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HIST 225 Section 33 – American Dreamscape Entry

EDUCATION

[ABSTRACT:]

Grace Brewster Murray Hopper (Murray; December 9, 1906 – January 1, 1992) Born in New York City in 1906, She was an American women computer scientist who joined the U.S. Navy during World War II where she served as a rear admiral. Hopper was a pioneer of computer programming and high level machine programming languages. She foresaw the prominence of technology in Americas ascension at a time where the world is at war.

[ FULL ENTRY:]

Grace Brewster Murray Hopper (Murray; December 9, 1906 – January 1, 1992) was an American computer scientist and United States Navy rear admiral. Hopper was a pioneer of computer programming and high level machine programming languages. Hopper truly believed in technology’s potential to change the world for the better. She mainly believed in technology education and the military as the primary foundation to her American Dream. Hopper's parents provided a strong foundation for her inquisitiveness. Grace grew up in an academic atmosphere her parents made sure she had access to all the books she wanted, and they did everything they possibly could to support her curious nature. Her Father played an important role in her life as he inspired her to pursue higher education and to avoid being limited to typical feminine roles. Hooper long recognized invention and innovation as significant forces in American History, not only in technological realms but also in politics, society, and culture.[[1]](#endnote-1) Grace Hopper studied math and physics at Vassar College, after that she attended Yale University where she got her masters in mathematics and became the first woman to earn a Ph.D. in mathematics from Yale University in 1934.

She even conquers many hindrances on her road to success as she started to struggle financial as America enters The Great Depression from 1928-1931. Times were rough but she was resilient and so dedicated to her craft that she was ecstatic to accept work as a mathematics assistant at Vassar College. Hopper was not only a brilliant mathematician and computer scientist; she was also a gifted teacher and communicator[[2]](#endnote-2). She took a new approach to her math courses she incorporated ideas from other subjects such as chemistry. This new approach brought along a surge in the number of students taking math courses. Hopper’s talents as a teacher also helped her communicate with a wide variety of audiences such as technical experts, engineers, business managers, data scientist, young people, and the general public. She helped persuade business clients of the value of adopting new technologies, as Kurt Beyer describes her as a “spokesperson for the evolving computer industry”[[3]](#endnote-3). Grace paved the way for many future young woman who inspired to use their intelligence in technology as its already a male dominated field.

Due to her military background as a kid and as a part of the American Dream She joins the naval reserve in 1943 to apply her education in technology to the military that can contribute significantly. Following Japan’s attack on Pearl Harbor in November 1941, Hopper tried to join the military. She was refused, because she was too light for her height, and anyway her job training mathematicians at Vassar was considered too important for her to abandon.[[4]](#endnote-4) Given her mathematical background, Hopper was immediately assigned to the Bureau of Ordnance Computation Project at Harvard University, where she worked and learned to program a Mark I computer.[[5]](#endnote-5) This was a huge breakthrough in technology as the Mark I was the first large scale automatic calculator and a precursor for many electronics.

As one of the first programmers of the Harvard Mark I computer, she was a pioneer of computer programming who invented one of the first compiler related tools. She popularized the idea of machine-independent programming languages, which led to the development of COBOL, an early high-level programming language still in use today. Which became the dominant computer language for business in the 20th century. Grace worked tirelessly to promote high-level programming languages as she believed it was her duty to breakthrough technology for it was her American Dream to show the world the full potential of these new technologies and to innovate for the future. After World War II Throughout the 1950s Hopper campaigned earnestly for high-level languages across the United States, and through her public appearances she helped to remove resistance to the idea.[[6]](#endnote-6)

One last thing to note about Grace was her impact on future generations and her optimist visionary thinking. Her work embodied or foreshadowed enormous numbers of developments that are now the bones of digital computing: subroutines, formula translation, relative addressing, the linking loader, code optimization, and even symbolic manipulation of the kind embodied in Mathematica and Maple.[[7]](#endnote-7) Hopper came along at the perfect opportunity for women, a time where relatively high number of women were receiving doctorates in the 1920s and 1930s then a huge drop off until the 1980s. She inspired a huge demographic of females by her success where the odds aren’t in her favor. “I think we consistently…underestimate what we can do with computers if we really try,” she said. in a 1983 interview on 60 Minutes.[[8]](#endnote-8) Until the end of her days, Grace Hopper looked onward with confidence to new technologies and their problem-solving capabilities.

1. Beyer, Kurt. *Grace Hopper and the Invention of the Information Ag*e. Cambridge, MA: MIT Press, 2012. [↑](#endnote-ref-1)
2. "Biography of Grace Murray Hopper." Office of President.https://president.yale.edu/biography-grace-murray-hopper. [↑](#endnote-ref-2)
3. Beyer, 210 [↑](#endnote-ref-3)
4. Billings, Charlene W. *Grace Hopper: Navy Admiral and Computer Pioneer*. Hillside, NJ, U.S.A.: Enslow Publishers, 1989. [↑](#endnote-ref-4)
5. Billings, 98 [↑](#endnote-ref-5)
6. Beyer, 274 [↑](#endnote-ref-6)
7. Norman, Rebecca. "Grace Murray Hopper." Florence Nightingale. https://www.agnesscott.edu/lriddle/women/hopper.htm. [↑](#endnote-ref-7)
8. Beyer, 302 [↑](#endnote-ref-8)