

BOOK REVIEWS

A Chemical Life, Joseph B. Lambert, De Rigueur Press, North Manchester, IN, 2014, 388 pp, ISBN 978-0-9916503-0-9, \$15.00.

The realm of non-fiction is inundated nowadays with memoirs. These are typically written by actors, politicians, musicians, has-beens, never was's, celebrities, and some few people of genuine merit. Those of us who would like to see what our fellow chemists would say in a memoir have precious few examples. Jeffrey Seeman tried to fill the void with his "Profiles, Pathways, and Dreams" series of memoirs by prominent organic chemists published by ACS in the 1990s. Now we are blessed with a new memoir by prominent physical organic chemist Joseph B. Lambert, who also has strong credentials in history of chemistry. He was Chair of HIST in 1996 and a winner of HIST's Edelstein Award in 2004. Lambert has pioneered in the use of spectroscopy in archaeological chemistry, and he has continually applied nuclear magnetic resonance (NMR) toward significant problems in physical organic chemistry. Furthermore, he was the founding editor of the *Journal of Physical Organic Chemistry*, holding the post of Editor-in-Chief from 1986-2010.

Along with the excellence of the book's content, I was knocked out by how fine the book's production values were for such a low price. True, it is a paperback, but it is a paperback that is of equal quality to trade paperbacks that market for \$50-60. The binding is firmly set with high quality color illustrations on the cover, internal illustrations are ample and of high resolution, and the copious numbers of formulae and equations make it easy to follow the trail of Lambert's chemistry. When one learns that De Rigueur Press is owned by long-time

HIST secretary-treasurer Vera V. Mainz, then the combination of high quality and reasonable price becomes more understandable. The book can be ordered online for the price listed above plus \$3.99 postage and handling.

The book's eleven chapters cover 309 pages followed by ten appendices totaling around 80 pages. The short Chapter 1 titled "Science before Research" deals with Lambert's early years as a budding physics major, who switched to chemistry as an undergraduate at Yale. Chapter 2 on "Thermal Rearrangements" covers Lambert's undergraduate research with Bill Doering. Chapter 3 dealing with "Alicyclic Conformational Analysis" describes his graduate research at Cal Tech with John Roberts and his initial independent research as a faculty member at Northwestern. Lambert was one of those few people who were able to skip a post-doctoral appointment to go directly to a faculty position. Cal Tech required that budding Ph.D. students develop five proposals for research. Three of those proposals developed by Lambert were the basis for his initial research program at Northwestern.

Chapter 3 plus succeeding Chapters 4, 5, and 6, respectively, on "Heterocyclic Conformational Analysis," "Atomic Inversion and Bond Rotation," and "Nuclear Magnetic Resonance Spectroscopy" deal with applications of spectroscopy to physical organic chemistry. The title of Chapter 6 is a little misleading, as Chapters 3-5 also involve much NMR.

In the 1960s, solvolysis was a hot topic, with compelling research carried out by such illustrious organic chemists as Winstein, Cram, Roberts, and Brown. Chapters 7 and 8 describe Lambert's work on reaction mechanisms, with Chapter 7 covering solvolysis and

Chapter 8 other mechanisms. Chapter 10 deals with “Organosilicon Chemistry,” although work with germanium and tin compounds is also described therein. Lambert’s silicon work provoked a feud with George Olah described in detail in Chapter 10, but Lambert’s work in this area was recognized with the ACS Kipping Award in Silicon Chemistry in 1998.

In some ways Chapter 9 on “Archaeological Chemistry” and Chapter 11 on “Amber and Exudates” are the most interesting, as Lambert breaks out of the trap of doing the same sort of thing over and over by becoming a Guggenheim Fellow at the British Museum in 1973. When he returned from London, he continued his physical organic work, but he also set up an archaeological chemistry laboratory. When you go into archaeological chemistry, you can kiss those NSF, NIH, and DOE grants goodbye. However, Lambert was able to find a few graduate students who wanted to work in that area. He mounted a significant program and won several awards. His Edelstein lecture and paper was on “The Deep History of Chemistry” to distinguish archaeological chemistry from the history of chemistry. After Lambert’s 2010 retirement from Northwestern, he returned to his hometown of San Antonio to the position of Research Professor of Chemistry at Trinity University, where he continues archeological chemistry research.

Although they seldom admit it, academic research directors are only as good as their students and post-docs. Lambert is zealous about admitting his debt to his coworkers. Every mention of a student or post-doc is accompanied by a capsule description of what he or she did and where she or he is now. The book ends with

color photographs of the Lambert group from 1972 till 1998. All of his coworkers are listed in Appendices 5-7.

It would be a pity to leave the impression that this book is just a series of *Accounts of Chemical Research* and *Chemical Reviews* articles cobbled together. It IS a scientific memoir but with aspects of a personal memoir mixed in. We learn the reasoning behind his choices of research areas and experimental procedures, but we also learn about his feuds with George Olah and Philip Skell, his girl friends before he met his wife, his enjoyment of the “Batman” TV program, his teaching evaluations (Lambert won the Norris Award for teaching in 1987), and his bout with colon cancer. Lambert also gives succinct, accurate definitions of new terms as he goes along, and the text is leavened by his wit. This book serves as a fine overview of the main currents of physical organic chemistry during the 1960-2010 time period.

Do I have any reservations about this book? Only one, but it is a significant reservation. The book has no index. No doubt omission of an index helped keep the price down, but an index is always an asset. This problem is mitigated somewhat in the appendices of student names, where the student name is accompanied by the page number where the student’s work is discussed. However, even without an index, for this low price I think any student of organic chemistry history would find “A Chemical Life” an outstanding value. I recommend this book highly.

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