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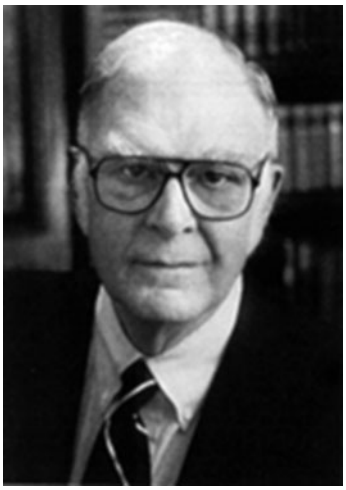
Obituary

A tribute to Frank Sherwood Rowland – environmental chemist, Nobel laureate, global citizen and first Editorial Board Member of *Environmental Chemistry*

28 June 1927–10 March 2012



Environmental chemistry is one area of science that often produces results carrying a clear and important message for mankind. And there have been few clearer messages than that delivered by Sherwood Rowland and Mario Molina in their seminal paper in 1974, in which they reported that chlorofluorocarbons were degrading the earth's protective shield of ozone. In 1995, Rowland, Molina and Paul Crutzen were awarded the Nobel Prize in Chemistry 'for their work in atmospheric chemistry, particularly concerning the formation and decomposition of ozone'.

Sherwood Rowland (Sherry to his friends) began his research career in 1948 as a Ph.D. student at the University of Chicago under the supervision of Willard Libby. At that time, Professor Libby was working on the ^{14}C radio-dating method, for which he was to receive the 1960 Nobel Prize in Chemistry. After completing his Ph.D. studies, Rowland held positions at Princeton University and at the University of Kansas where he continued his research in radiochemistry. In 1964, he moved to the University of California as Professor of Chemistry and inaugural Chair of the Chemistry Department at the then new Irvine campus, where he would remain for the rest of his career. It was at Irvine that Rowland began to apply his experience in radiochemistry and photochemistry to scientific questions in atmospheric chemistry. This new direction led to investigations of the behaviour and fate of chlorofluorocarbons in the atmosphere. Going against the contemporary dogma that chlorofluorocarbons were inert, Rowland and his post-doctoral researcher Molina demonstrated that these compounds could be photochemically decomposed in the upper atmosphere releasing chlorine atoms, which in turn decomposed ozone.

Although the work was meticulously done, and the results scientifically sound, the findings of Rowland and Molina were disputed by powerful sectors of the chemical industry. Rowland vigorously defended the work, and argued strongly and tirelessly in the public arena for a change in the use of chlorofluorocarbons. In a coming-of-age for environmental chemistry, legislation followed that banned the use of these environmentally destructive chemicals. The resultant Montreal Protocol on Substances that Deplete the Ozone Layer, signed in 1987 and today ratified by 197 states, is testament to Rowland's commitment to his chemistry and to the environment.

Little wonder then that in 2003, in the formative stages of a new journal, *Environmental Chemistry*, focussing on the chemistry of our environment, Sherwood Rowland was the first person invited to join the editorial board; he leaves the journal after 8 years in that role. Sherwood Rowland died in his home on 10 March after a short illness. He will be remembered for his probing research methods, his strong scientific convictions and his unwavering quest to fix what was wrong.

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