In Memoriam

Mac Elwyn Van Valkenburg
(1921–1997)

Our profession lost one of its foremost electrical engineering educators on March 19, 1997, with the passing of Mac Elwyn Van Valkenburg. Mac was W. W. Grainger Professor Emeritus of the Department of Electrical and Computer Engineering and Dean Emeritus of the College of Engineering at the University of Illinois, Urbana-Champaign (UIUC). He died at age 75 in Orem, UT, not far from his place of birth in Union, UT.

As a professor, Mac authored three textbooks, coauthored four others, and published numerous research papers and articles on engineering education. He also advised more than 50 Ph.D. students, many of whom became leaders in industry, government, or academia. He was a fellow of the IEEE and served for many years on the Editorial Board of this PROCEEDINGS.

I. RENOWNED AUTHOR

In the 1950's, at the core of every engineering curriculum was a course in dc/ac circuit analysis. The modern concepts of time domain/frequency domain transform methodologies were revolutionary and little understood by most engineering educators of that era. Although E. Guillemin must be rightfully credited as the father of modern circuit and system theory in engineering education, Mac's books made the concepts understandable to the masses worldwide. Engineering curricula throughout the world were changed with the publication of the first edition of Mac's *Network Analysis*.[1] Mac's fame as an engineering educator was cemented with the publication of his second book, *Introduction to Modern Network Synthesis*, in 1960.[2] The second and third editions of *Network Analysis* were published in 1964 and 1974, respectively. In 1982, his final book, *Analog Filter Design*, was published.[3] His textbooks were translated into several languages and became worldwide standards.

Mac was truly a gifted writer; he had a knack for explaining difficult concepts in simple terms. In 1991, Dr. S. B. Sample, president of the University of Southern California, wrote to me that

> Mac Van Valkenburg was my teacher in the early 1960's when I was an undergraduate at the University of Illinois. To say that he was a brilliant teacher would be an understatement. His textbooks on linear circuit theory were at that time world famous, as they are to this day. Both through his writings and in the classroom, Mac was able to explain extraordinarily complex technical topics in the most disarmingly simple and appealing manner possible. Over the years he has clearly emerged as one of the half dozen or so most distinguished teachers of engineering in the country.

II. THE HUMBLE GURU

As Mac's reputation grew as one of the foremost electrical engineering educators of the latter half of the twentieth century, the demands on his time grew to a level that many people would find intolerable. Between his worldwide

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[1] Englewood Cliffs, NJ: Prentice-Hall, 1955.

[2] New York: Wiley.

[3] New York: Holt, Rinehart and Winston.

travels and his keen interest in engineering education, he became a valuable source of information. He served on endless policy and advisory committees and wrote numerous articles on engineering education, including a column in the *ASEE Prism*. Engineering students, educators, and publishers from all parts of the world sought his advice and counsel. Mac treated them all equally graciously, from the bewildered undergraduate student to the embattled department head, dean, or university president. J. Whinnery, Professor Emeritus of the University of California, Berkeley, confided to me the opinion that "Mac is the guru to electrical engineers." On the occasion of Mac's 65th birthday, a symposium on electrical engineering education was held in his honor. There, the late F. K. Willenbrock, then executive director of the American Society for Engineering Education (ASEE), described Mac as "a broad-gauged and generous human being."

Mac was quick to sense new trends in electrical engineering. In 1963, he organized the first Circuits and Systems Conference at the Allerton Conference Center, UIUC. Most of the notable electrical engineering educators in the field were in attendance. Many new ideas for research, new courses, and textbooks were brought to life from the mix of seasoned veterans, young educators, and graduate students. It was the kind of intellectual stimulation that Mac enjoyed throughout his career. Later, he encouraged similar conferences at Princeton University, the Asilomar Conference Center in California, and the University of Hawaii. Approximately ten years later, the IEEE Circuit Theory Society became the IEEE Circuits and Systems Society. This year, the Allerton Conference will celebrate its 35th anniversary.

