



**ROBERT E. IRELAND**  
**1929 – 2012**

Robert Ellsworth Ireland, Emeritus Professor of Chemistry at the University of Virginia, Charlottesville, died on February 4<sup>th</sup>, 2012 in Sarasota, Florida. He is survived by his wife, Margaret, his brother Andrew and his sons Mark and Richard.

Bob Ireland was one of the legends of organic synthesis, and he will be remembered by his many contributions to synthetic methodology and natural product total synthesis, as well as by his dedicated training of several generations of influential industrial, government, and academic scientists.

Bob was born in Ohio in 1929 and almost became a professional baseball player. After receiving his A.B. degree from Amherst College in 1951, he moved to the University of Wisconsin-Madison and on to a stellar career in chemistry.

Under the direction of Professor William S. Johnson, he studied the formation of steroids and completed a total synthesis of estrone and 14-isoestrone. He graduated with a Ph.D. in 1954 and joined the research group of Professor William G. Young at the University of California, Los Angeles as an NSF postdoctoral fellow. During this time, he continued his research on steroids and investigated the rearrangement of allylic alcohols in the presence of thionyl chloride. The final term of his Midwest period began in 1956 when he accepted a faculty position at the University of Michigan.

In his nine years in Ann Arbor, Bob attracted his first cohort of outstanding coworkers and established the foundation of his unique academic career. A mix of synthetic methods, for example the use of the *N*-butylthiomethylene blocking group, and approaches to terpenoid natural products such as 9-isopimaradiene resulted from this period. These activities expanded and increased after the move of the Ireland group to the California Institute of Technology in Pasadena in 1965. In particular, the “Ireland-Claisen Rearrangement” was reported in seminal papers in 1972 and 1976. Furthermore, major natural product targets such as monensin, lasalocid, tirandamycin acid, chlorothricolide and aphidicolin were successfully tackled. Many of these syntheses showcased the tremendous utility and versatility of the Ireland-Claisen methodology and introduced new variants of the sigmatropic shift, such as the “Straight-Chain Claisen” and the “Black-Belt Claisen”. He also introduced new methods for the preparation of pyranoid glucals.

At Caltech, Bob wrote the first textbook on synthetic strategy. *Organic Synthesis* was published by Prentice Hall in 1969 and included memorable quotes such as “Stereochemistry Raises its Ugly Head” or “Multistage Synthesis: Logistics and Stereochemistry Combine to Produce Nightmares”. In this treatise, Bob introduced strategic thinking, not unlike a battlefield plan, by facing the complex target molecule head-on as well as circumventing its defenses.

In 1985, Bob surprised many when, in spite of his love of Orange County, Caltech, and the Athenaeum, he accepted the directorship of the Merrell-Dow Research Institute in Strasbourg, France. However, Bob had always been a Francophile and an adventurer, and he was never afraid to take risks. While he returned to the United States in 1986 as Chair and Commonwealth Professor of Chemistry at the University of Virginia in Charlottesville, his time in Strasbourg reinforced his dedication to chemistry and his appreciation of the many frontiers of science. In 1987, he was honored with the newly created Thomas Jefferson Chair in Chemistry at UVA. In addition to the syntheses of FK-506 and carba-monensin, several new processes emanated from Charlottesville, not the least of these including a highly cited and improved preparation of the Dess-Martin periodinane. Unfortunately, his health forced him into an early retirement in 1995, which nonetheless, he greatly enjoyed with his wife Margaret, his enthusiasm for Macintosh computers, and his continued vivid interest in new developments in synthesis.

Bob's work earned him many accolades, including the prestigious ACS Ernest Guenther Award in the Chemistry of Natural Products in 1977 and the ACS Award for Creative Work in Synthetic Organic Chemistry in 1988. He chaired the ACS Division of Organic Chemistry in 1980 and was the Editor of Volume 54 of *Organic Syntheses* in 1974. He and his group contributed as submitters or checkers to 34 procedures published in *Organic Syntheses*.

Over the course of his illustrious academic research career at Michigan, Caltech, and Virginia, Bob mentored numerous graduate students and postdoctoral associates who have moved on to key positions in industry, government, and universities, and they continue to spread Bob's infectious love for synthesis across the globe. Bob was never afraid to speak his mind, and he enjoyed life inside and outside the laboratory. We will always remember him as a keen intellect, a towering educator and scientist, and a relentless, enthusiastic supporter of his students.

Peter Wipf