
In Memoriam: George Andrew Olah

A Nobel Laureate in chemistry, George Andrew Olah, was a giant who transformed many ideas of fundamental organic chemistry. A kind and generous gentleman, he was also a father figure to his students. Olah passed away at the age of 89 on 8 March 2017, at his home in Beverly Hills, CA.

George Olah was born on 22 May 1927, in Budapest, Hungary, to Julius Olah and Magda Krasznai. His early childhood was spent between the relative calm of the two great wars, and he benefitted from a strong education at the hands of Roman Catholic priests who ran his school. The curriculum emphasized humanities and included a rigorous study of Latin, French, and German along with history and literature. Olah remained deeply interested in these subjects throughout his life and was known to devour books in a single sitting. It was only after he graduated from high school, having survived the destruction brought on by the second World War, that he turned towards the sciences. He was fascinated by the great diversity of chemistry and enrolled in the Technical University of Budapest.

He became a research assistant in the lab of Prof. Geza Zemplen. Zemplen, a student of Emil Fischer, was conducting research on carbohydrates, while Olah's interest was more in fluorine chemistry. He did receive the benign neglect of his advisor and a tacit permission to pursue his interests. It was during his tenure at the Technical University that he married Judith Lengyel, whom he had known earlier. Olah urged her to pursue chemistry. By 1949, communists had taken over the government of Hungary and modeled the Hungarian education system in the style of the Soviets. Basic academic research fell out of favor and was replaced by research institutes devoted to addressing practical challenges. In 1954, Olah joined the Central Chemical Research Institute of the Hungarian Academy of Sciences where he established a research group. Here, together with Stephen Kuhn and Atilla Pavlath, he did pioneering work on the chemistry of organic fluorides, including their use as reagents in Friedel–Crafts synthesis.

Following the Hungarian Uprising in October 1956 and the Soviet invasion in November, Olah fled to West with his wife and their toddler son George John, ultimately joining a laboratory of Dow Chemical in Sarnia, Ontario, Canada. It was there that he started his investigations on stable carbocations as they related to Friedel–Crafts chemistry, something that Dow employed on a large scale to manufacture ethylbenzene. During this period, he wrote the scholarly multivolume compendium, *Friedel–Crafts and Related Reactions*.

In 1965, after almost a decade in industrial research at Dow Chemicals, Olah got the opportunity to return to academia. He was offered the chairmanship of the chemistry department



at the Western Reserve University in Cleveland. As the Chairman, he saw the merger of the Western University and the Case Institute of Technology into Case Western Reserve University and chaired a much stronger joint chemistry department through 1969. However, during this period, he did not let his administrative duties interfere with his research, which now included investigations into superacids and ways to generate and study long-lived carbocations. These investigations led him to distinguish between classical trivalent carbenium ions from the nonclassical tetra- or pentavalent carbonium ions. This research also led to many patents with practical implications for the chemical and petrochemical industries. In 1976, he was elected to the National Academy of Sciences.

Olah directed a very vigorous research program with many graduate students, postdoctoral fellows, and a stream of visiting faculty from other institutions who added diversity of ideas and opportunities for collaboration. The weekly research meetings and seminars provided for a very rewarding and enriching experience to his students and associates. I had the privilege of joining his research group in Cleveland as a graduate student and have personally benefitted from the spirited discussions among the group members. Olah encouraged us to not shy away from controversial topics, as these presented opportunities to grow and hone one's skills in critical thinking. "It is not good enough to be good; you have to be controversial too" is perhaps an apocryphal quote, but it still rings in my ears. In 1977, he was invited by the University of Southern California to be the Founding Scientific Director of the Hydrocarbon Research Institute. With a generous endowment from the Loker family, Olah equipped his lab with all the modern tools of chemistry, and the research group flourished. He published nearly 1500 papers, 160 patents, and twenty books.

He received numerous awards and honorary degrees from around the world. Two of the most coveted are the Nobel Prize in Chemistry in 1994 and the Priestly Medal from the American Chemical Society in 2005. Olah did not sit on his laurels; even after receiving these awards, he remained an active researcher and turned his attention to the pressing problems of the society – climate change and global energy. Together with his associates, Surya Prakash and Alain Goeppert, he conceived a solution for effectively recycling carbon dioxide into a fuel like methanol or dimethyl ether, which they articulated in *Beyond Oil and Gas: The Methanol Economy*.

Olah is survived by his wife Judith; their sons George and Ronald; and three grandchildren, and his legacy lives on in the efforts of his students and associates.

Ripudaman Malhotra
San Carlos, CA 94070
Email: ripu.cmo@gmail.com

