

MEMORIAL RESOLUTION

HUBERT SCOTT LORING (1908 – 1974)

On October 31, 1974, while Hubert and Dorothy Loring were driving home from a pleasant vacation visiting relatives and friends in the Northwest, Professor Loring was stricken by a heart attack. He was taken by ambulance to Lovelock, Nevada, where he was pronounced dead. Because of his previous excellent health and no indication of heart trouble, his colleagues and many friends and students were shocked to learn of his death so soon after his retirement from active duty in June of this year.

Professor Loring was born in British Honduras (now Belize), on November 19, 1908. Two married sisters still live in Belize, and Dr. Loring retained a strong attraction toward his boyhood home. For his university education he came to the United States and received the Bachelor's degree from Pomona College in 1929. He then went to the University of Illinois where it was his good fortune to begin research with a young faculty member, Vincent du Vigneaud, who was later to be awarded the Nobel Prize for his pioneering biochemical studies. Loring obtained his M.S. degree in 1930 working on the chemistry of the sulfur-containing amino acids, cystine and cysteine. He continued research with Professor du Vigneaud at Illinois and moved with him to George Washington University in Washington, D.C., where he received the Ph.D. degree in 1933 with a thesis on the chemistry and function of the important tripeptide, glutathione.

After teaching in the Medical School of George Washington University for two years, he spent four years at the Rockefeller Institute in New York working on the crystallization and characterization of tobacco mosaic virus with the late W. M. Stanley, who also later received the Nobel Prize.

Professor Loring joined the faculty of the Stanford University Chemistry Department in the fall of 1939. This was at the time when the Stanford Hospital was situated in San Francisco, while the basic medical science classes were taught on the Stanford campus. He taught biochemistry, which was a division within the Chemistry Department until 1958 when the Medical School moved to its present Stanford location and a separate Department of Biochemistry was established within the Medical School. Hubert retained his association with his original colleagues in the Chemistry Department until his retirement. The undergraduate premedical students were particularly fortunate to have a biochemist teach their introductory course in analytical chemistry. He had a consuming interest in undergraduates and served as an undergraduate adviser until the time of his retirement. He thus had a continuing influence as teacher and adviser on the education of Stanford medical and premedical students for thirty-five years. He was soft-spoken, with a ready smile, and a warm friend to many.

Perhaps his more important research activities at Stanford took place in the early and mid-1940s. His students and colleagues remember the friendly atmosphere and subdued excitement which characterized his laboratory. He and his students were active in two major areas, the purification of poliomyelitis virus and the structure and metabolism of ribonucleic acids. The first of these endeavors with his student Carlton Schwerdt led to the isolation of the

Lansing strain of the polio virus (1946) and the subsequent development, in collaboration with Professor Sidney Raffel, of a vaccine against polio in cotton rats (the only species other than primates then known to contract polio). These experiments were the precursors to the development of a practical polio vaccine in man by other scientists.

The second major endeavor followed the isolation by Professors Beadle and Tatum, then at Stanford, of mutants of Neurospora which apparently required products of the hydrolysis of nucleic acids for growth. He and his students worked on the detailed nutritional requirements of several of these mutants and showed that one had a blockage in the biosynthetic pathway leading to the pyrimidine nucleosides. This work demonstrated the key importance of the pyridine derivative, orotic acid, in the biosynthesis of the pyrimidine nucleosides. Loring was one of the first biochemists to reject the then current theory of nucleic acid structure which proposed that nucleic acids were made up of tetranucleotides, either actual or on a statistical basis. He was actively engaged in using the newly discovered Neurospora mutants to analyze the specific content of nucleic acids. His interest in nucleic acids continued, and at the time of his retirement he was engaged in a study of the importance of trace metallic elements in the structure of tobacco mosaic virus and the nucleoproteins. He was not satisfied with the accepted explanation of the tertiary structure of virus molecules and felt that trace metal ions present in the most carefully crystallized virus samples might be serving a real chemical binding function instead of being non-functional trace impurities. He was a thorough scientist who was not satisfied with superficial rationalizations of experimental data but held to the most exacting standards of experimental results and their theoretical interpretations. He preferred small groups of research associates so that he could work with each student personally. He was a very human and considerate, but also an exacting professor and adviser.

During his thirty-five years' tenure he took time away from Stanford in 1948 to accept a Rockefeller Foundation Fellowship to study in various European laboratories, in 1952 to accept a Walter-James Visiting Professorship at the University of Washington Medical School in Seattle, and in 1953 a Visiting Professorship at the University of California. In 1971 he was an invited guest of the Indian Pathological Society at the Second International Symposium on Plant Pathology in New Delhi. In addition to his teaching and research, which led to numerous publications, he found time to serve on the editorial board of the Journal of Biological Chemistry from 1950 to 1955 and as an associate editor of Annual Reviews of Biochemistry from 1946 to 1955.

Professor Loring is survived by his wife, Dorothy, a son, William of Longview, Washington, a daughter, Mrs. Margaret Goodale of Daly City, a brother, Dr. Theodore W. Loring of Eureka, and three sisters, Mrs. Jesse Morse of San Francisco, Mrs. Alice Gregg and Mrs. Lucy Woods of Belize, and two grandchildren.

It is particularly unfortunate that Dr. Loring was unable to pursue his many plans for the future: continuation of certain important aspects of his research, as well as his hobbies of fishing and gardening. All of his many friends and associates mourn his untimely death.

Harry S. Mosher
Carl R. Noller
Carlton Schwerdt