

## MEMORIAL RESOLUTION

### WILLIAM K. LINVILL (1919 – 1980)

William K. Linvill, a member of the Stanford Faculty since 1960, died August 17, 1980. His was a loving life, a generous life, an optimistic life - - a life of creation. Perhaps the central word describing his relations with others is "caring." Bill influenced beneficially the lives of hundreds of people, some of whom he knew only slightly. He was generous with his time, always ready to respond to the personal and professional needs of others.

Professor Linvill was born August 8, 1919, in Kansas City, Missouri. He obtained an A.B. Degree in Mathematics and Physics from William Jewell College in 1941. Then he attended Massachusetts Institute of Technology where he obtained degrees of A.B./S.M. in 1945 and Sc.D. in 1949, all in Electrical Engineering.

In 1942, he married Bessie Blythe Burkhardt, who graduated with Bill from William Jewell College. There are five children: Barbara (Mrs. John Graves), Mary Lou, Thomas, Anne, and Carl; and two grandchildren. He is also survived by a twin brother, John, who is a professor of Electrical Engineering at Stanford, and by a brother, James, of Polo, Missouri.

Bill served as Assistant Professor, then as Associate Professor of Electrical Engineering at MIT from 1949 to 1956. During this period he conducted research in computer control systems and developed courses on sampled-data systems based on research of his Sc.D. dissertation, *Analysis and Design of Sampled-Data Control Systems*. He spent 1956-58 at the Institute for Defense Analysis at the Pentagon in Washington, D.C. and from 1958-60 served as a senior staff member of the Electronics Department at the RAND Corporation, Santa Monica, California. During this period he developed his skills of systems analysis and further deepened his belief that engineering education should be both grounded in academic foundations and involved in practical problems.

In 1960, Bill joined the Stanford Electrical Engineering faculty, where he began to develop programs based upon his educational philosophy. This led to his founding of the Institute in Engineering-Economic Systems at Stanford, which later became the Department of Engineering-Economic Systems.

While serving as Chairman of the new department, Professor Linvill continued his active involvement in a wide variety of research, teaching, advisory, and practical problem responsibilities. He had a unique ability to recognize new areas for the application of systems analysis and to inspire students and faculty to accept the challenge of these new problems. He directed students in the study of electric power system planning, water resource planning, educational systems, underdeveloped countries, health care systems, and other engineering systems problems involving technical, economic, and social considerations.

During his years at Stanford, Bill spent a good deal of his time, often at great sacrifice to himself and his family, to extend his vision beyond Stanford boundaries. At the end of his first year at Stanford, he initiated an internship program for Ph.D. students with Westinghouse Research Laboratories in Pittsburgh, Pennsylvania. He later extended this program to other companies and government agencies and made it an integral part of the new department. In 1965 he and several colleagues developed a joint engineering-economics systems program with Stanford Research Institute to serve as a "half-way house" between the academic and business worlds. This initial program led to the generation of two new departments at SRI, with a number of staff holding joint appointments at Stanford and SRI. In 1972 he spent his sabbatical leave as a Fellow of the Battelle Memorial Institute in Columbus, Ohio, where he conducted research on social choice processes for selecting technological alternatives and on the application of system techniques to general policy analysis. During that year he also formed workshops for several organizations and individuals throughout the country who were interested in a unified approach to these problems. Returning to Stanford at the end of 1972, he began several new activities related to policy analysis, including the establishment of an internship program with the Technology Assessment Board in the U.S. Senate, formation of the Center for Technology Assessment and Resource Policy within the Department of Engineering-Economic Systems, and initiation of several research and applied policy projects. One special project was the development of a new transportation system for the elderly or handicapped.

In 1978 Professor Linvill further broadened the range of his educational activities. He participated in the Stanford Human Biology Program and developed a co-terminal program allowing undergraduates to obtain jointly with their normal Bachelor's degree a Master's degree in Engineering-Economic Systems in a five-year program. As an outside activity he became an Adjunct Professor of Electrical Engineering in the Chair of Free Enterprise at the University of Texas, Austin, Texas, to work on problems concerned with the impact of Mexican oil discoveries.

In his later years, he was increasingly concerned with two interrelated matters. The first was initiation of fundamental changes in the approach to world development necessary to create a global order. The second was revitalization of industrial society which, as he saw it, would be essential to accomplishment of the first. In the final months of his career he was developing a new institution to serve as an exploratory center for these issues.

Bill's honors and advisory roles include an alumni achievement award from William Jewell College and election as a Fellow of the Institute of Electric and Electronic Engineers (IEEE), a Fellow of the American Association for the Advancement of Science (AAAS), and a member of the National Academy of Engineering. He served as a member of the National Academy of Sciences Commission on Sociotechnical Systems, a member of the NASA Advisory Council for Space and Terrestrial Applications, a member of the Westinghouse Electronic Research Advisory Council, and a member of the National Bureau of Standards Visiting Committee. He was a consultant to a number of organizations including SRI International and the National Science Foundation.

Perhaps the main characteristic of Bill's career was his vision and his deep concern for individuals. He had a vision of how the world and its people could be improved by technology and technical analysis, but he saw that the key to these changes was to develop processes involving people. He knew that the people working in these processes would themselves be

enriched. He gave freely of his time to help students and faculty find new directions or shape more fully their own career visions. He had a profound effect on students, faculty, and the character of engineering at Stanford.

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