Ernest Galen Andrews

Born: *January 10, 1898, Topeka, Kan.; died October 13, 1980, Hanover, N.H.; 1940s designer of the relay computers at the Bell Telephone Laboratories,- founding member of the Association for Computing Machinery.*

Education: BS, mathematics, William Jewell College, Liberty, Mo., 1922.

Professional Experience: Installation Department, Western Electric Company, 1922-1925; Bell Telephone Laboratories, 1925-1959; Sanders Associates, Inc., Nashua N.H., 1959-1969.

Following service aboard the USS Kansas during World War 1, Andrews attended William Jewell College in Liberty, Mo., where he received a bachelor's degree in mathematics in 1922.[1]" In that same year, he accepted a position with the installation department of the Western Electric Company in Kansas City, from which he was transferred to Atlanta and then to New York City.

In 1925, Andrews joined Bell Telephone Laboratories upon its formation out of the engineering department of Western Electric. Here he worked for many years on installation and maintenance requirements in the switching-development organization. In 1941, with the onset of World War II, he was made responsible for the design of radar trainers and the preparation of radar instruction manuals. (Bell Telephone Laboratories had begun work on the development and production of radar in 1937, at the invitation of the US Navy.)

Andrew's involvement with computing machinery began in 1943 and continued through the development and construction of five successive models of early large-scale electromechanical computers. After the war, he worked on the development of automatic message accounting systems for dial-central offices, but the focus of Andrew's activities was on the planning and programming of military systems, first as a member of the military communications department and finally with a study group in the military systems engineering department.

Following his retirement from Bell Telephone Laboratories in June 1959, Andrews joined Sanders Associates, Inc., in Nashua, N.H., where he became manager of preliminary design.

Andrews held several patents and was the author of a number of articles on early Bell Telephone Laboratories computing machinery.

Andrews' principal contributions to early computer technology included his work in the design and construction of the relay computers at Bell Telephone Laboratories and his efforts on behalf of the Association for Computing Machinery. His work on the relay computers started in 1942 with the BTL Models II and III, and continued through all the subsequent models of this series. He cooperated with Samuel B. Williams on the later models and was especially helpful in the design of the duplicate $250,000 copies of the Model IV, used at NASA's Langley Field and at the Army's Aberdeen Proving Ground.

"Andy" was a founding member of ACM and served for several years as an officer and a member of committees in that organization.[2] He wrote several very early articles dealing authoritatively with the history

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[1] From La Porte and Stibitz, 1982.

[2] Contributed by George R. Stibitz.

and development of binary computers. Andrew and the group of engineers he supervised contributed many useful concepts and embodiments of those concepts in the development of binary computers. One of these contributions led to a true multiplier for the Model III Computer. The multiplier stored and called out on demand the two-decimal products of all digits of the multiplicand by a digit of the multiplier. The scheme permitted many shortcut methods of calculation. He contributed to the development of the automatic accounting system of the Bell System, where he made use of his experience in the relay computer field.

After two retirements, he was by no means ready to vegetate. He was interested in the mechanism of the heart, and tried unsuccessfully to establish a connection with people working in that field. He retained an interest in developments in that and many other areas of applied science and communications up to the time of his death.

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UPDATES