

John Clifford Shaw

Born 1922, died February 9, 1991, Los Angeles, Calif.; the “father of JOSS,” the well-known and landmark personal-computing, time-sharing system developed on Rand's JOHNNIAC machine. Cliff was also part of the Newell-Shaw-Simon consortium, innovators of the Information Processing Languages (IPL I through IPL V), which today we would call artificial intelligence languages.

Shaw was born and raised in California, serving in the US Navy during World War II as an aircraft navigator. Following his return to civilian life he worked as an actuary for an insurance company, taking advantage of his early training and mathematical skills. Cliff joined Rand as a programmer in 1950 on the JOHNNIAC. He collaborated with Allen Newell to develop a radar simulator and, while he was primarily involved in administrative matters, he looked to the means of improving the processes of company management as well as improving the techniques of computation. With Newell and Herbert Simon, he assisted in the development of the “Logic Theory Machine,” which provided the first symbolic and list-processing computation system, and formed the base for the development of later “artificial intelligence” languages. The three-Newell, Simon, and Shaw (NSS)-went on to develop a sequence of Information Processing Languages (IPL I through IPL V), and the “General Problem Solver” (GPS).

With the advent of batch processing and closed shop systems, Shaw wanted to preserve the personal contact between the programmer and the computer, and led the development of the JOSS (JOHNNIAC Open-Shop System), a contemporary of Corbató's Compatible Time-Sharing System (CTSS). JOSS was restricted to a primary language that was specifically designed to support interactive computing, rather than providing a platform for the execution of existing (batch-oriented) language systems. There is a precious factual story that concerns a booby trap that Cliff put in JOSS; it was really a first Trojan horse. Rand had a mathematician named Oliver Gross, who worked extensively on JOSS, but was a poor typist and made frequent mistakes. Cliff put in a trap that waited for Oliver (no other user could spring the trap) and after he had made some number of typing mistakes, it printed on the typewriter terminal “Damn it, Oliver, can't you get anything right?” Then the Trojan horse destroyed itself, never to appear again. Oliver was much taken aback, and spent long hours trying to make JOSS repeat the event, but without success.

Cliff worked at Rand from 1950 to 1973 in the Numerical Analysis Department, later the Computer Sciences Department. Upon leaving Rand, he acted as a consultant and devoted himself to church activities.

QUOTATION

Shaw was a stickler for care and precision in his work. As he pointed out on one occasion, the success and impact of JOSS was careful attention to “a million details, each of them decided properly and with care.”

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UPDATES