

## Earl Leonard Muetterties Ph.D Biography



**Earl L. Muetterties - Class of 1946 - b. June 23, 1927 - d.**

**January 12, 1984** From the EHS Yearbook, the Maroon: "Mutt" E. H. S. Players, Basketball, Junior & Senior Plays

Earl L. Muetterties grew up in Elgin, Illinois, where he was expected to enter the family business, his grandfather's bakery (Muetterties Bakery, located on Chicago street between Spring St. and Villa). His early decision to instead pursue a career in science was characteristic of his independence of thought and

action. At the end of World War II, he served in the U.S. Navy after completing high school. During his brief military career, he was stationed on Treasure Island, and thus began a lifetime attraction to the San Francisco area.

Muetterties received the B.S. (with highest distinction) from Northwestern University in 1949 and the M.A. and Ph.D. degrees (in boron-nitrogen coordination chemistry) from Harvard University (1951 and 1952). He joined the Chemical Research Department, the predecessor of the Central Research Department, at E.I. du Pont de Nemours & Company, in 1952. His abilities were soon apparent and he was promoted to research supervisor with extraordinary rapidity in 1955. With W. D. Phillips, he formed a very productive partnership, effectively exploiting the new tool of nuclear magnetic resonance spectroscopy for study of dynamic processes in inorganic compounds. This work resulted in an elegant series of papers establishing the stereochemistry of the main-group fluorides. His research at Du Pont carried out pioneering work on new processes for the synthesis of fluorocarbons and main-group fluorides, particularly  $\text{SiH}_4$  and  $\text{B}_2\text{H}_6$ . The boron-hydride work led to one of the most exciting periods of Earl's career, the discovery of polyhedral borane anions such as  $\text{B}_{12}\text{H}_{12}^{2-}$ . In addition to the polyhedral borane work, the late 50s and early 1960s saw the beginning of Muetterties' work on transition-metal organometallic chemistry, which he continued to pursue in his later years at Cornell and finally at Berkeley. In 1965, he was appointed Associate Director of the Central Research Department with a charter to re-establish catalysis as a major discipline in the department. In addition to carrying out this mandate most successfully, he became a recognized leader in the field of modern inorganic chemistry. His research interests continued to diversify, even to the extent of research on mammalian pheromones, a venture which was formalized by participation in the Monell Chemical Senses Center at the University of Pennsylvania. His formal academic ties included adjunct professorships in chemistry at Princeton (1967-1969) and at the University of Pennsylvania (1969-1973).

After a two-month lectureship at Cambridge University in 1972, Muetterties decided to pursue an academic career. He assumed a professorship in chemistry at Cornell University in 1973. Although he continued research in chemical anthropology and in coordination chemistry, his major research theme became organometallic chemistry and homogeneous catalysis. He was associated with many outstanding

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graduate students and postdoctoral fellows who are now distinguishing themselves in academic and industrial careers. During his years at Cornell (1973-1978), Muetterties renewed his enthusiasm for cluster chemistry and developed an analogy between transition-metal cluster compounds and the surface structure of metallic catalysts. The opportunity to explore this relationship was significant in attracting him in 1978 to the University of California, which has been an active center of surface-science research.

Upon arriving at Berkeley, Muetterties set up his research in organometallic catalysis and cluster chemistry in the Chemistry Department and at the Lawrence Berkeley Laboratory. He liked to describe his heterogeneous catalysis work as experiments on the coordination chemistry of metal surfaces, but he also focused attention on reactive surface-bound organic species. He combined his major areas of research especially well in his parallel studies of reactions of small coordinating molecules such as  $\text{CH}_3\text{CN}$  and  $\text{CH}_3\text{NC}$  with metal surfaces, metal cluster compounds, and monomeric metal complexes. His establishment of these parallel efforts had a major impact on the nature of research and the intellectual atmosphere at Berkeley; his conviction that the fundamental chemical processes in heterogeneous and homogeneous metal-based chemistry were closely related, did a great deal to increase the interaction between surface scientists and inorganic chemists at EHS

He believed that chemistry departments in general were too divisionalized and that interdisciplinary research was likely to be of growing importance in the future.

His dedication to all phases of the educational process was evident throughout his career, but particularly at Berkeley where he took a keen interest in the educational policies and processes both at the undergraduate and graduate level. His terms as graduate inorganic advisor were marked by successful efforts to provide students with new flexibility in designing their course programs. Shortly after arriving at Berkeley, he instituted a new advanced inorganic course, emphasizing modern structural and mechanistic principles, and taught the course himself for several years. At the time of his death, Earl was chairing a committee charged with revising the first-year chemistry program.

Author of over 350 scientific papers, he was a member of the National Academy of Sciences, American Academy of Arts and Sciences, American Chemical Society, American Physical Society, Honorary Fellow of the Royal Society of Chemistry (England), and a Fellow of Churchill College (Cambridge). Additionally, he held more than 24 positions on editorial or advisory boards and more than 65 visiting lectureships throughout the world. He received the prestigious Kirkwood Award, the ACS Award in Inorganic Chemistry, and the ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry. His hobbies and interests included Chinese and Russian history, anthropology, gardening, cross-country and downhill skiing and fishing. Most of these activities were shared with his wife, JoAnn, and six children, to whom he was very devoted.

Earl Muetterties was an internationally recognized scientist whose career, first at DuPont Central Research, later at Cornell and finally at Berkeley, had a major impact in virtually every area of inorganic chemistry as we know it today.

His untimely death was a tragic loss not only to his family, colleagues, and students, but to the world of chemistry as well.

Earl Muetterties died of cancer on January 12, 1984, at the age of 56. Although he had been at Berkeley for only six years, his contributions to the Berkeley Chemistry Department were important and lasting. His lifetime contributions to the science of chemistry, first as a research worker and later as a teacher, have an impact far beyond the Berkeley community.