Photograph by Fabian Bachrach.

JOHN WILLIAM MAUCHLY

1907–1980

BY ISAAC L. AUERBACH

JOHN WILLIAM MAUCHLY, one of the visionaries who pioneered the era of the electronic digital computer, died on January 8, 1980, in suburban Philadelphia at the age of seventy-two. John Mauchly was a pioneer of automatic computing, particularly in the design and construction of the Electronic Numerical Integrator and Computer (ENIAC), the world's first all-electronic computer, and of the Binary Automatic Computer (BINAC) and the Universal Automatic Computer (UNIVAC). His efforts in the application of electronic computers to the solution of scientific and business problems were outstanding.

Dr. Mauchly was born August 30, 1907, in Cincinnati , Ohio, and grew up in Chevy Chase, Maryland. He attended Johns Hopkins University on a scholarship, and received a Ph.D. in physics in 1932.

While Head of the Physics Department at Ursinus College, he became interested in the problem of weather prediction. Realizing the magnitude of the calculations involved, he began to experiment with different techniques to achieve the high speed required. In the summer of 1941 he attended a war training course at the Moore School of Electrical Engineering of the University of Pennsylvania. Realizing that both short- and long-range weather forecasting techniques could only be improved by faster, cheaper, and more sophisticated computational means, he turned his efforts to the development of electronic computing devices at the Moore School.

In a memorandum prepared for the Army Ordnance Department, Dr. Mauchly proposed the basic ideas for an electronic computer. On April 9, 1942, in collaboration with]. Presper Eckert, he completed a more extensive proposal, which included more detailed specifications of a computing machine. These specifications were submitted to the Army Station at the Aberdeen Proving Grounds in Maryland. Within a month a contract was awarded for the first all-electronic computer, ENIAC. Development of ENIAC was completed in 1946.

In the fall of 1944 the Moore School was awarded a contract to study the design of a stored program computer called the Electronic Discrete Variable Automatic Computer (EDVAC). Early progress reports written by Drs. Mauchly and Eckert included the first disclosure of the stored-program concept.

A dispute over the patent rights to the ENIAC caused Drs. Mauchly and Eckert to leave the university in late 1946. The two men formed the Electronic Computer Company in order to further develop their ideas. The company was eventually to change its name to the Eckert-Mauchly Computer Corporation, with John Mauchly as President. Under study contracts from the National Bureau of Standards, Prudential Life Insurance Company, and A. C. Neilsen Company, they developed models of an acoustic memory system, an advanced arithmetic unit, and a magnetic tape device. This research led to a contract from the Northrop Company to design the BINAC for missile steering. The BINAC was completed in 1949.

This was an extraordinarily creative period for Drs. Mauchly and Eckert; not only was the concept for UNIVAC I being developed, but John Mauchly also proposed the idea for a small scientific computer, a slower version of the BINAC. Inadequate funding required that they dedicate themselves to the development of only one computer at a time. The result was UNIVAC I, completed in March 1951, for the Census Bureau . UNIVAC I was the first general-purpose commercial computer capable of handling alphabetic and numeric symbols and suited to a wide variety of applications.

In the late 1930s and early 1940s the electronic computer was an idea whose time had come. Dr. John V Atanasoff was developing ideas at Iowa State College. Dr. Konrad Zuse was developing ideas

in Bad H ersfeld, Germany. It was, however, Drs. Mauchly and Eckert in 1946 who developed the first operational all-electronic computer, the ENIAC, the precursor of all that was to follow.

Following the work on UNIVAC, John Mauchly returned to statistical analysis of solar and geophysical data, and under his guidance the first Fortran-like programming system was produced. John Mauchly headed the UNIVAC Applications and Research Center from 1953 to 1959, and among other applications developed was the network method of project analysis, now known as the critical path method.

John Mauchly shares, with J. Presper Eckert, awards of the Potts Medal of the Franklin Institute, the Philadelphia Scott Award, the Modern Pioneers in Creative Industry Award from the National Association of Manufacturers, and the Henry Goode Memorial Award of the American Federation of Information Processing Societies. He was one of the founders and an early President of the Association of Computing Machinery (ACM) and the Society of Industrial and Applied Mathematics (SIAM). He became a member of the National Academy of Engineering in 1967, was a Fellow of the Institute of Electrical and Electronics Engineers and the American Statistical Association , and was a Life Member of the Franklin Institute.

John Mauchly was an idea man of tremendously good instincts . He was a conceptualiz er, a catalyst, a warm human being, and a pioneer who championed ideas before their time . He was certainly the prime mover in securing the contract for the first electronic computer. A brilliant innovator with a tremendous capacity to listen, he was perpetually stimulating and influencing other people.

Dr. Mauchly always saw to it that anyone who worked for him was encouraged to grow and to get more training. He was an ideal person to be in charge of self-motivated people because he could stimulate them to think and to rethink an idea without discouraging their creativity.

Dr. J. Presper Eckert says of him , "He inspired me and he inspired many others. He was not tied down by inhibitions or traditions. He had an interdisciplinary skill to get things done."

Dr. Grace Hopper remembers him as " one of the brightest people

I ever met and one of the nicest. He was a charming person and a pleasure to work with. He not only got the work done, but he cared for the growth of the people he worked with and was the finest boss anyone ever had."

Kay Mauchly, his wife, said, "John was a family man who loved stimulating his children and grandchildren. He felt that an open mind is like a fresh plot of ground to put something into. He was eternally the teacher. He had a great sense of humor and loved puns."

John Mauchly was a warm human being with an incredibly wide range of interests and achievements. We will all remember his leadership and pioneering achievements, for which we will be forever indebted.