

DOCUMENTS OF THE GENERAL FACULTY

**REPORT OF THE MEMORIAL RESOLUTION COMMITTEE FOR
BOYD A. HARDESTY**

The special committee of the General Faculty to prepare a memorial resolution for Boyd A. Hardesty, professor emeritus, College of Natural Sciences, chemistry and biochemistry, has filed with the secretary of the General Faculty the following report.



Hillary Hart, Secretary
General Faculty and Faculty Council

**IN MEMORIAM
BOYD A. HARDESTY**

Boyd Archer Hardesty, professor emeritus of chemistry and biochemistry, died on January 22, 2015, in Rosalia, Washington, at the age of eighty-two as a result of injuries sustained from a fall. He was recognized nationally and internationally for his studies of ribosomes, the use of fluorescent probes to study protein biosynthesis, and the development of cell-free systems for the synthesis of proteins.

Boyd was born in Cheney, Washington, on May 15, 1932, to parents Bonner and Mildred Hardesty. He grew up in Rosalia and graduated from Rosalia High School in 1950 and received his B.S. in zoology/chemistry in 1953 from Washington State University. After a year in medical school at the University of Washington, he returned to Washington State University and, in 1956, earned his M.S. degree in agronomy (genetics). Boyd then moved to California, and in 1961, earned a Ph.D. in biochemistry from California Institute of Technology where he worked with Herschel Mitchell and published on the interaction of fatty acids with mammalian cytochrome *c*. Boyd moved across the country to the east coast as a National Science Foundation postdoctoral fellow with Melvin V. Simpson at Yale University Medical School from 1961-62, followed by a U.S. Public Health Service postdoctoral fellowship School from 1963-64 with Richard Schweet at the University of Kentucky Medical where they worked on one of the first cell-free mammalian (reticulocyte) protein-synthesizing systems. In 1964, he and his family moved to Austin when he joined the chemistry department at The University of Texas at Austin and was part of the Biochemical Institute. Boyd quickly rose through the ranks; he was promoted to associate professor in 1968 and became a professor of chemistry in 1974. In 1999 after thirty-five years at UT Austin, he retired as professor emeritus.

Dr. Hardesty served on many departmental and University committees, as well as doing undergraduate advising, during his tenure at UT Austin. He was a long-time member of the University Safety Committee and chair of the University Biohazards Committee. Professional memberships included Sigma Xi, American Association for the Advancement of Science, American Chemical Society, American Society for Biochemistry and Molecular Biology, and the American Society for Cell Biology.

Dr. Hardesty and his laboratory published more than one hundred peer-reviewed scientific papers. He is best known for the work from his laboratory on the development of cell-free systems for the synthesis of proteins and on the biochemical mechanisms involved in their ribosomal synthesis. These results have contributed to the current understanding of the chemical mechanisms by which mRNA and tRNA are moved through the ribosome and how peptide bonds are formed during the elongation of a nascent peptide. His laboratory was one of the early proponents of adapting the use of fluorescence techniques to study the ribosomal system. In 1983, he was a Fogarty Senior International Fellow and spent a sabbatical at the Max-Planck-Institute for Molecular Genetics at the Abteilung of H.G. Wittmann in Berlin, one of the leading laboratories for research on ribosome structure at the time. This led to very fruitful collaborations on using fluorescence to study ribosome structure. Fluorescent probes were covalently attached to specific sites on the ribosomes or tRNAs, then fluorescence was used to monitor changes in the conformation or position of the probes that occur during the reaction of peptide elongation.

Boyd's laboratory also studied regulation of protein synthesis by phosphorylation/ dephosphorylation of the proteins involved in the process. Late in his career, Boyd's laboratory studied protein folding as the proteins are synthesized on the ribosomes. N-fluorophore-methionine from bacterial initiator tRNA was co-translationally incorporated at the N-terminal position of a nascent peptide, then followed by fluorescence as the length of peptide was extended, concluding that protein folding occurs as amino acids are added sequentially to the C terminus of a nascent peptide while it is still linked as a peptidyl-tRNA on the ribosome.

Boyd was also known for his generosity in helping other scientists, especially those in the former Soviet Union. During a period of massive upheaval related to the dissolution of the U.S.S.R., funding for basic research was cut drastically by the Soviets. Boyd had for years been collaborating with Alexander Spirin (professor at Moscow State University and director of the Protein Research Institute of the now Russian Academy of Sciences in Puschchino). Professor Spirin was a world leader in the protein biosynthesis field, and his group was especially hard hit. It was through Boyd's exceptional, personal generosity over an extended period that the lab was able to continue functioning.

After graduating from Rosalia High School, Boyd followed his high school sweetheart Willa Mae, to Washington State. They were married in 1952 at Saint John's Episcopal Cathedral in Spokane. His oldest son, Bruce Hardesty, was born in 1958, and his second son, Brian, was born in 1961. Daughter Diana was born in 1964 after he moved his family to Texas.

Boyd and Willa Mae were known as "generous souls" who welcomed many to Austin by sharing the hospitality of their home. Boyd always had a love for the outdoors. He was a seasoned hunter and an accomplished fisherman. After retiring in 1999, Boyd and Willa Mae moved back to the state of Washington. In his spare time, his love of hunting and fishing took him to places such as New Zealand, South Africa, Botswana, and Namibia. He was a life member of the Safari Club International and the National Rifle Association.

Boyd is survived by his wife of sixty-two years, Willa Mae Hardesty, son Bruce Hardesty, son Brian Hardesty (Lisa) and daughter Diana Burmaster (Doug), along with their children, Derek, Patrick, Jennifer and Katherine. Boyd Archer Hardesty is buried in the Rosalia IOOF Evergreen Cemetery in Washington.

He will be missed by his colleagues, friends, family, and many former students and postdocs around the world.

This memorial resolution was prepared by a special committee consisting of Professors Marvin L. Hackert (chair), G. Barrie Kitto, and Gisela A. Kramer.

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