

Poster Presentation

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William Nunn Lipscomb, Jr – A Kentucky Colonel's Contribution to Boranes, Proteins and Atomic Structure

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Any listing of important scientific figures in 20th century crystallography would certainly include William Nunn Lipscomb, Jr. He is notable for both the breadth and depth of his research and because of many former students and fellows who are still active in science. Beginning with graduate work in the 40s at Caltech with Linus Pauling, his scientific career spanned almost 7 decades and produced more than 660 publications. "The Colonel" as he was known by his students was a genius in choosing important and challenging areas in which to study. He is widely known for his work on borane chemistry, theoretical chemistry and protein structure and function. His work on the chemical structure and bonding of boron cage compounds led to insights into electron deficient bonding that resulted in the award of the Nobel Prize in Chemistry in 1976. He championed the use of various quantum-mechanical approaches, both empirical and ab initio, to address questions in chemistry and biochemistry. He is particularly known for work using partial retention of differential diatomic overlap (PRDDO), and early work leading to the development of extended Hückel methods. He was a pioneer in using quantum chemistry to address questions in enzymology. His group produced the structures of several proteins including carboxypeptidase A, the 3rd enzyme structure solved after lysozyme and ribonuclease A, and also the structure of the dodecameric enzyme, aspartate transcarbamylase. The structures of the T and R forms of this protein were the first detailed descriptions of the homotropic allosteric transition ever reported for an enzyme. Additionally, Professor Lipscomb mentored a huge number of important scientists whose work continues throughout the world today. Notably two former graduate students, Tom Steitz and Roald Hoffman have received Nobel Prizes. The list of other notable group members is too long to include here but includes Don Wiley, David Christianson, Eric Gouaux, Doug Rees, Michael Rossmann, and Norbert Sträter among many, many others. I was fortunate to be a graduate student with him in the 1980s and am very grateful for his influence and mentorship. With so many important scientific contributions spread over such a long time span William Lipscomb's scientific legacy is certain to endure.



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