

## Roger E. Koeppe

Roger Erdman Koeppe died May 16, 2009 in Stillwater, Oklahoma from pancreatic cancer at age 87. He was the unique and legendary head of the Department of Biochemistry and Molecular Biology at Oklahoma State University from 1963-1990. The Department prospered and grew greatly in stature and research contributions under his leadership during those 27 exciting years. He was the longest serving leader and was responsible for many innovations.

Roger was born May 2, 1922 in Kalangsu, Amoy, China, at Hope Hospital to American missionary parents who were serving the Reformed Church of America. Roger grew up in China and received his grade school education from his mother, except for attending the eighth grade in Cedar Grove, Wisconsin while his parents were home on leave. Roger's freshman year of high school was at the Shanghai American School. The school closed for one year due to the China-Japan War. Roger graduated from Williamson Central High School near Rochester, New York.

Undergraduate training with a major in Chemistry was obtained at Hope College in Holland, Michigan. He graduated *cum laude* in 1944 and joined the Army. His basic training was received in Abilene, Texas; he was extremely happy to leave the heat of West Texas to attend a laboratory school at Fort Harrison, Indianapolis, Indiana. He served for two years as a medical technician.

Roger's graduate education was at the University of Illinois where he worked with Dr. William C. Rose on amino acid metabolism. He was a University Fellow, 1948-49, and an AEC Predoctoral Fellow, 1949-50. He spent one year as a postdoctoral trainee in Dr. Rose's lab. Additional postdoctorate training was obtained with Dr. John L. Wood at the University of Tennessee, Memphis. Roger progressed through the academic ranks from instructor to associate professor during the period of 1952-59 at the University of Tennessee Medical School, Memphis. During the summers of 1954 and 1956, Roger was a researcher in the Biology Division at Oak Ridge National Laboratory.

Roger joined the Department of Biochemistry, Oklahoma State University in October 1959 as an Associate Professor. He continued his research on intermediary metabolism and its control using radioisotopic tracers to follow the fates of specific atoms in essential compounds. In 1960, he was promoted to Professor. When Dr. LaVell M. Henderson left his position as Head of the OSU Department of Biochemistry in 1963 to become Head of the Department of Biochemistry, University of Minnesota, St. Paul, Roger became the fourth Head of the Department. Victor G. Heller served as Head of Agricultural Chemistry from 1925 to 1949. Robert V. MacVicar, who later became President of Oregon State University, was Department Head from 1949-1957. LaVell Henderson became Head in 1957.

Roger's research on glutamate metabolism was supported by the National Institutes of Health for 15 years, 1959-74, by the National Science Foundation, 1953-55 and

1960-63, and by the Atomic Energy Commission, 1955-60. He published some 50 research papers that are retrieved by a High Wire literature search.

In 1982, Roger turned his full attention to the administration of the Department; over the years, additional University, State, and Federal reports and requirements have dramatically increased the complexity of the job. Roger's administrative abilities are widely recognized over the campus and are goals toward which other department heads strive. His ability to balance accounts in his head and to keep in mind the diverse interactions of the University community are legendary. Since 1963 the Department has received about \$15 million in external funding.

Through the years Roger maintained his incisive focus, expressed what was on his mind without fail, and challenged everyone to be accountable and make progress. He outlasted several deans, each of whom, after a conversation with Roger, knew clearly which way the biochemical winds were blowing and what was the position of the Department.

The Department of Biochemistry is the envy of most other departments of campus. The members work well together and have a high *esprit de corps*. This is due in large part to Roger Koeppe and to the faculty he assembled. His hand has been the gentle, guiding force that has directed the Department; this force will be missed. The curriculum of the Department has been judged excellent. The number of courses is small, which enables the graduation of students with a distinctive and desirable educational core. Roger believes in minimal numbers of courses and integrated training.

Roger spent a sabbatical year (1966-67) supported by an NIH Senior Postdoctoral Fellowship working with Leon Salganicoff and John Williamson at the Johnson Research Foundation of the University of Pennsylvania. He was selected by W.H. Freeman and Company (Scientific American Books) to perform a detailed review of the Third Edition of Stryer's classic text, *Biochemistry*. This is the best textbook currently available in biochemistry. Roger directed the research of 10 graduate students who received Ph.D. degrees, 12 graduate students who received M.S. degrees, and 10 research associates. He has authored fifty research publications and co-authored *Student's Companion to Stryer's Biochemistry* (W.H. Freeman, 1990). Roger II is now an author on this publication taking his father's place.

