

STANFORD UNIVERSITY
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OFFICE OF THE PRESIDENT

MEMORIAL RESOLUTION
RAY K. LINSLEY
(1917-1990)

Ray K. Linsley, professor of Civil Engineering and former Chairman of the Department of Civil Engineering, passed away on November 6, 1990 at a convalescent hospital in Santa Cruz after a long illness. He served on the Stanford faculty for twenty-five years, from 1950 to 1975, at which time he took early retirement to devote his energies to consulting. At the time of his death he was Chairman of the Board of Linsley, Kraeger Associates Ltd., a consulting firm that specializes in hydrologic modeling. During a lengthy series of illnesses, Ray displayed utmost courage.

Professor Linsley was born in Hartford, Connecticut on January 13, 1917. He received a B.S. degree in Civil Engineering from Worcester Polytechnic Institute in 1937. Upon graduation he accepted a job with the Tennessee Valley Authority in Knoxville. His work with the TVA included hydrologic analyses and reservoir operation studies. After three years with the TVA, Ray moved to Washington, DC to work for the U.S. Weather Bureau, where he directed research. He was with the Weather Bureau for ten years, part of that time on assignment as a river forecaster in Sacramento where he wrote a manual: "River Forecasting Methods." During his time with the TVA and the Weather Bureau, Ray did graduate study in administration at the University of Tennessee and in meteorology and statistics at the U.S. Department of Agriculture graduate school in Washington, DC, where he also taught courses in hydrology.

In 1950 Ray left the Weather Bureau to accept a position as Associate Professor in the Department of Civil Engineering at Stanford. At the time he arrived at Stanford, he already had published twelve outstanding papers and one textbook. In 1942 he received the Collingwood Prize from the American Society of Civil Engineers for the best paper written by a Junior Member of the Society. While at the Weather Bureau, Ray (as senior author) and two colleagues burned the midnight oil and spent their weekends writing the textbook, *Applied Hydrology*, published by McGraw-Hill in 1949. This book was unique because existing books on hydrology were largely descriptive

and qualitative, whereas *Applied Hydrology* presented quantitative approaches to various hydrologic phenomena. Many of these approaches were developed by Ray himself.

Ray directed the PhD dissertations of thirty-five students while he was at Stanford, the research covering a broad spectrum of topics in hydrology and water resources planning. In hydrology he directed research on the mechanics of overland flow, rainfall synthesis, stochastic hydrology and modeling of the hydrologic cycle. The latter led to the development of the Stanford Watershed Model, the state-of-the-art tool of hydrologists. His research in planning included the forecasting of water demand, water rights transfers, planning in the face of uncertainty, and the effect of public attitude on the planning process.

During his first two years at Stanford, Ray developed a series of three graduate courses in hydrology and started a research program in that area. Ultimately, Ray served as Chairman of the Department of Civil Engineering from 1956 to 1967 and as Associate Dean of the School of Engineering from 1955 to 1958. He was one of the founders in the early 1960's of a program at Stanford in Engineering-Economic Planning which expanded the education of civil engineers beyond project design to include the social, political, and economic factors that affect public works, planning, and management.

President Lyndon B. Johnson in 1968 appointed Ray to a seven-member National Water Commission. Ray served for six years and was the only engineer on the commission. The commission studied ways to fight water pollution and provide adequate water supplies for the nation. The commission's report in 1973 recommended cutting back government subsidies for water users and recommended that beneficiaries repay the full cost of irrigation and flood control projects. The report also emphasized the importance of water conservation.

Ray was active in several professional organizations. He was elected to honorary membership of the American Society of Civil Engineers and in 1978 was the recipient of the Society's Julian Hinds Award for "outstanding leadership and service in encouraging education and research in comprehensive water resources planning and management and in implementing programs in this field for civil engineers and planners." Ray was a Fellow of the American Geophysical Union and served as president of the hydrology section of AGU from 1955 to 1959. He was an active participant in the founding of the American Institute of Hydrology, which was incorporated in 1982, and he served as its senior vice president for several years. When there is a worthy candidate, the American Institute of Hydrology presents at its annual

meeting the Ray K. Linsley Award to an individual who has made significant contributions to the field of surface water hydrology.

While on sabbatical leave in the 1950's, Professor Linsley was a Fulbright Professor at the Imperial College of Science and Technology in London. On another sabbatical he served in the Office of Science and Technology in Washington, DC where he coordinated water resources research among twenty-five federal agencies.

Ray was active as a consultant throughout the world. He served as a water resources and hydrology consultant to the Turkish, Yugoslavian, Israeli, Venezuelan and Brazilian governments, and to the World Health Meteorological Organization in Geneva. In the 1960's and 1970's Ray organized a summer program in Venezuela to educate engineers from all over Latin America. Sponsored by the Venezuelan Ministry of Public Works, the program awarded master's degrees in hydrology after three successive summers. The program was unique in that it was initially staffed by visiting professors from the United States, but gradually more and more Latin American professors became involved in the program. About one hundred master's degrees were awarded to students from ten different countries.

In addition to being the senior coauthor of *Applied Hydrology*, Ray was senior coauthor of two other books, *Elements of Hydraulic Engineering*, *Hydrology for Engineers*, and *Water Resources Engineering*. These books have been widely used as textbooks throughout the world. *Hydrology for Engineers*, now in its third edition, has served to educate an entire generation of hydrologists. It has been translated into Spanish, Portuguese, Persian, Japanese and Russian. *Water Resources Engineering*, also in its third edition, has been translated into several languages, including Spanish and Portuguese. This book was instrumental in unifying the profession of water resources engineering, as it is the only book that comprehensively covers hydrology, hydraulic structures, and the various fields of water resources such as water supply, irrigation, flood control, drainage, and hydropower.

Professor Linsley received many honors. He was a member of Tau Beta Pi (an honorary engineering scholastic society) and Sigma Xi. In 1976 Ray was elected to the National Academy of Engineers. He was an honorary member of the Venezuelan Society of Hydraulic Engineers and of the Japan Society of Civil Engineers. He was awarded an honorary Doctor of Science from the University of the Pacific in 1973 and an honorary Doctor of Engineering from Worcester Polytechnic Institute in 1979.

From 1966 to 1978 Ray served as Chairman of Hydrocomp, Inc., a consulting firm, and since 1979 he was Chairman of Linsley, Kraeger Associates, Ltd. He was a registered Civil Engineer holding licenses in California, Connecticut, Georgia and

Illinois. Ray had a tremendous capacity for work and led by example. He had an uncanny ability to get to the core of a problem, rather than skirting around the edges.

Ray was a devoted family man. Through the years he found time for sailing, and he enjoyed traveling with his wife of nearly 53 years, Anne Cutler Linsley, in their recreational vehicle. Ray is survived by his wife and four children: Diane Gabitas of London, Stephen of Berkeley, California, Alan of Sebastopol, California and Brian of Larkspur, California. Thirteen grandchildren and two great-grandchildren enriched his life. Private family services were held.

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