Van Valkenburg's ability to communicate in print was matched by his talent as a classroom teacher. His famous colored-chalk lectures, delivered with infectious enthusiasm, attracted thousands of undergraduates to his courses. The "guru of electrical engineering education" was a master at establishing a comfortable, open atmosphere for learning. Mac relished attention, but he was a humble man who didn't like being placed on a pedestal. He enjoyed communicating with other people in the profession. He had a talent for bringing out a person's innermost thoughts while revealing little about himself. He liked to stimulate discussions using the shock-treatment methodology, or, as one friend said, "Mac liked to throw curveballs at you; that is, he would say something ridiculous or outrageous to you." Friends would recognize the sly smile on his face and enjoy fielding his curveballs. Others, who didn't know him well, were often confounded. I always found that a person with a good sense of humor quickly caught on to his antics and became his lifelong friend.

III. The Mentor

Mac's communication skills made him a great writer and teacher, but his talents didn't end there. He took a genuine interest in bright and creative people and enjoyed mentoring them, regardless of their gender or ethnicity. His only requirement was that they have an open mind. He was generous in his support of them, to the point of encouraging them to write textbooks competitive to his own books. For many young people in the profession, Mac was a father figure.

He mentored through example, utilizing his genuine interest in people and powers of subtle persuasion. Because of the extensive demands on Mac's time, his typical work day began at 5:00 a.m. and ended late in the evening. I remember the experience of a new tenure-track assistant professor who, when he joined the faculty, was assigned an office next to Mac's. The first day, the new professor arrived at work midmorning. He noticed Mac in his office with his door open; Mac's open-door policy was always an invitation to come visit. The next day, the new professor arrived to his office at 8:00 a.m. Mac was in his office with his door open. The following morning, the new professor arrived at 7:00 a.m. Again, Mac was in his office with his door open. Finally, the new professor boldly asked Mac if he worked 24 hours a day. Thereafter, the new professor was keeping the same hours as Mac.

IV. A Brief Biography

Mac Van Valkenburg was born on October 5, 1921, in Union, UT, to Charles M. and Nora Louise Walker Van (the family surname had been shortened to Van). In 1928, his father was electrocuted on his dairy farm when he came in contact with a live wire that lay in his pasture; at age six, Mac and his three younger sisters were fatherless.

In grade school, Mac was inspired by a neighbor boy who had done such things as amplify the sound from a hand-cranked phonograph by using a one-tube, battery-powered radio. Before he was a teenager, Mac and a close friend, Vance Burgon, were making crystal radio receivers. Materials included copper coils wrapped around oatmeal boxes and crystals of galena found in nearby copper deposits. Mac and Vance became amateur radio operators. Their walls became plastered with QSL cards, postcards from other ham-radio operators verifying that their signal had been received. The postcards from North, Central, and South America were simply addressed Mac Van, Sandy, UT (at that time, the nearest post office to Union was in Sandy). Soon, Mac and Vance were scripting a radio program based on their experiences and information from ham-radio magazines. Their program aired late Saturday nights on radio station KSL in Salt Lake City. Mac developed a love for classical music from his interest in radio.

Mac's mother encouraged him to attend college, and he convinced the family to restore the family name to Van Valkenburg. Mac often picked strawberries in the summers and saved his earnings for college.

Mac graduated from Jordan High School in Sandy and the following fall enrolled in the electrical engineering program at the University of Utah. He received financial support from the National Youth Assistance Program, which allowed him to earn $20/month. At the university, Mac assisted the dean of engineering, Dr. Taylor, for 35

cents/hour. He graduated from the University of Utah in 1943. On August 27, 1943, he married his high school sweetheart, Evelyn June Pate, in Salt Lake City. Mac's daughter JoLynne asserts that "Mac was charmed by the music that Evelyn made in the high school band." Since the United States was in the midst of World War II and Mac was a top student, upon graduation he received an assignment to join the staff at the Massachusetts Institute of Technology (MIT)'s Radiation Laboratory, where he helped develop radar under the direction of the renowned E. Guillemin.

