REAR ADMIRAL, DOCTOR GRACE MURRAY HOPPER 1906-1992*

On January 13th of this year TIME magazine reported that Grace Hopper had died in Arlington, Virginia at the age of 85 years.

Rear Admiral Grace Hopper was one of the earliest of the computer pioneers. She was held in such high regard by the U.S. Navy that by special Presidential Order was asked to remain on duty until she was 80 years old. This was far past the normal retirement age.

Who was Grace Hopper?

Grace was born in New York City on December 9th, 1906. Her father felt strongly that his two daughters should have the same educational opportunities as his son. He encouraged Grace to go to University. Which she did and in 1928 received a BA degree in mathematics from Vassar College. In 1930 she married a teacher, Vincent Hopper. Her marriage lasted until 1945 when they were divorced.

Following graduation from Vassar College, Grace studied at Yale University and in 1934 was awarded one of five Ph.D.'s in mathematics that the University awarded between 1934 and 1937. For a woman to receive this high honour was most unusual.

She returned to Vassar College to teach and became Associate Professor of Mathematics in 1939. In 1943 during the Second World War Grace Hopper joined the Navy. After training she was assigned to a computer development unit at Harvard University. Grace's speciality was the designing of software for computers. For the next three years her task was to devise computer solutions to solve problems relating to the war.

In 1945 her computer team were having trouble with a computer which kept breaking down. They took it to bits and found a two inch moth had got inside and shorted some of the points. Grace kept the dead moth, put it into her log book with a plastic tape over it and wrote alongside the words "the actual bug found". Since this happened the word "bug" has become a common term to describe all glitches in computers and computer programmes whether they are caused by insects or not. Grace invented the term – and the unfortunate bug can now be seen at a Navy museum in Virginia!

Grace Hopper's achievements in computing spanned three computer generations. She

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developed a computer language for the first commercial computer and her work led to automatic programming by computers.

To make programming much easier for people to understand Grace invented another programme which could be written in English rather than mathematical symbols. This became the computer language called COBAL which has been used widely in business since 1960.

Grace continued in the Naval Reserve after 1945 until she was compulsorily retired in 1966. The navy tried to manage without her! Until the next year!

By special act of Congress Grace was recalled to active duty. In 1983 she was the oldest officer on active duty in the U.S. Navy and President Reagan presented her with a star of promotion to commodore. In 1986 Grace finally retired after 43 years service in the military. She had the high rank of rear admiral.

Many honours have been awarded to Grace Hopper including the Data Processing Management "Man of the Year" award in 1969. Grace held honorary doctorates in engineering, law, science, and public service from at least ten universities. She was an outstanding speaker often charming her audiences. Grace's illustration of what a nanosecond is was quite amusing. "It is a wire 11.8 inches long representing the distance that electricity travels in a billionth of a second." She would then pass around her audience pieces of wire so that her audience could handle a naosecond!

One of her firm beliefs was that there was always room for improvement and that things do not always have to be done in the same way as in the past. To illustrate this she kept in her office a clock which ran backwards (or anti-clockwise).

Grace Hopper's attitude towards life was always positive.

"A ship in port is safe, but that's not what ships are for."

"I am very sorry for the people who at the age of thirty, or forty, or fifty retire mentally and stop learning."

"Our young people; they know more, they question more, they learn more. They are the greatest asset this country has."