



William K. Limvill

WILLIAM K. LINVILL

1919-1980

BY DAVID C. WHITE

WILLIAM K. LINVILL died suddenly on August 7, 1980. Bill Linvill combined in one personality an unusual number of rare human gifts. With his passing, engineering loses one of its most thoughtful social philosophers. He combined a simple, direct, and manifold concern for his fellow human beings with brilliance as a teacher, faithfulness to methodology as a scholar of engineering, and the breadth of vision of a true social generalist.

William K. Linvill was born in Kansas City, Missouri, on August 8, 1919. He and his identical twin John were the sons of Thomas Grimes Linvill and Emma Crayne Linvill. The twin sons were both scientifically inclined, and they studied math and physics at William Jewell College in Missouri. Then they entered the Massachusetts Institute of Technology (MIT) where they both did graduate work in electrical engineering. Bill Linvill worked in the Servomechanisms Laboratory at MIT, where feedback control systems concepts were in the very early state of development. His Sc.D. thesis, "Analysis and Design of Sampled-Data Control Systems," was a pioneering contribution to the use of sampling techniques applied to intermittent noisy data used for systems control. He was an early leader in this now highly developed field of electronic signals and computers used in interactive control systems. After completing his Sc.D. in 1949, Dr. Linvill joined the faculty of MIT as an Assistant Professor of Electrical Engineering. Promoted to Associate Professor in 1953, he continued his research and teaching in sam-

pled-data computer control systems, making contributions to the successful design of the SAGE defense system developed by MIT's Lincoln Laboratory. In 1956 he resigned his MIT associate professorship to lead systems analysis work, first at the Institute for Defense Analyses and later at the Rand Corporation.

In 1960 Dr. Linvill joined the Electrical Engineering faculty of Stanford University. It was at Stanford that he brought to fruition the concepts he had been developing for applying systems and decision analysis to large-scale engineering and social systems. He concerned himself with developing ways to meet society's need to utilize technology and adapt to implications of technological applications. He was a visionary in perceiving the pressures that rapidly advancing technology places on human beings and the difficulties created by the necessity for technological choices to be made by the whole society rather than by a few specialists. He applied his vision to creation of an interdisciplinary academic program that would broaden the perception and enhance the systems analysis skills of his graduate students. In 1967 he became the Founding Chairman of the Department of Engineering- Economic Systems with a program emphasizing rational analysis of complex socioeconomic engineering systems.

Dr. Linvill's work in the philosophical aspects of problem solving and the issues of how technology can better serve society made him a pioneer of a new engineering discipline. As a leading scholar and teacher in this emerging field, he recognized early the critical need for practical internships in such an applied field. He encouraged more than 150 of his doctoral candidates over the next twelve years to take full-time field training of at least one year in government or industry. His focus was always on those hard, complex problems that should be the real concerns of our society. He believed that an educated mind needed highly developed skills of both quantification and qualification. He emphasized to his students that good common sense in applying words and numbers in analysis was a great asset. Demanding, yet gentle, with a ready wit and winning smile, he attracted many bright students and colleagues who shared his interest in technology policy. He was a true humanitarian who sought always to develop fully the human potential in those about him.

In the last years of his life he perceived an intensifying need for those educated in technology policy analysis and development to take a more entrepreneurial role. Toward this end, his last project was to begin creation of a prototype Technology Policy Exploratory Center embodying close interaction among several universities and private corporations. Through this new institution he hoped to facilitate the formation of critical masses of human resources around needed new policy initiatives that could be implemented by private entrepreneurship. Full development of this pioneering concept falls to others as an intellectual legacy from Bill Linvill.

In addition to being a member of the National Academy of Engineering, Dr. Linvill was honored by appointment as a Fellow of the Institute of Electrical and Electronics Engineers and the American Association for the Advancement of Science. He served as a member of the National Research Council's Commission on Sociotechnical Systems, the National Aeronautics and Space Administration's Advisory Council for Space and Terrestrial Applications, the Westinghouse Electronic Research Advisory Council, and the National Bureau of Standards Visiting Committee. He was a consultant to a number of organizations including Stanford Research Institute International and the National Science Foundation. He was a Visiting Professor, "Chair of Free Enterprise," at the University of Texas.

He is survived by his wife, the former Bessie Blythe Burkhardt; his children, Barbara, Mary Lou, Thomas, Anne, and Carl; his twin brother John, also a member of the National Academy of Engineering; and his brother James of Kansas City, Missouri.