



IN MEMORIAM

Neil Bartlett
Professor of Chemistry, Emeritus
UC Berkeley
1932 – 2008

Neil Bartlett was most famous for work he performed while at the University of British Columbia in Vancouver in 1962. He and his students had discovered that platinum hexafluoride, PtF_6 , was such a powerful oxidizing agent that it could even remove an electron from molecular oxygen to form a salt-like compound, $\text{O}_2^+\text{PtF}_6^-$. While perusing a table of the ionization potentials of various gases, Bartlett noticed that the ionization potential of xenon (one of the “inert” or “noble” gases) was approximately the same as that of molecular oxygen. Then came the spark of genius and, ultimately, one of the most beautiful experiments of all time. He reasoned that if Xe is as easily oxidized as O_2 , then PtF_6 should be capable of oxidizing Xe to form a compound analogous to $\text{O}_2^+\text{PtF}_6^-$. He ordered a sample of xenon gas and constructed a glass apparatus for mixing the colorless gas with the red vapors of PtF_6 . Where the gas and the vapors made contact in the reaction vessel, a bright yellow solid of composition XePtF_6 formed!

When news of the reactivity of an “inert” gas reached the scientific community, both by publication and by unauthorized leaks through journal referees, a mad scramble ensued. Other workers soon showed that xenon and other noble gases are capable of reacting directly with fluorine, and a variety of new compounds were prepared. The astonishment of all these discoveries was heightened by knowledge that, in the 1930s, even a top-notch chemist like Don Yost at the California Institute of Technology, with the encouragement of Linus Pauling, had been unsuccessful in getting xenon to react with fluorine gas. But in the years near Bartlett’s death, chemists around the world continue to make amazing noble gas compounds. The site of Bartlett’s groundbreaking experiment has now been designated as an International Historic Chemical Landmark by the American Chemical Society (ACS) and the Canadian Society for Chemistry.

There was a young man of Vancouver
Who devised a clever maneuver.
He showed that a gas he was keen on
Could even react with xenon.
Thus he greatly enhanced his whole oeuvre.

Bartlett was born on September 15, 1932, in Newcastle-upon-Tyne, England. His father was a shipwright who had served in World War I and had been severely gassed, so his mother was widowed very early. But she was very industrious and made a good living running a little grocery store. Neil and his brother used to make ice cream on weekends as a little side business. At the age of 11, while at Heaton Grammar School, Neil was enchanted by the chem lab, and enjoyed growing crystals such as the beautiful blue crystals of ammoniated copper salts. Books and chemicals were purchased with the proceeds from the ice cream business.

Later he moved to King's College, University of Durham, where he earned his Ph.D. in 1958, working with Professor P. L. Robinson. As an alternative to National Service he taught for a year at the Duke's School in Alnwick, Northumberland. Then he joined the staff at the University of British Columbia, performed his epoch- making research, and quickly rose through the ranks to professor in 1964. After serving as professor at Princeton University for three years, he realized that he missed life on the West Coast and in 1969 accepted invitations to join the University of California, Berkeley, faculty (emeritus in 1993) and the Lawrence Berkeley National Laboratory (retired in 1999).

At Berkeley, Bartlett continued his imaginative research, not only in noble- gas chemistry, but in many other areas, including the preparation of elements in unusual high oxidation states, the use of anhydrous liquid HF as a solvent in such syntheses, the preparation of graphite intercalates, and the preparation of new refractory solids of boron, carbon and nitrogen.

In department seminars, he enlivened discussions with his thoughtful comments, much as G. N. Lewis did in the early part of the 20th century. He served diligently on Academic Senate committees, including chairmanship of the all- important Committee on Budget and Interdepartmental Relations. Bartlett was a dedicated and inventive teacher. Several of his former students now lead their own world- famous chemical research groups. Both his students and his departmental colleagues are saddened by the loss of his cheerful leadership and companionship.

He was a fellow of the Royal Society, a foreign associate of the U.S. National Academy of Sciences and of the French Academy of Sciences and was also a member, fellow, or associate of many other academies and honor societies in Europe and America. He held nine honorary degrees and many visiting lectureships and professorships. Among his prizes and awards were the Davy Medal of the Royal Society, the Moissan Award for Fluorine Chemistry, the Welch Award in Chemistry, and the ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry.

Bartlett became a U.S. citizen in 2000. In his retirement he enjoyed watercolor painting, woodworking and gardening at his Orinda home. He died unexpectedly on August 5, 2008, from an aortic aneurism. He is survived by his wife of 51 years, Christina; his sons, Jeremy of El Cerrito, Christopher of Palo Alto, Robin of Oakland; and by his daughter, Jane Piggott of Folsom, California. He also left five grandchildren.

William L. Jolly