorers Club. He has received the Air Force Exceptional Service Medal four times.

Naka retired in 1988 from his position as vice president of engineering, GTE Government Systems Corporation, a communications company. In 1982, GTE was almost totally vertically integrated, producing integrated circuit chips, circuit boards, communications switching stations, transmitters, transmission systems, receivers and telephone instruments. He persuaded the president of his company to invest another \$25 million for an application-specific integrated circuit design facility to complete the vertical integration.

## An American Apology

In 1988, the same year Naka retired, President Ronald Reagan officially apologized for the internment on behalf of the U.S. government, saying that government actions were based on "race prejudice, war hysteria, and a failure of political leadership." Beginning in 1990, the government paid reparations to surviving internees.

Naka received a check for \$20,000 tax-free, money he and his wife didn't need. They gave half of it to the Quakers and half to MU, along with an additional personal donation, to establish undergraduate scholarships. He is a member of MU Alumni Association, a Jefferson Club Fellow and a St. Patrick's Society Fellow. He received the 1971 Missouri Honor Award for Distinguished Service in Engineering and the 1984 MUAA Faculty-Alumni Award.

"My parents taught me to put more than my share back into the society that supported me."

Today, Naka serves as a consultant and a board member of industrial firms, and is president and CEO of CERA, Inc., an electromagnetics research company. His article, "National Security: Earth Observations and Support to Military Forces" was recently published in the Encyclopedia of Space Science and Technology by John Wiley & Sons, Inc.



Professor Curt Davis shows Naka plans for the new Geospatial Intelligence Center.

The Nakas live in Concord, Mass., and have a vacation home in Cape Cod, located on what is known as the Moors. They are extremely proud of their four children, whom they raised primarily in Boston, and their nine grandchildren. Their oldest son, David, is a Yale graduate who owns a law firm in Baltimore. Their daughter, Holly, has an MBA and works in the insurance industry in Farmington, Conn. Although one started out in mechanical engineering and the other in aeronautical engineering, their two younger sons, Michael and Peter, became electrical engineers, despite their father's objections. Michael lives in Burlington, Mass., and works in new product development for Sun Microsystems. Peter lives in Fairfax, Va., and works in telecommunications for Nortel Government Solutions.

## A New American Generation

Bob and Patricia Naka have asked their children about any bigotry or discrimination they may have had to endure in their lives as a result of being biracial, half Asian and half Caucasian. They were glad to learn that their children's experiences have been mostly positive.

"I would say our children melted right into the population."

*Note: Articles from Wikipedia and the University of Minnesota's Minnesota January-February 1998 issue and Inventing Tomorrow Fall 2000 issue contributed to this story.*