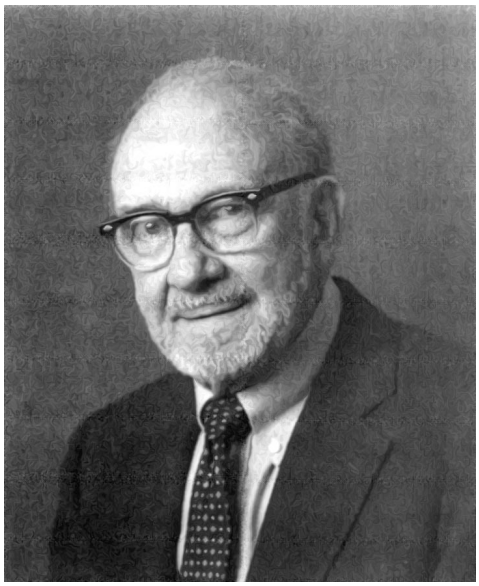

William S. Johnson

February 24, 1913 - August 19, 1995

William S, Johnson was a highly respected leader among research chemists and educators while, at the same time, he was humble about his accomplishments. His career spanned an explosive period of rapid progress in science and he was at the cutting edge of many of the basic changes that have taken place. His deep respect and love for science led to a career that was characterized by creative, insightful and thorough research and resulted in a body of work on steroid synthesis that is unparalleled for its thorough comprehensive coverage.

Bill Johnson did his undergraduate studies at Amherst College, an institution that has spawned a number of chemical leaders. After finishing his doctoral work with Professor Louis Fieser at Harvard University in late 1939 and a brief postdoctoral stint *at* Harvard with Professor R.P. Linstead, Johnson began his independent academic career at the University of Wisconsin in 1940. The research program that Johnson initiated was directed at the development of methodology for the synthesis of steroids. While the approaches would change over the years, this theme would become the dominant direction for Bill Johnson's research effort over his entire academic career. The "Wisconsin era" was devoted to a classical approach to the total synthesis of the steroid skeleton and resulted in the development of the benzylidene blocking group for the angular methylation of a-decalone type molecules, the use of the Stobbe reaction for the synthesis of the aromatic steroids equilenin and estrone, and the "hydrochrysene approach" to the total synthesis of nonaromatic steroids. These research efforts led to a remarkable collection of papers that described highly efficient classical syntheses of steroid hormones of increasing molecular complexity from equilenin to cortisone and aldosterone.

Bill Johnson rose through the academic ranks and became a full professor in 1946; in 1950 he was named Homer Adkms Professor of Chemistry. He was elected to the Board of Editors of *Organic Syntheses* in 1948 and edited the 34th volume of this important series. His election to the National Acadany of Sciences in 1954 and receipt of the ACS Awaid for Creative Work in Synthetic Organic Chemistry in 1958 were testimony to the

importance and creativity of his earlier synthetic achievements and were just the beginning of a long string of awards to come. In 1960 Johnson moved his research program to Stanford University and in addition to his scientific efforts took on the challenge of Executive Head of the Department of Chemistry. For the following nine years, he not only directed a vigorous research effort but also planned and developed the expansion of the Department that elevated it to one of the top-ranked schools in the world. This expansion added 13 new faculty members and included such stars as Carl Djerassi, Eugene van Tamelen, John Brauman, Paul Flory, Henry Taube and Harden McConnell.

His stint as Executive Head of the department ended when he resigned the post in 1969 and was appointed Jackson-Wood Professor of Chemistry. He held this endowed chair until 1978, when he became emeritus. As an emeritus professor, Johnson continued his research program in collaboration with postdoctoral students until the very end of his life and was particularly pleased and gratified that his research program continually earned the support of peerreviewed funding agencies.

The Stanford era of Johnson' research program is characterized by his effort to mimic enzymatic syntheses of steroid molecules. Stimulated by the Stork-Eschenmoser proposals for the biosynthesis of sterols through the cationic olefin cyclization of squalene to form the polynuclear skeleton, Johnson first realized some success in the chemical cyclization of diene systems that formed the decalin ring system. By application of the characteristic thorough Johnson approach to research, he and his group of co-workers expanded these early beginnings with the development of methods for the synthesis and cyclization of polyene systems that were readily transformed into neutral steroid molecules. This effort not only led to the development of several different methods for the initiation of the polyene cyclization but also excellent methodology for the synthesis of the precursor polyene molecules themselves. Through the extensive development of acetylenic chemistry and the development and application of the Claisen rearrangement, Johnson's group was able to prepare large quantities of complex polyenes for cyclization experiments. Much of this methodology, of course, transcends the narrow purpose of polyene synthesis for which it was designed and is now in the general repertoire of synthetic organic chemistry and widely used for other objectives. Ultimately, Johnson was able to refine the polyene approach to steroid synthesis to the point that the process was nearly of commercial use. This beautiful body of work, like that of the more classical Wisconsin era, forms a lasting testament to the genius and insight of Bill Johnson. His work was marked by a passion for a thorough understanding of the science involved and the accuracy with which the experimental results were obtained and reported were hallmarks of the Johnson School of Synthesis. Many awards in recognition of this work were forthcoming. He received the Nichols Medal Award (1968), the Roussel Prize - (1970), the Roger Adams Award (1977); the National Medal of Science (1987), the Arthur C. Cope Award (1989) and the Tetrahedron Prize (1991), several honorary degrees (Amherst College (1956), Long Island University (1968)), membership in the American Academy of Arts and Sciences (1963) and numerous endowed lectureships at universities throughout the world.

During a research career that spanned 53 years, Bill Johnson was as proud of his co-workers as their research. He enjoyed the job of teaching and watching young people light up and become turned on by science. He was the mentor of over 100 predoctoral

and 200 postdoctoral students and he tried to follow all their careers as they developed in science. Many of his students made him very proud as their careers in academe and industry developed and he enjoyed his paternal part of their successes. In his teaching of research, he conveyed the respect that science requires and scrupulous attention to the accuracy of the observations made. Experiments worth doing were always to be well planned, executed with care and attention and recorded accurately and dispassionately. As a result Bill Johnson's research is a compilation of reliable and reproducible results that presents an understanding of steroid synthesis in a depth of unusual proportions.

He is survived by his wife and partner of 55 years, Barbara (nee Allen). In conclusion, I feel that as a Johnson graduate student, I am allowed a personal note of farewell to a mentor, a colleague and, most of all, a close and dearly loved friend. Were there a way to have it otherwise we would never have had to part.

Robert E. Ireland
November 23, *1995*

Originally published in *Organic Syntheses*
Vol. 74, pp xxv-xxvii