

WALTER McCLELLAN LAUER

1895 - 1976

Walter M. Lauer, Professor Emeritus of Chemistry at the University of Minnesota, died suddenly of a heart attack in St. Paul, Minnesota on November 11, 1976 at the age of 81. The son of Wesley McClellan and Mary Bott Lauer, he was born on July 18, 1895 at Thomasville, Pennsylvania. He attended Ursinus College in Collegeville, Pennsylvania from 1909-13, receiving his A.B. degree in June 1913, at the age of 17. He then moved to Minnesota and served as Instructor of Mathematics and Physics at the Dassel High School in Dassel, Minnesota during the 1913-14 school year. He then began graduate work at the University of Minnesota and served during 1914-17 as a graduate assistant in organic chemistry. He received his M.S. degree with Professor and Dean George B. Frankforter on June 2, 1917. His M.S. thesis was entitled, "An Investigation of Wood Oil". With the U.S. becoming involved in World War I, he served from 1917-19 as an Inspector of Powder and Explosives for the U.S. Army Ordnance Department at several locations in Pennsylvania. He returned to the University of Minnesota briefly, as the Shevlin Fellow, in January 1919. Then he became

a Research Chemist at the Jackson Laboratory of the duPont Dye Works for 18 months during 1919-20. He returned to the University of Minnesota as an Instructor for the 1920-21 academic year, and continued in that capacity for five years, including one year after being awarded the Ph.D. degree in June 1924. During this period, on September 5, 1922, he married May Grabow, who had been the secretary to O. M. Leland, Dean of the School of Chemistry. He carried out his Ph.D. research with Professor William H. Hunter. His thesis was entitled "I. The Action of Bromine on the Sodium Salt of Tribromophenol. II. The Constitution of Tribromophenol Bromide and its Congeners." A paper bearing the title of the second part was published in the *Journal of the American Chemical Society* in 1926.

In 1925, Walter Lauer was appointed as an Assistant Professor. During his early years of postdoctoral research he adapted Nobel laureate Fritz Pregl's method of microcombustion to provide semimicro combustion methods for the determination of carbon and hydrogen (with Frank J. Dobrolvony) and nitrogen (with Conrad J. Sunde), which were published in the *"Mikrochemie Pregl-Festschrift"* in 1929. A semimicro procedure for

organic analysis was needed in this country, where micro balances were not yet available, and the semimicro procedure was quickly adopted by Harvard, Illinois, and Maryland, and the first semimicro organic analytical laboratories were soon established there, as well as at the University of Minnesota. Also in the field of analytical chemistry, Dr. Lauer (in collaboration with Professor I. M. Kolthoff and Conrad J. Sunde) developed and published in 1929 the procedure for use of dichlorofluorescein as an adsorption indicator in the titration of chloride ion with silver ion, a procedure which is still in wide use today. In 1931-32 Dr. Lauer was on sabbatical leave in Germany, where he worked with Nobel laureate, Heinrich Wieland in Munich, but also had contacts with Nobel laureates Hans Fischer and Richard Willstätter, and in Graz, Austria with Pregl's laboratory. Following his stay there, he returned to Minnesota to set up one of the first, if not the first, organic micro-analytical laboratories in this country.

As his national stature increased, Walter Lauer was promoted in 1935 to Associate Professor and in 1939 to full Professor. During his

middle years he was active as a consultant, serving with the 3M Company Central Research Laboratory from 1943-48, with Abbott Laboratories from 1945-52, as a member of the Organic Research Panel of the Office of Naval Research from about 1946-50, and with the Oak Ridge National Laboratory from 1950-59. During World War II he also served in 1944 in the Antimalarial Program as a Civilian Investigator with the Committee on Medical Research of the Office of Scientific Research and Development. He served continuously as a member of the Board of Directors of the Hormel Institute in Austin, Minnesota from its founding in 1942 until his retirement on June 15, 1964, and thereafter for a number of years as a consultant. He served the American Chemical Society as Treasurer (1922), Secretary (1934-36), Chairman (1955-56), and Councilor (1951-53, 1957-59), all of the Minnesota Section; as a member of the Executive Committee (1944-46 and 1952-53) and Chairman (1953) of the Organic Division; and as a member of the Board of Editors of the *Journal of the American Chemical Society* (1950-59). At the University of Minnesota he served on the (Alumni) Honors Committee (1955-62), as a member of the University

Senate (1960-63), and as President of the Minneosta Chapter of Sigma Xi (1962-63).

