

KARL R. KOPECKY

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**William Alfred Ayer**  
**1932-2005**



Dr. William Alfred (Bill) Ayer died on 2 December 2005 in Edmonton, Alberta at the age of 73 years. He was born in Middle Sackville, New Brunswick on 4 July 1932. He obtained his BSc (Honors) from the University of New Brunswick in 1953 at the head of his class to win the Governor General's Gold Medal. He remained to obtain his PhD with W. I. Taylor in 1956. He stayed on a year longer as a post-doctoral fellow with K. Wiesner working on the structure of an alkaloid from a *Lycopodium* plant. In 1957 Ayer went to Harvard for a year to join a group in R. B. Woodward's laboratory that was working on the synthesis of the complex pigment chlorophyll, a great challenge of the time. This feat was completed in 1960 and led, in part, to Woodward's winning the Nobel Prize.

In 1958 Dr. Ayer joined the Department of Chemistry at the University of Alberta as Assistant Professor to begin a distinguished academic career. Both Wiesner and Woodward were exacting scientists, a trait which Ayer acquired, and he soon built an internationally recognized natural products chemistry group. His research was centered on the isolation, structure determination and synthesis of biologically active molecules isolated from plants, fungi, insects and soil organisms. He was promoted to Associate Professor in 1963 and to Professor in 1967.

Dr. Ayer began independent research by returning to the study of *Lycopodium* alkaloids, biologically active molecules that contain nitrogen, and became the authority on this family of complex molecules. His work soon attracted the attention of Dr. Harold Brody of the Botany Department who had found antibiotic activity in an extract of a bird's nest fungus, *Cyanthus Helenea*, an organism that resembles a miniature bird's nest. Ayer's group identified many new and interesting molecules from this and other *Cyanthus* species. So began the first of a series of collaborative studies with biologists that extended into agriculture and forestry. Alkaloid defense substances of lady bugs were identified as well as molecules that caused these insects to aggregate. Ayer's group learned how to culture fungi and isolated a fascinating variety of molecules from fungi that cause plant diseases, including Dutch elm disease, blue stain disease of pine, *Scleroderris* canker of pine, silver leaf disease of fruit trees and black spot disease of canola. During this work they discovered numerous phytoalexins, compounds produced by plants upon infection that resist the infecting organism. This work is of great relevance not only to chemistry, but also to some of the most difficult biological problems involving agriculture and forestry as well as being of general popular interest. Dr. Ayer was thus an early practitioner of the rapidly developing field of Chemical Ecology which has the objective of finding environmentally benign ways to control fungal pathogens.

Dr. Ayer published over 200 papers which describe the isolation and structures of more than 100 new natural products, including 17 new carbon skeletons, and the notable syntheses of many of them. His impressive research accomplishments have been recognized with many honors including an Alfred P. Sloan Foundation Fellowship, the Merck Sharpe Dohme Award 1970, election to the Royal Society of Canada 1972, the John Labatt Award 1981 and the E. W. R. Steacie Award 1994.

Despite such praise Ayer remained a quiet and unassuming person with a good sense of humour and a twinkle in his eye. He was a gracious colleague and mentor who always looked for the positive attributes in those with whom he interacted. He contributed his full share to the teaching and administrative requirements of the Department. He was an enthusiastic and popular lecturer at both the undergraduate and graduate level. He mentored over 70 graduate students, post-

doctoral fellows and research associates. His students were well trained and many have gone on to make significant contributions in academia, industry and government.

Dr. Ayer was a vigorous promoter of chemistry. He organized national and international conferences, served as Organic Chemistry Editor 1977 to 1983 and Editor 1984 to 1988 of the Canadian Journal of Chemistry, and was president of the Canadian Society for Chemistry 1988 to 1989. For his research accomplishments and service to the profession he was made University Professor 1992, the University of Alberta's highest honor, and awarded the Montreal Medal of the Chemical Institute of Canada 1997.

In spite of all of these activities Dr. Ayer was a devoted family man who participated RSC in the upbringing of his children and took great pride in watching them flourish. He is survived by his wife, four daughters, two sons and nine grandchildren.

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*(Author's title given as of the time of writing)*