JOC The Journal of Organic Chemistry

Editorial

pubs.acs.org/joc

Robert Ellsworth Ireland

Bob Ireland grew up in Cincinnati and attended Amherst College where he received an AB degree in 1951. Subsequently, he joined the research group of W. S. Johnson at the University of Wisconsin working on steroid synthesis and receiving his Ph.D. degree in 1954. After two years of postdoctoral studies in the Winstein–Young group at UCLA, Bob joined the faculty of the University of Michigan. I arrived at Michigan as a first-year graduate student one year later after earning my BS degree from the University of Wisconsin, where I did undergraduate research in the Johnson–Kupchan group. Soon after my arrival at Michigan, having passed my entrance exams, I interviewed with the various organic faculty, including the newly hired Instructor Robert E. Ireland. In addition to our common Wisconsin experiences, we both shared an unabashed enthusiasm for synthetic organic chemistry. A number of stimulating conversations ensued, including one involving my undergraduate research project. After I described the project and its unsolved problems to Bob he quickly outlined an imaginative and totally plausible solution. I was inspired!

My Ph.D. research involved a synthesis of the diterpene podocarpic acid employing a Friedel–Crafts type cyclization to form a tricyclic precursor structure. In the course of those studies, Bob and I published several methodology papers, but ultimately "stereochemistry reared its ugly head" and I was only able to prepare an isomer of the natural diterpene.

In those days, we changed approaches about as often as we changed socks and each new route became an Ireland "crash project". One such was the aliphatic Claisen ester rearrangement. That project stemmed from a JACS paper that Al Burgstahler at Kansas State had just published on the thermolysis of the vinyl ether of 4-cholesten-3β-ol, which afforded a rearranged 3-coprostene with a CH_2CHO substituent at C5. REI (the group nickname for Bob) was very excited about this finding and thought the reaction had good potential to elaborate certain ring C features of the diterpene phyllocladene. So a co-worker, Bob Church, and I were assigned to explore this particular "crash project". Throughout all this, REI was conducting parallel research in his lab/office, and we often worked in assembly line fashion. Our preliminary experiments established the feasibility of the approach, and after collaborating with REI and fellow student Bob Church to prepare quantities of intermediates, I left for my postdoctoral sojourn with W. S. Johnson at Stanford. Not long after, the synthesis of phyllocladene was completed and Bob's longstanding love affair with the Claisen rearrangement was underway.

Those days at Michigan were exciting and *just plain fun*! We had an energetic, "in-your-face" boss/comrade, and we soon gained a reputation for being the hardest working and most productive bunch that Michigan had seen since the Bachman years. Bob's stock was clearly on the rise, and we were thrilled to be a part of it.

We were not the only ones who appreciated Bob's talents, for not long after, in 1965, he moved to Caltech as Professor of Organic Chemistry, where he and Richard Mueller extended the Claisen rearrangement to include enol silanes of allylic esters, a reaction of remarkable versatility that now bears his name. At Caltech, the Ireland group completed landmark total syntheses of triterpenes and ionophores employing Claisen chemistry and other novel methodology until 1985 when, ever the Francophile, Bob left California to become Director of the Merrell-Dow Research Institute in Strasbourg. A year later he moved to the University of Virginia both as Chair of the department and the inaugural Thomas Jefferson Chair Professor of Chemistry. There he continued to extend the Ireland–Claisen rearrangement to a number of complex natural antibiotics and polyether natural products. Among his noteworthy administrative achievements as Department Chair, he engineered a substantial new research addition to the Chemistry Building, completed in 1995, the year of his retirement.

In the nearly 40 years of his academic career, Bob received numerous awards recognizing his contributions to organic synthesis. These include a Sloan Fellowship, the Ernest Guenther Award in the Chemistry of Essential Oils, and the ACS Award for Creative Work in Synthetic Organic Chemistry. His significant impact on synthetic organic chemistry was manifested not only in his scientific achievements but also in his style of presentation both in seminars and the scientific literature. His publications are a model of clarity and thoroughness. Early in his career he wrote *Organic Synthesis* (Prentice Hall, 1969), the first-ever textbook on synthetic strategy. In it one finds the oft-quoted passage "Stereochemistry Rears its Ugly Head" as the title of Chapter 5. The final chapter, "Multistage Synthesis: Logistics and Stereochemistry Combine to Produce Nightmares," presages the present era of complex

Special Issue: Robert Ireland Memorial Issue

Published: January 4, 2013

   dx.doi.org/10.1021/jo302397x | *J. Org. Chem.* 2013, 78, 1–2

molecule construction. Though more than 40 years old, the book can still serve as a text for a modern midlevel course in synthetic organic chemistry.

Bob's lucid and invariably entertaining lectures in the classroom and invited symposia and seminars graphically illustrated the power and beauty of multistage organic synthesis and inspired generations of chemists, both young and old. His former students and postdoctoral associates have become successful chemists themselves and now hold leadership positions in industry, government, and universities in the U.S. and abroad. Chemistry has attracted many colorful practitioners, and Bob may be counted among the best of them. His outside interests included horse racing, fine wines, fast cars, good scotch, and needlepoint. But it is for his many contributions to education and science that he will be long remembered.

James A. Marshall

Department of Chemistry, University of Virginia

AUTHOR INFORMATION

Notes

Views expressed in this editorial are those of the author and not necessarily the views of the ACS.

dx.doi.org/10.1021/jo302397x | *J. Org. Chem.* 2013, 78, 1−2