



*(1916-2001)*

**William Shive**, prominent scientist, educator, administrator, and benefactor, died October 2, 2001, in Austin. He is survived by his wife Gwyndolyn White Shive, whom he married in 1941, two daughters – both biochemists - Kathleen S. Matthews (Rice University) and Karen S. Browning (UT Austin), and two grandchildren, Thomas W. Browning and Kathryn L. Browning.

Bill was born on December 20, 1916, in Commerce, Texas. He was the middle of three children born to William C. and Myrtle B. Shive. He worked hard from an early age, and he put himself through East Texas State Teacher's College, graduating with a B.A. degree in 1937. He entered the University of Texas in 1937 and received an M.A. degree in Chemistry in 1939 and a Ph.D. degree in 1941, with a major in Organic Chemistry under the supervision of Professor H.L. Lochte. His first post was as a Research Associate and Instructor in Organic Chemistry at the University of Illinois at Urbana, 1941-1942. He joined the Faculty at Tulane University in 1942 and served as Instructor and then Assistant Professor of Chemistry, 1942-1944. Bill returned to the University of Texas in 1944 as a Research Scientist in the Biochemical Institute (later named the Clayton Foundation Biochemical Institute). In 1945, he was also appointed Assistant Professor of Chemistry. He served as Associate Professor, 1947-1949; Professor, 1950-1987; and Chairman of the Department of Chemistry, 1961-1970. In 1985, he was named the first recipient of the Roger J. Williams Centennial Professorship in Biochemistry.

As a scientist, Bill enjoyed a national and international reputation for major contributions to our understanding of intermediary metabolism and nutrition. In the late 1940's and early 1950's, Bill and his associates developed, with metabolic antagonists, a new method for elucidation of biochemical processes in living organisms. He used these inhibition analyses for major advances in biochemistry and nutrition, particularly pinpointing the then unknown roles of vitamins. For this research he received in 1950 the Eli Lilly Award in Biological Chemistry sponsored by the American Chemical Society. Among his major contributions are: (1) discovery of the role of folic acid in transfer of single carbon units, the role of biotin in carboxylation, and the role of vitamin B<sub>12</sub> in methylation and deoxyribonucleotide synthesis, (2) discovery and synthesis of the three formate-carrying cofactors of folic acid, (3) identification of the first intermediate (5-amino-4-imidazole carboxamide) in purine biosynthesis and (4) development of an assay for the anti-pernicious anemia principle, Vitamin B<sub>12</sub>. In addition, he developed a procedure for the isolation of vitamin B<sub>12</sub> from natural sources (for which he was awarded a US patent) and elucidated the biological role(s) of this vitamin in the anemia problem.

Bill recognized that effective utilization of nutrition in medical practice is dependent upon the development of methods for assessing the nutritional status of each individual and identifying the factors that limit the nutritional responses of an individual. In the late 1970's, Bill and his associates initiated an approach to this problem using

human lymphocytes. Over a period of several years, they developed a serum-free, chemically-defined culture medium that supports lymphocyte proliferation, and used it to develop assays to assess the metabolic and nutritional status of an individual's cells. These assays provide direction for effective biochemical intervention and for studying receptor-mediated cell responses. For this research, Bill received in 1983 the first Roger J. Williams Award in Preventive Nutrition.

Bill was highly regarded as a teacher and research mentor. He directed the work of thirty-three Masters students and fifty-seven Doctoral students. Typical of comments by former graduate students are the statements that "*Dr. Shive was an excellent research mentor, a man who is patient, yet demanding of personal excellence*" and "*Dr. Shive brought very high standards both to the classroom and to the research laboratory. He was always supportive of students, and guided many to successful professional careers.*" In a lighter vein, to the many students in his lectures, he was "*the fastest man in the west with a piece of chalk.*"

William Shive served with distinction on many local and national committees. He was a member of the Nutrition Study Section, National Institutes of Health, 1969-1973, and Chairman in 1972-1973; a member of President Ford's Biomedical Research Panel and Chairman of its Interdisciplinary Cluster on Nutrition, 1975-1976; Liaison Officer for the University of Texas System to the Robert A. Welch Foundation, 1970-1986. He was a member of the American Society of Biological Chemists, American Chemical Society, American Institute of Nutrition, and Sigma Xi.

In recognition of his many contributions to the University, Bill was inducted into the Hall of Honor of the College of Natural Sciences in 1997. Although he relinquished his teaching duties in 1987, he maintained a significant research program and was active in the laboratory until the day before he died.

William Shive was a truly unique individual. He was a person of superior intellect, very high standards, and high integrity. He was unpretentious and steadily optimistic. His private life was marked by numerous contributions and remarkable generosity of spirit, often unnoted and private by his personal choice. He worked to support the establishment of the Religious Studies Program at The University of Texas at Austin, dedicated to the study of religions and how religions develop, change or operate in particular social contexts. Within our Department, Bill and Gwyn helped establish several endowments, including the Roger J. Williams Centennial Professorship in Biochemistry, the Benjamin Clayton Centennial Professorship in Biochemistry, the William Shive Centennial Professorship in Biochemistry, the Clayton Foundation Biochemical Institute Regents Lectureship in Biochemistry, the Vista Chemical Company Regents Endowed Lectureship, the Roger J. Williams Endowment for Biochemical Nutrition, and the Biochemical and Biomedical Research Endowment.

Bill, like his close friend and colleague Roger Williams, was a strong advocate of the benefits of basic research in biochemistry and its impact on nutrition and health. Indeed, the Biochemical Institute was established with these goals in mind. In

establishing the Biochemical and Biomedical Research Endowment, Bill and Gwyn Shive have laid the groundwork for supporting continued excellence in basic biochemical research and its impact on improving human health. The family has requested that memorial gifts in Bill's honor be used to build this endowment for future support of basic research in biochemistry and its value to improved health and nutrition.

We have all gained from our association with him. Our department, our college, our University, and our community have all benefited from his being. Bill Shive will be greatly missed.

- Marv Hackert

*The above was excerpted, in large part, from a Memorial Resolution prepared by Lester Reed, Joanne Ravel, and Dan Ziegler. You can find more information about Bill Shive, Roger Williams and the Biochemical Institute on our departmental web site at: <http://www.cm.utexas.edu/bioinst/>*