Herman Lukoff

Born May 2, 1923, Philadelphia, Pa.; died September 24, 1979, Philadelphia, Pa.; ENIAC, EDVAC, and LARC design engineer

Education: BS, University of Pennsylvania, 1943.

Professional Experience: Moore School, University of Pennsylvania: junior engineer, ENIAC Computer Project, 1943-1944; research associate, EDVAC Computer Project, 1946-1947; Eckert-Mauchly Computer Corp.: junior engineer, 1947-1948, senior engineer, Univac 1, 1948-1950; Remington-Rand Univac: project engineer, 1950-1955, chief engineer, LARC Computer, 1955-1960, manager, computers, Univac Division, 1960-1964, director, engineering, 1966-1968, director, research and advanced technology, 1968-1970; director, technical operations, Univac Division, Sperry-Rand Corp., 1970-1979.

Honors and Awards: IEEE W.W. McDowell Award, 1969; Sperry Univac Presidential Excellence Award, 1976; IEEE Computer Society Pioneer Award, 1980; fellow, IEEE.

Herman Lukoff began his career on the ENIAC project at the Moore School of the University of Pennsylvania. When J. Presper Eckert and John Mauchly left the school to form the Electronic Control Company, Herman went with them and remained with the company through its name change to the Eckert-Mauchly Computer Corporation, its purchase by Remington-Rand, and the merger into the Sperry-Rand Corporation. Herman worked for the same people and the same company—at the time of his death, the Sperry Univac Division of the Sperry Corporation—for 35 years; he participated in and witnessed the entire metamorphosis of the company, and he worked long and hard at whatever job he was asked to perform. He always did the best he could, and he asked for the best and got it from the people working under him.

While still a student at the Moore School he built equipment to test the electronics of ENIAC. Later he helped design the circuits for both delay line memories and electrostatic memories, and showed that in the long run electrostatic memories were unreliable. When work on the Univac I began, Herman designed its input/output control (what would now be called the I/O channel and the magnetic tape-control unit). He supervised the manufacture, testing, and installation of the first dozen Univac Is, thus ensuring that the mass production of such complex electronic gear was feasible. Lukoff was in charge of the design team for the Univac LARC (operational in 1960), which implemented many features of present-day data processing systems, and he headed the Engineering Department from 1960 to 1968, overseeing the design of later systems such as Univac III, Univac 1050, and Univac 9200. Herman initiated the effort to build a semiconductor facility within Sperry Univac to design logic chips, coordinated the computer aided design project, and was responsible for company standards and internal technical symposia.

In 1969 he was the fourth recipient of the IEEE McDowell Award, presented annually by the IEEE Computer Society. His membership status in IEEE was elevated to the rank of fellow in 1970.

Herman Lukoff helped to design many of the modern features in the LARC system, such as the following:

1. *Multicomputer operation.* A special mailbox was reserved in the memory for each pair of computers that were to communicate with each other. The address of a message was put into the mailbox. A hardware flip-flop ensured that no other message would interfere with this message until it was accepted, and the flip-flop would alert the receiver that a message was present.

2. *Lockout mechanism.* Different parts of the memory could not be altered by the unassigned computer.

3. Input/output processor A vertically microprogrammed machine handled the details of executing many I/O commands in parallel.[1] 18

BIBLIOGRAPHY

Biographical

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Tonik, Albert B., "Eloge: Herman Lukoff, 1923-1979," *Ann. Hist. Comp.*, Vol. 2, No. 3, 1980, pp. 196-197.

UPDATES

Portrait Inserted (MRW, 2013)

[1] From Tonik 1980.