

## In Memoriam

The world of APL lost a friend when Stephen W. Dunwell, retired IBM Fellow, died on March 21, 1994, at his home in Poughkeepsie, New York.

Steve, or "Red" as he was known to many, was a pioneer in computing, with wide-ranging interests. He started at IBM in 1934, took time out to work on cryptography using IBM machines in the military during World War II, and returned to IBM to eventually head up the team that designed and built STRETCH, the supercomputer of its time (1958). Appointed an IBM Fellow in 1966, he began work on an educational system, Coursewriter, at about the same time that the original APL group was producing APL/360, and he took an immediate interest in APL.

In furtherance of his interest in education, Steve started an APL time-sharing service, known as SECOS, to several schools in the Poughkeepsie area. Internal to IBM he started an on-line information service for field engineers, based on APL. This pioneering system grew into the HONE and RETAIN systems which still use APL to support IBM's sales personnel and technicians world wide. As part of the original system, he developed and used one of the first APL file systems, called "data-space," which ultimately evolved into a widely-used auxiliary processor. Over the years he had many discussions with the APL design group, suggesting new language features or system facilities based upon his extensive practical experience.

After retiring from IBM, Steve ran an APL time-sharing service for local businesses in the Hudson Valley, and used this as a base for research in language design. His goal was to develop a very high level universal computing language

(AUL), which, together with machines built in accord with the architecture implied by AUL, would constitute a major advance in solving the computer industry problem of the high cost of developing software. He felt that APL, while not meeting all of his criteria for a universal language, was still the best language to use as a foundation for AUL because of its emphasis on arrays and interpretative execution.

Steve had a strong interest in the society in which he lived, as manifested by his activities in the field of education, and also, for example, in his restoration of the historic Bardavon opera house in Poughkeepsie after his retirement, in collaboration with his wife, Julia. Another aspect of his social concern was illustrated a few years ago when I brought to his attention the problems an employee was experiencing in trying to reach agreement with their employer on a procedure for recovering personally-owned materials from the employer's computers after being cut off from normal access. He immediately recognized the broad societal implications of the issues, and he volunteered an affidavit to help resolve them. In his affidavit he cited his 55 years of experience in the computer industry, and gave his reason for becoming involved, writing, *"I believe that scientists have an obligation to participate in the amelioration of the social and moral consequences of their work, and I welcome the opportunity to contribute to this case on that basis."*

Steve Dunwell left a legacy of computer innovations, project initiatives that are still ongoing, and contributions to society, whose influence will be felt for another 55 years or more. ■

- Adin Falkoff