

# Nelson Howard Bryant

*September 19, 1917 — December 22, 1994*

Nelson Howard Bryant was born in Greene, New York, on September 19, 1917. After obtaining the E.E. degree from Cornell in June 1939, Nelson joined the Westinghouse Lamp Division in Bloomfield, New Jersey, where he developed systems that led to patents on methods of carbonizing thoriated tungsten filaments and devised ferro-resonant circuits for starting fluorescent lamps. In 1944, he became a U.S. Naval Reserve Electronics Officer, attended radar schools at Bowdoin College and Massachusetts Institute of Technology, and supervised the installation and repair of radar and loran equipment at the Brooklyn Navy Yard and other bases until September 1946, when he returned to Cornell as a graduate student and Instructor in the School of Electrical Engineering. He received the M.E.E. degree in June 1949, was appointed an Assistant Professor in July of that year, became an Associate Professor in 1953, and attained full professorial rank in 1973. Nelson retired as Professor Emeritus in 1985, but he continued as a part-time Instructor designing laboratory experiments and demonstrations for use in the teaching laboratories until the spring term of 1994. During his overall 48-year academic career, Nelson mastered many of the complex electrical engineering technologies that evolved over the years and formed them into a vital part of his classroom activities.

Consistent with his early interest in the design of electronic circuits and systems—an interest that he maintained throughout his professional career—Nelson’s graduate research was concerned with the design, development, construction, and testing of a novel controlled-mercury-arc-rectifier tube that had potential for use as a high-power amplifier. Since the operating principle was based on the characteristics of the mercury-vapor plasma within the tube, Nelson was a very early investigator at Cornell in the field of plasma studies that is now an important area of research in the EE School. As a graduate student, and for several years after his appointment as an Assistant Professor, Nelson taught in the electrical engineering “service courses,” also known as “Electrical Engineering for Non-Electrical Engineers,” where he was responsible for the electronic segments of those courses. This work resulted in a collaboration with Professor William H. Erickson and the publication in 1952 of the first edition of their popular text, *Electrical Engineering, Theory and Practice*. A second edition was published in 1959, followed by a paperback edition in 1975.

During his academic career Nelson initiated and taught many courses and directed graduate study in electronic-circuit design, digital-electronic circuits, and control systems. In the early 1970s, students in the EE School were

expressing great concern about the absence of electronic-design courses in the EE curriculum. Nelson corrected this deficiency by developing two new lecture/laboratory courses in electronic-circuit design that became known for their scholarly rigor and relevance to engineering practice. These two courses were among the most popular in the EE curriculum for many years, formed the basis for the eventual complete overhaul of the EE undergraduate laboratories, and represent one of Nelson's major contributions to the School. In addition to his concern with undergraduate education in the classroom, he was a perennial undergraduate class adviser and a member of the Division of Basic Studies Academic Standards Committee. He was elected to serve three separate terms on the respected EE Faculty Committee and also served on many university committees. Nelson was a mainstay in the Master of Engineering Program, directed a multitude of M.Eng. (Elec.) design projects, and served on the Master of Engineering Committee in the College of Engineering, where he was a key contributor to the development of the Program and its required M.Eng. design project. As a favorite professor among his students, he was runner-up in the 1973 Tau Beta Pi Engineering Honor Society "Excellence In Teaching Award" was one of the top ten contenders for the same award in 1976, and received the IEEE School of Electrical Engineering "Excellence in Teaching Award" in 1978 and again in 1982.

Nelson took his first sabbatical leave in 1955-56 at Stanford University where he studied radio-wave scattering phenomena from a turbulent atmosphere. Upon his return to the campus he became interested in the design and development of electronic instrumentation for the measurement of biological phenomena, thereby becoming one of the first Cornell faculty members to work in the field of bioengineering. In 1962-63 Nelson took another sabbatical at the University of Pennsylvania Johnson Foundation for Medical Research. Through 1967 he continued to work in bioengineering and directed a number of master's theses and senior projects with special emphases on blood-chemistry instrumentation applied to automated differentiation of white-corpuscle types and the control of oxygen content in the blood. In later years, as a consultant to Powers Manufacturing Company in Elmira, New York, his knowledge of solid-state microprocessors and electronic-control methods enabled him to transform previously limited purely mechanical techniques into a modern system for automatic quality control in the manufacture of bottles. The variety of problems he encountered in this work significantly influenced the design of the laboratory classwork for his students in the EE School.

Nelson was a member of the American Institute of Electrical Engineers and served as Chairman of the Ithaca Section in 1956-57. When that organization became the Institute of Electrical and Electronic Engineers (IEEE) he continued his membership and was named a Life Member of IEEE in 1983. He was elected to the engineering honor

societies Tau Beta Pi and Eta Kappa Nu and was a member of the American Association for the Advancement of Science and the American Association of University Professors.

Nelson measured his accomplishments by the long-term success of his students, particularly those whom he inspired to pursue careers in bioengineering. He was uniquely able to recognize creative and unusual students and encouraged them to acquire the kind of deep fundamental understanding that contributes to a sense of accomplishment—even a sense of competence and power. Nelson became the mentor of several of these students and formed long-term friendships with them. He was technically thorough, imaginative, possessed an analytical mind, and had a remarkable ability to visualize the physical behavior of electronic circuits. His mastery of first principles made him a valued resource to colleagues and students. Highly regarded by everyone who knew him, Nelson was warmly admired for his personal attributes of complete integrity, honesty, patience, and good-humored generosity of time and effort.

In addition to his academic interests, Nelson was a naturalist, particularly of plant life and birds, and an enthusiastic gardener. Hiking was a favorite pastime, and he often went on camping trips in the Rocky Mountains and the Adirondacks with friends and colleagues. He was an accomplished musician, and he played the trumpet with the Cornell University Orchestra and the Ithaca Concert Band for many years. As an early-jazz aficionado, he derived considerable pleasure from introducing present-day “rock-and-rollers” to the delights of Dixieland and noting their immediate reaction and declaration that “this is the right stuff” In addition, EE School members who used to bowl in the old Franklin Hall League recall that Nelson achieved the top all-time average in that energetic group.

Nelson and Tommie Thomson were married on June 19, 1943 in New York City. The majority of their 51 years together was spent in Ithaca. Nelson is survived by his wife, who lives in Ithaca; a son, Bruce and his wife Linda, and two grandchildren of Elkins Park, Pennsylvania; a daughter, Jane of Boulder, Colorado; a brother, Robert of New Smyrna Beach, Florida; a brother, Stanley of Clover, South Carolina; a brother, Lincoln of Greene, New York; a sister, Madeleine Lewis of Ithaca, New York; and a sister, Ruth Rubright of Wernersville, Pennsylvania.

Nelson Bryant will be long remembered as a dedicated teacher and adviser, an outstanding engineer, a highly respected colleague, and a true friend.

*William H. Erickson, H.C. Torng, Norman M. Vrana, Simpson Linke*