In 1946, Mac received the M.S. degree from MIT and returned to the University of Utah, where he taught until 1955. He took a leave of absence from 1949 to 1952 to pursue the Ph.D. degree, awarded in 1952, at Stanford University, CA. Interestingly, his Ph.D. dissertation was on the topic of the detection of meteor trails in the ionosphere. While at Stanford, Mac was given the assignment of developing a new course on servomechanisms. One can only conjecture that perhaps this daunting assignment developed his interest in circuits and systems. Or perhaps the seeds had already been planted by Guillemin.

Mac joined the faculty of the Department of Electrical Engineering at UIUC in 1955. There, he served as Associate Director of the Coordinated Science Laboratory and, for a semester, as acting department head. In 1966, he became head of the Department of Electrical Engineering at Princeton University, NJ. In 1974, he returned to the University of Illinois.

In 1982, Mac was named to the College of Engineering's first endowed chair, the W. W. Grainger Professorship. In 1984, he was appointed dean of the College of Engineering. Upon Mac's retirement in 1988, UIUC Chancellor T. Everhart stated, "The renaissance in engineering, which has seen an explosion of new endeavors in the past three years, has been due, in no small part, to the supportive atmosphere Dean Van Valkenburg has embodied and the encouragement he has given to new initiatives."

During his career, Mac held visiting appointments at Stanford University, the University of California, Berkeley, the University of Colorado, the University of Hawaii–Manoa, the University of Arizona, and the Indian Institute of Technology at Kanpur. He was a delegate to the meeting of the First International Federation of Automatic Control in Moscow. He also received numerous honors and awards, including the IEEE Education Medal, IEEE Centennial Medal, ASEE Lamme Medal, ASEE George Westinghouse Award, Guillemin Prize, and Halliburton Award. Mac was a member of the National Academy of Engineering. He served as Vice President of the IEEE, Associate Editor of the PROCEEDINGS OF THE IEEE and IEEE TRANSACTIONS ON CIRCUIT THEORY, Editor-in-Chief of IEEE Press, and on numerous committees in the National Academy of Engineering, IEEE, ASEE, and Accreditation Board for Engineering and Technology. He also served on a number of advisory committees for the National Science Foundation (NSF) and various universities.

Mac is survived by his wife, Evelyn. Also surviving are two sons, Charles Mac Van Valkenburg of Kansas City, MO, and David R. Van Valkenburg of Merida, Mexico; four daughters, JoLynne Van Valkenburg of Orem, UT, Kaye Van Valkenburg of Portland, OR, Nancy J. Wallace of Ogden, UT, and Susan L. Van Valkenburg of San Francisco, CA; and six grandchildren.

V. MEMORIAL SYMPOSIUM

On Saturday, November 15, 1997, a Memorial Symposium is scheduled to be held on the campus of UIUC to honor Mac E. Van Valkenburg. Many young faculty and students never had the opportunity to experience Mac's inspirational leadership, which was so influential in our lives. At the symposium, we plan to highlight the qualities that Mac possessed that made him one of the most influential electrical engineering educators and mentors in our era. We also plan to highlight the changes that have occurred in electrical and computer engineering education over the past several decades and present a vision of the future. The morning session will open with a keynote address by Dr. S. B. Sample, president of the University of Southern California and a former student of Mac's. Dr. Sample will be followed by a panel of friends of Mac's, who will give remembrances of his influence on their careers. The afternoon session will open with a keynote address by Dr. J. Bordogna, deputy director of the NSF and president-elect of the IEEE. Dr. Bordogna's address will be followed by technical presentations from eminent educators in the fields of circuits, control, communication, signal processing, computers, and power. Anyone interested in more information on the symposium should contact Prof. T. Trick by e-mail at t-trick@uiuc.edu.

As with so many of us, my life and my career have been greatly enriched by this generous, humble, and gentle man from Union, UT. Memorial contributions may be made to the M. E. Van Valkenburg Award Fund, University of Illinois Foundation, 1305 West Green Street, Urbana, IL 61801 USA.

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TIMOTHY N. TRICK
University of Illinois
Urbana, IL 61801 USA