



Ruth McDavis

RUTH M. DAVIS

1928–2012

Elected in 1976

*“For contributions to computer science, particularly
information science technology.”*

BY C.D. (DAN) MOTE JR.

RUTH M. DAVIS, a pioneer in satellites and computers and the founder of the Pymatuning Group, Inc., which specialized in industrial modernization strategies and corporate technology development, died on March 28, 2012, at the age of 83. She was born in Sharpsville, Pennsylvania, to W. George and Mary Anna Ackerman Davis. In 1961 she married George Lohr, who passed away in 1994.

Ruth Davis set her life's course as a determined and innovative technical person when she was in high school by displaying no interest in the clerical or teaching jobs that awaited most girls growing up in the 1940s. She earned her BA in mathematics at American University in 1950, and her MA in 1952 and PhD in 1955 in mathematics at the University of Maryland College Park, where she was the first woman to earn a doctorate in mathematics. During the summers she worked at the National Bureau of Standards (NBS, now the National Institute for Standards and Technology) in College Park as a computer and software pioneer. Some of her earliest work on computers and software is preserved in the Smithsonian Institution. When she completed her doctoral program, she, not surprisingly, approached IBM for a job in the computer business but the company had only secretarial positions open for women at the time.

The IBM rejection led her to a position with Navy Admiral Hyman Rickover, who was in search of computer people to help him create the nuclear navy. She ended up writing the first computer codes for nuclear reactor design. In 2004 Ruth noted: "I would like to say that it was hard, as a woman, to get hired, but he was eccentric enough that it wasn't." She also noted, "He gathered six of us [women] from around the country. He didn't care if you were yellow, purple, green, or had five arms." After writing the nuclear reactor design code, her next task was to establish the Navy's first Command and Control Technology Organization. So at age 27, Ruth Davis became technical director of the new program to design a system for managing naval operations worldwide.

Her position with Admiral Rickover accelerated her professional career in public service, where she was already a pacesetter. She held management positions at the National Bureau of Standards, the Department of Health, Education, and Welfare (HEW), and the National Library of Medicine. She was an assistant in Intelligence and Reconnaissance in the Department of the Navy. She directed the NBS Institute for Computer Sciences and Technology and was the first director of the HEW National Center for Biomedical Communication. She rose to become deputy undersecretary of defense for research and advanced technology, managing \$4 billion of R&D programs (1977–1979), and assistant secretary of energy for resource applications (1979–1981).

As deputy undersecretary of defense for research and advanced technology under Admiral Arleigh Burke, then chief of naval operations, she created some of the earliest computer software for defense and space applications. She reminisced with friends about her 1-cubic-foot desktop computer that preceded the PC by 15 years.

Over her public service career Ruth managed \$4 billion production enterprises: the US Uranium Enrichment Services, the Strategic Petroleum Reserves, the Federal Power Marketing Administrations, and the Naval Petroleum Reserves.

Ruth Davis initiated major projects that had significant impact on the industrial, governmental, and academic sectors

of our country. They included the Very-High-Speed Integrated Circuit (VHSIC) Program sponsored by industry and the Department of Defense (DOD; 1979–1980); the DOD Directed Energy Program (high-energy lasers and particle beams) (1977–1979); the world's first data encryption standard (DES) for nondefense computer systems (1972–1979); the first satellite communications system for remote healthcare applications in Alaska (1967–1970); the online computer network for medical literature retrieval, MEDLINE (1967–1970); and the first computer-based automation or robot-systems support by the federal government (1964–1967).

At one point during the HEW remote healthcare applications project in Alaska, Ruth and her staff were found on a rooftop with an antenna planted in a bucket of cement, looking for the right spot to capture the satellite signal connecting Aleut villagers with much-needed medical expertise at Midwestern universities.

Her telemedicine work led Ruth to concerns about personal privacy issues associated with the possible interception of a person's medical information. This motivated her to engage in data encryption. Not finding software for nonmilitary encryption at the National Security Agency, Ruth, as first director of the NBS National Institute for Computer Science and Technology, led a team to develop the public data encryption standard that remains in use today.

In 1980, at age 52, Ruth retired from the federal government and founded the Pymatuning Group, which she named after an Indian tribe in western Pennsylvania that, not surprisingly, was headed by a woman chief. This management company specialized in industrial modernization strategies and technology development, with concentrations in microelectronics, computers, information, automation, and robotics. She also taught as a part-time lecturer at the University of Maryland, American University, Harvard University, University of Pennsylvania, and University of Pittsburgh, and on one occasion was a Regents Professor at the University of California, Berkeley.

Ruth Davis chaired the board of trustees of the Aerospace Corporation from 1992 to 2000 and served on many corporate and university boards: Sprint; Air Products & Chemicals; BTG, Inc.; Ceridian Corp.; Consolidated Edison Co. of New York; Florida Rock Industries; Premark International Inc.; Principal Financial Group; Tupperware; Varian Associates; the Institute for Defense Analyses; University of Pennsylvania board of overseers for the School of Engineering and Applied Science; USC School of Business Administration; and the University of Maryland College of Computer, Mathematical, and Physical Sciences.

She was lauded by government, industry, and universities alike. In addition to the National Academy of Engineering, the National Academy of Public Administration and American Academy of Arts and Sciences elected Ruth to membership. She served on the NAE Council for six years and on many academy committees. She was named Computer Science Man of the Year in 1979 (the next year the award name was changed). She was selected for the Director's Choice Award of the National Women's Economic Alliance (1989), Distinguished Service Medals from the Department of Energy (1981) and Department of Defense (1979), the Department of Commerce Gold Medal (1972), the National Civil Service League Award (1976), the Federal Woman of the Year Award (1972), the Ada Augusta Lovelace Award for Computer Science (1984), and the Rockefeller Public Service Award for Professional Accomplishment and Leadership (1973). She was inducted into the Government Computer News Hall of Fame in 1988 and the University of Maryland Alumni Hall of Fame in 2000. *Washingtonian* magazine named her among the most powerful women in the nation's capital. She received honorary doctoral degrees from Carnegie Mellon University in 1979 and the University of Maryland in 1993.

Ruth's home in Silver Spring, Maryland, revealed her fun side. Sharing room space with floor-to-ceiling shelves of engineering and technology awards was her "critter collection," an extensive assortment of stuffed animals and dolls including two from her childhood. Her garage was home

to two Porsche Carreras, a carryover from her practice of buying two new Porsches every three years—one for herself and one for her late husband George.

Ruth Davis never talked about being a woman working in a man's world. She always emphasized what you do and not who you are. In one interview she said, with a bit of marvel creeping into her voice, "You go to work in the morning, come home in the evening after you worked on something that had never been done before."

Ruth always strived for the best and would not be stopped. She never allowed anything to stand in the way of her talent and creativity. And she drove her Porsches, drove a US M-1 battle tank, and drank her bourbon with the same spirit: flat out.

Ruth Davis was generous, appreciative, and respectful of everyone who worked with her and for her. She infected all who knew her with her sense of purpose and fun. She was the "real deal" even after driving her Porsche into my garden after her 75th birthday party at the University of Maryland. Ruth leaves us with fond memories of an outstanding engineer and a great lady.