

Professor Clinton Edward Ballou

This volume of *Carbohydrate Research* contains a collection of papers dedicated to Professor Clinton Edward Ballou, in recognition of his many outstanding contributions to carbohydrate chemistry and biochemistry, on the occasion of his retirement as Professor of Biochemistry at the University of California at Berkeley. The editors are grateful to Professor Gary R. Gray for assistance in organizing this collection.



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Clinton Ballou was born on June 18, 1923, in King Hill, Idaho, a very small town on the Union Pacific railroad line. He attended grade school and the first three years of high school in an 8-room school house in King Hill. His father, who was president of the school board, insisted that the students in this little town be provided a good education. He attended his final year of high school in Boise, Idaho, where he was graduated in 1940.

After attending Boise Junior College for two years (1940–1942), he enrolled at Oregon State College where, two years later, he received the B.S. degree in Chemistry. While at Oregon State College he worked in the laboratory of Professor Willem van Wagtendonk, who suggested to Clint that he should go to the University of Wisconsin at Madison if he wanted to study biochemistry. Professor Wagtendonk further suggested that he should study with Professor Karl Paul Link if he did go to the University of Wisconsin.

Following Professor Wagtendonk's advice explicitly, Clint enrolled at the University of Wisconsin as soon as his military service (U.S. Navy, Lieutenant junior grade) was completed, and Professor Link became his major professor and mentor. His work at Wisconsin on alkali-sensitive glycosides earned him the M.S. and Ph.D. degrees in Biochemistry.

Clint's stay in the laboratory of Professor Link was also productive and rewarding in another respect, because while there he met his future wife, Dorothy Lun Wu. Their wedding took place in Professor Link's home on December 21, 1949. After raising a daughter (Linda) and son (Philip), they resumed working together in the laboratory and have, since 1980, authored 16 papers together.

After receiving the Ph.D. degree in 1950 Clint went to the University of Edinburgh as a U.S. Public Health Service Research Fellow in the laboratory of Professor E.L. Hirst. He returned to the U.S. in 1951 to complete his fellowship in the laboratory of Professor H.O.L. Fischer at the University of California at Berkeley. After spending three more years with Professor Fischer, he joined the faculty of the Biochemistry Department as an assistant professor in 1955.

Progressing quickly through the tenure system, Clint was promoted to Associate Professor in 1957 and to Professor of Biochemistry in 1962. During his years in Berkeley he and his group have made major contributions to many areas of carbohydrate chemistry and biochemistry, to include: mechanistic studies of the enzymes of glycolysis and the synthesis of their substrates and substrate analogues; synthesis and characterization of phosphorylated inositol derivatives; isolation, structural characterization, and biochemical studies of glycolipids, phospholipids, phosphoinositides, and glycopospholipids; isolation and structural characterization of the polymethylpolysaccharides of mycobacteria and studies of their biosynthesis and mode of interaction with fatty acids and fatty acid derivatives; structural and immunochemical studies of yeast mannoproteins and genetic studies of their

biosynthesis; isolation and characterization of sexual agglutination factors in yeasts; and biochemical and genetic studies of protein glycosylation in yeasts. His 200-plus published papers are characterized by their clarity of expression and careful attention to experimental detail and, overall, by their tremendous depth and scope. Those fortunate enough to have worked with him have benefited greatly from his careful but thorough approach to research, his broad perspective, his scientific wisdom, and access to state-of-the-art instrumentation and facilities.

Professor Ballou's outstanding contributions to science were recognized in 1975 by election to the National Academy of Sciences and in 1981 by receipt of the Claude S. Hudson Award in Carbohydrate Chemistry from the American Chemical Society. He has also been honored by the award of a Guggenheim Fellowship (1968) and a Senior Fellowship from the National Science Foundation (1961). In 1992, he received the Berkeley Citation from the University of California for "distinguished achievement and for notable service to the University."

In spite of a tremendous commitment to research and graduate education, Clint has always willingly given time and energy to administrative activities. He was the chairman of his department in the years 1964–1968 and now, even though retired, he continues to serve on various committees and to help out with departmental functions. He has also served on the editorial boards of *Carbohydrate Research*, *Advances in Carbohydrate Chemistry and Biochemistry*, *Journal of Biological Chemistry*, and *Biochemistry*, and has been a consultant to the National Institutes of Health, the National Research Council, the National Science Foundation, and the Veterans Administration (U.S.A. and Canada).

Despite the demands of his scientific career, Clint has always made time for leisure pursuits. He enjoys trout fishing, and I am told that his greatest thrill came from hooking a large trout on a dry fly while drifting at dusk on Silver Lake in a canoe. He also enjoys good food and fine wines, and he likes to experiment with gourmet cooking. Over the years, many of his students and friends have had truly wonderful dinners at his and Lun's home. Such evenings are very memorable indeed!

Retirement has changed Clint little. He still goes to work every day at 8 a.m. and he still carries out his own experiments. He also continues to teach and to personally supervise students who come to the laboratory to use equipment. Surely his many friends and colleagues from around the world will join in wishing Clint a very long and happy retirement. It is our hope that your research goes well and that the trout put up a good fight.

Gary R. Gray
(University of Minnesota)