Paul Denzil Ankrum

August 14, 1915 — August 27, 2005

Paul Denzil Ankrum, born in Hamlin, Kansas on August 14, 1915, died at age 90 on August 27, 2005 in Ithaca, New York. Paul received the B.S.E.E. degree in 1935 from Indiana Technical College in Fort Wayne (now the Indiana Institute of Technology) and was an Instructor in mathematics at Ashland College in Ashland, Ohio, for a year. In 1936, he became an Instructor in electrical engineering at Indiana Tech and in 1938, was appointed Chairman of their Radio Engineering Department, a position he held until 1942. He received the A.B. degree in Mathematics from Ashland College in 1939. Paul came to Cornell in 1942 as an Instructor and graduate student in the School of Electrical Engineering where he taught Naval officers for the duration of the war under the National Engineering Science and Management War Training (ESMWT) program. Paul received the M.S. degree in Engineering from Cornell University in 1944 and in the same year, joined the Electrical Engineering School faculty as an Assistant Professor. He was promoted to Associate Professor in 1949, became a full Professor in 1963, and retired as Professor Emeritus in 1982.

Paul's 38-year career at Cornell was characterized by conscientious attention to undergraduate education, advising, and service to the EE School, the College of Engineering, and the University. During the war years in ESMWT, he taught laboratory courses in electric circuits and electric machinery in Rand Hall until 1946 when he transferred to electronics circuits, his major area of interest. In 1948, he was given complete charge of instruction in basic electronics in the EE School. In the following year and again in the 1956-57 academic year, he served as acting supervisor of communications area courses. During this period when the EE School began to require courses in electronics, Paul found no suitable textbooks available for his courses. To fill this need he developed his own text, *Principles and Applications of Electron Devices*, that was also used by 16 other colleges and universities.

Paul's career took a dramatic turn when he returned from a sabbatical leave as a member of the Technical Staff of Hughes Aircraft Company in Culver City, California where he was responsible for germanium transistor evaluation, specifications and applications in the semiconductor division of the Product Engineering Department. He effectively introduced the field of semiconductor electronics in the school by assuming responsibility for course EE 4529, Transistors, which he subsequently expanded into a popular elective two-course sequence. In 1971, Paul published *Semiconductor Electronics*, a textbook that became a standard in the new field. His demonstrated expertise in the semiconductor discipline caused him to be in demand as a consultant to several industries in the field.

Paul's dedication to teaching was evident by his interest and commitment to teach in several academic areas. For a number of years, he taught in the School program for New York Telephone employees, and in the Engineering Problems and Methods course for freshmen. He was responsible for the development of many laboratory experiments in the electronics area and in basic measurements. Throughout his career, Paul was an active participant in faculty discussions on educational programs and made many valuable contributions to curriculum development. During the period when a senior project was a required component in the EE curriculum, Paul's services as a senior project advisor were in constant demand. He was a popular student advisor who was known for his knowledge of and his concern for his advisees and their problems, both curricular and personal. He served as chairman of the Ithaca Section of the Institute of Electrical and Electronic Engineers (IEEE) and, for the five years before his retirement, was faculty advisor of the student section of IEEE. Paul was a senior member of IEEE and a member of the American Society for Engineering Education.

Over the years, Paul had a remarkable record of service to the school, the college, and the university. For a time, he was an elected member of the Faculty Committee of the school, a formidable group that established policies on curricular and educational matters, and in other periods he served on the EE School Committee for Design, the EE School Student-Faculty Committee, and as class advisor to the Division of Basic Studies. He was secretary of the Engineering College Faculty for a number of years and an Engineering College member of the Faculty Council of Representatives (FCR). In the latter capacity, he served as chairman of the University Faculty Committee on Prizes and as chairman of the FCR Committee on Physical Education. He was also a member of the Radio Station WHCU Advisory Board.

There is one aspect of Paul's contributions to the EE School that may not have been known by most of the hundreds of students who inadvertently benefited during the years that Paul taught in the school. Paul's master's thesis is entitled "Electronic Voltage Regulator for a Direct-Current Generator." Master's theses generally lead on to doctoral theses or stimulate the author to enter a particular field and, of course, satisfy a requirement for a degree. Finally they end up in the library stacks and are forgotten. The latter was not the case with Paul's thesis. When Paul arrived at Cornell and became an Instructor in electric machinery in Rand Hall, dc power for the laboratory experiments was supplied by two 50 kW motor-generator sets. Since machinery experiments in the laboratory are highly dependent upon a reliable power supply with constant voltage, it was necessary for the two machines to have some kind of voltage regulator, either mechanical or manual. Paul's thesis involved an early application

of power-electronics control that set him upon his eventual career and, as a side benefit, provided an advanced solution to the voltage regulation problem of the Rand Hall laboratory power supply. Based on his thesis research, Paul constructed two power electronic systems that used early mercury-vapor gas-discharge tubes called ignitrons to monitor and control the field currents of the two dc generators. When the School moved into Phillips Hall in 1955, the two generators and Paul's regulators were installed in the basement and continued to perform admirably until the machines were retired in 1986.

Paul generated a quiet respect among his students who liked his professional sincerity and the relevance of his lectures to the understanding of material for which he held them responsible. His laboratory experiments seemed to reach out and present the application of fundamentals in a clear, interesting and important way. The subject matter was always up to date in the application of solid-state electronics. Highly regarded by faculty and students alike as an effective teacher and advisor, Paul also helped several young faculty members to choose their ultimate careers. Well known for his careful preparation of lecture and laboratory presentations, his meticulous attention to detail, and his particular concern that the laboratories should offer useful exercises, it is not surprising that he was asked to teach part-time for several years after he retired. During reunions, returning alumni would ask about Paul and were always glad to see him.

Paul and Laura Frances Kiracofe, married on August 18, 1940 in Linwood, Maryland, spent 63 years of their life together principally in Ithaca. Paul is survived by his wife, Frances, of Ithaca, New York; his son, David Lee and his wife, Laura, of Ithaca, New York; his son, John Paul, of Ithaca, New York; two grandchildren; three great-grandchildren; and his sister, Mary Alice and her husband Willard Bowman, of Boones Mill, Virginia. His siblings Laird Ankrum and Genevieve Shidler predeceased him.

Paul Ankrum will long be remembered as a conscientious and dedicated teacher and advisor, a respected colleague, and a devoted friend.

Lester F. Eastman, Norman M. Vrana, Simpson Linke