In 1954 Walter Lauer held a Guggenheim Fellowship for study at University College, London with Dr. E. D. Hughes and Professor C. K. Ingold, and in 1959 he was on single quarter leave in Zurich, Amsterdam, London, and Stockholm. In December 1963 he travelled to Vienna, Austria to present an invited paper at the Symposium on Mass Isotope Effects in Chemistry and Biology sponsored by the International Union of Atomic Energy. In 1964, at the time of his retirement, he received the Sigma Xi Distinguished Service Award from the University of Minnesota Chapter of Sigma Xi, and on June 2, 1972 he received the Outstanding Achievement Award of the University of Minnesota on the occasion of the dedication of Kolthoff and Smith Halls.

During his tenure on the staff of the University of Minneosta, Dr. Lauer published 70 chemical papers and patents. Besides the contributions to analytical chemistry made early in his career and described above, he developed (in collaboration with Dr. Harold E. Zaugg of the Abbott Laboratories) and reported in 1948 a modified and

combined Grignard and quantitative hydrogenation apparatus, which has been widely used. In the field of organic chemistry, Dr. Lauer's researches covered a wide scope, including vinyl ethers and their rearrangement, work which served as the forerunner of the Boord-Swallen synthesis of olefins; the structure of sodium bisulfite addition compounds, work which also laid the groundwork for an understanding of the Bucherer reaction; synthesis of unsaturated fatty acids, synthesis of antimalarial drugs, and naturally occurring antioxidants. Particularly noteworthy was the series of 19 papers on the Claisen rearrangement of phenyl allyl ethers. In these papers Dr. Lauer and his students clearly defined the scope and limits of the rearrangement, and obtained valuable information as to its mechanism; in the same papers was reported the discovery of the abnormal Claisen rearrangement, which was illustrated with a number of significant and key examples. Dr. Lauer always kept well abreast, both in his lectures and in his research, of new developments in organic chemistry. His series of eight papers concerning hydrogen isotope substitution and exchange in benzene ring derivatives, particularly

the use of electrophilic hydrogen isotope substitution as a measure of electron density in the aromatic ring, represented classical work in its field. Dr. Lauer's active interest in organic chemistry did not end with his formal retirement from teaching duties in 1964. He was always interested in the application of new physical methods to the problems of organic chemistry. Consequently, he was quick to appreciate the value of organic mass spectrometry. Shortly before his retirement he became intensely interested in the subject and carried that interest with him into retirement, where he was able to practice it in his monthly consulting visits to the Hormel Institute.

Walter Lauer was a scholar and a gentleman; his researches were characterized by a high degree of thoroughness and novelty. Under his guidance countless undergraduates received training in organic chemistry, 11 students obtained M.S. degrees, 38 students obtained Ph.D.'s, and 8 students received postdoctoral training. He had a distinguished record in organic chemical research and in devoted service to the chemical profession and to its Society. His quiet, patient, and

understanding manner made him much admired among those who had the privilege of knowing him.

Walter Lauer's beloved first wife, May, died in 1971 after a lingering illness. The Lauers and the Loftuses had been warm friends since the 1930's. On July 25, 1972 he married Kathryn Loftus, who had lost her husband, also in 1971, and she brought much happiness and companionship to him in his later years. He is survived by Kathryn, of St. Paul, and a daughter Jeanne (Mrs. David R. Milton) of Houston, Texas; two grandchildren, Terry Jean of St. Paul (who teaches in Cottage Grove), and Scott of Austin, Texas; a brother Luther M. Lauer (also a chemist, who is retired after 33 years with the Allied Chemical Corporation) of Orchard Park, New York; a sister Carrie (Mrs. Guy Preston) of Alexandria, Minnesota; a nephew Donald Walker Lauer (a Professor of Psychology at Indiana University) of Bloomington, Indiana; and two nieces, Joan Lauer Hayes (Mrs. Gordon P. Hayes, Coordinator of Academic Services for the Computer Center at Western Washington State College) of Bellingham, Washington, and Betty Preston (a nurse) of Morehead City, North Carolina.

-Wayland E. Noland

March 14, 1977