His research interests are on intermediary metabolism and its control. Radioisotopic tracers are used to determine the fates of specific atoms. The effects of vitamins such as thiamine and of hormones such as insulin on the metabolism of various compounds in different tissues (liver, brain, blood, muscle, etc.) are determined by using chemical isolation and degradation of specifically labeled compounds. Glucose is an excellent precursor for non-essential amino acids. Blood lactate freely enters the brain. There is no effect of feeding, fasting, nor thiamine deficiency on the brain amino acids. Insulin treatment lowers blood glucose, but increases the rate of incorporation of glucose into the amino acids. Blood glutamic

acid, glutamine, and aspartic acid do not enter the brain rapidly. There is a small metabolically active pool of glutamine in the brain that is formed from glutamic acid which is not in rapid equilibrium with tissue glutamic acid. Hormone treatment with hydrocortisone does not change the labeling pattern in liver and muscle protein glutamate and aspartate from pyruvate. Pyruvate-2[14C] is an appropriate tracer of pyruvate conversion to acetyl-CoA and to oxaloacetate. This allows determination of the apportionment of the flow of metabolites in the animal and in turn determination of control points and regulatory mechanisms.

Mannose metabolism was studied in the rat and techniques developed for the determination of mannose phosphates using enzymatic assays. The conversions observed suggested that phosphomannomutase activity was present. In later work this enzyme was shown to exist but there was no induction upon growth of rats on a high mannose diet.

Roger served 3 years on the OSU Faculty Council, received the 1974 Sigma Xi Lectureship award, the Professional Secretaries International Executive of the Year award in 1985, and the 1989 Oklahoma Scientist of the Year award from the Oklahoma Academy of Science. He chaired the Oklahoma Section of the American Chemical Society in 1965 and was president of the OSU Chapter of the Society of Sigma Xi, 1977-78.

On October 12, 1990 a symposium was held at the 33<sup>rd</sup> West Central States Biochemical Conference was held to honor Roger. The symposium was titled Structure/Function in Biochemistry and Roger E. Koeppe to commemorate his retirement. Dean Charles Browning welcomed the attendees to Oklahoma State. Roger II talked about his research on gramicidin and Owen Koeppe (also a biochemist) told about Roger in the family. One of Roger's students, Isa Mushahwar described hepatitis B virus and research at the Abbott Laboratories. E. C Nelson described Roger's role in the Department. A former faculty member, Kurt Ebner, reported his research on prolactin. Ronald Johnson, another ag college administrator, told of Roger's role in administration. Roger was extremely interested in the enzyme phosphofructokinase whose secrets were described by Kosaka Uyeda of Southwestern Medical School. Mary Carpenter of the Oklahoma Research Foundation told of Roger's function in the state of Oklahoma. Roger topped off the symposium was his comments. Franklin Leach organized and chaired the symposium. Later that weekend a dinner/roast was held by family and friends for Roger.

The Roger E. Koeppe Endowed Lectureship was established to honor Roger. Contributions are accepted by the Oklahoma State University Foundation. In 1993 Finn Wold, Robert Welch professor of biochemistry at the University of Texas Health Science Center, Houston, presented the first lecture at the dedication of the biochemistry and molecular biology department's facilities in the Noble Research Center. Finn received his master's degree from this department. Roger was instrumental in the development of the facilities of the department in both the

Physical Science II building and the Noble Research Center.

After retirement Roger and Norma became world travelers as they continued to learn about this planet.

Roger and Norma raised a family of 5 outstanding children. They have 11 grandchildren. Roger II, a Ph.D., is a professor of chemistry and biochemistry at the University of Arkansas, Fayetteville. Mary, an M.D., is on the staff of the Albany Medical Center in Internal Medicine and Endocrinology. Sarah is a casting director for movies and TV and lives in Santa Fe. Edwin owns and operates Engraving Excellence in Stillwater. The youngest, Peter, is a senior technical staff member in product development for IBM in Sand Diego.