

## Admiral Grace Hopper Biography (Courtesy of USS Hopper DDG-70)

Grace Hopper was born Grace Brewster Murray in New York City. Grace Murray was admitted to Vassar College at age 17 where she graduated Phi Beta Kappa 1928 with a bachelor's degree in mathematics and physics and earned her Master's degree at Yale University in 1930. In 1934, she earned a Ph.D. in mathematics from Yale. She was married to New York University professor Vincent Foster Hopper from 1930 until their divorce in 1945. She never remarried but kept his surname.

Hopper began teaching mathematics at Vassar in 1931, and was promoted to associate professor in 1941. In 1943, Hopper obtained a leave of absence from Vassar and was sworn in to the United States Navy Reserve to serve in the WAVES. She reported in December and trained at the Naval Reserve Midshipmen's School at Smith College in Northampton, Massachusetts. Hopper graduated first in her class in 1944, and was assigned to the Bureau of Ships Computation Project at Harvard University as a lieutenant, junior grade. Hopper's request to transfer to the regular Navy at the end of the war was declined due to her age (38) so she continued to serve in the Navy Reserve. Hopper remained at the Harvard Computation Lab until 1949, turning down a full professorship at Vassar in favor of working as a research fellow under a Navy contract at Harvard.

In 1949, Hopper became an employee of the Eckert-Mauchly Computer Corporation (later bought by Remington Rand) as a senior mathematician and joined the team developing the UNIVAC I computer and doing pioneer work in compiling mathematic code into a language. In 1952 she had an operational compiler. "Nobody believed that," she said. "I had a running compiler and nobody would touch it. They told me computers could only do arithmetic." In late 1959 Hopper began serving as the technical consultant to the CODASYL committee that defined a new compiled computer language known as COBOL.

Hopper retired from the Naval Reserve with the rank of commander at the end of 1966. She was recalled to active duty in August 1967 for a six-month period that turned into an indefinite assignment. From 1967 to 1977, Hopper served as the director of the Navy Programming Languages Group in the Navy's Office of Information Systems Planning and was promoted to the rank of captain in 1973. She developed validation software for COBOL and its compiler as part of a COBOL standardization program for the Navy. Hopper was promoted to commodore by special Presidential appointment in 1983. In 1985, the rank of commodore was renamed rear admiral, lower half. She retired (involuntarily) from the Navy on August 14, 1986. She was laid to rest with full military honors in Arlington National Cemetery in January 1992.

Vice Admiral Ted Carter, current USNA Superintendent, stated "Often referred to as 'Amazing Grace' and the mother of computing, I can think of no better way to honor Rear Admiral Hopper's achievements specific to our cyber program and new cyber building's function than to name the new building in her honor. Admiral Hopper's foresight in computing and pioneering contributions to cyber security, memorialized in 'HOPPER HALL,' will inspire midshipmen, support their technical and professional development, and serve as a role model to encourage midshipmen ingenuity and determination for many years to come."

