

The Way of Synthesis: Evolution of Design and Methods for Natural Products, by T. Hudlicky and J. W. Reed, Wiley-VCH: Weinheim, 2007, softcover, 1004 pp., € 69, ISBN 978-3-527-31444-7

The total synthesis of natural products remains the supreme discipline of Organic Synthesis. While R. B. Woodward received his Nobel prize in 1965 for his outstanding achievements in the 'art of organic synthesis', 25 years later E. J. Corey was honoured for his 'development of the theory and methodology of organic synthesis'. Although these eulogies about two of the best practitioners of organic synthesis might insinuate that the art of organic synthesis has matured into a predictable science, the current state of this field is somewhere in between these two views expressed by the Nobel committee. Whatever it is, art or science, excellent textbooks are needed to train a new generation of scientists who will be able to address the endless challenges in this field. There are a few excellent books available, notably the classic, very dense text by Corey, or the recent books by K. C. Nicolau, R. W. Hoffmann, and S. Warren, which attempt to introduce the student to this discipline by very different approaches. T. Hudlicky and his wife J. W. Reed have written a voluminous textbook which is excellent, very personal, and a treasure trove of valuable information.

This 1000-page-strong book can be divided into two parts. The first part is dedicated to the history, strategy and tactics of Organic Synthesis. I found this 200-page section very interesting and extremely helpful. In these introductory chapters the reader finds information not available in other textbooks. The discussion of the structural elucidation of classic natural products, such as glucose, morphine, aspidospermine and patchouli alcohol, which was accomplished by reactivity and degradation studies, is, especially for chemists of a younger generation who grew up in the age of spectroscopy (to which I belong), very intellectually stimulating and teaches important lessons.

The main part of the book discusses and compares the design of remarkable syntheses of natural products. The authors have intentionally limited their discussion to natural products which have been synthesized by several different synthetic routes as this allows a comparison of strategies. In the selection of the target molecules a strong bias by the authors can be seen. What I found disappointing is that 600 pages are dedicated to terpenes and alkaloids, while

'miscellaneous compounds' are superficially covered in only 80 pages. This distribution does not reflect the actual activity in the field. For example the important class of polyketide natural products are completely underrepresented. However, the didactic concept of the discussion of the natural product syntheses is absolutely convincing. Well-arranged schemes in two colours allow the reader to follow the synthetic steps towards the molecule. Remarkable features which have general application are highlighted again at the bottom of the scheme.

Another innovative concept in this book are the so-called 'Notes', in which the authors of the highlighted syntheses give personal statements about their work. The usefulness of these notes covers a broad range: while many are absolutely revealing and give the reader a valuable perspective about lab work and the birth of new ideas at the forefront of organic synthesis, others are plain statements which contain no extra information besides the acknowledgement of the people involved in this project. The book is also full of personal statements by the authors. Although I do enjoy a certain amount of personal flavour, at many points while reading the book I found it too much. An ongoing complaint put forward in this text is the decline of the quality of the laboratory education of our undergraduates, the overselling of results in the current literature, and a general mistrust against reported yields. While these statements might be correct, the dedicated space of more than 30 pages is certainly too much, considering that important classes of natural products have been neglected. In addition, I found it sad that no yields are reported in the discussion of the natural products. Sometimes a conceptually brilliant step loses its magic when one knows that the reaction only results in a 5% yield. Especially for students, it is important to get a feeling of which reactions are of broad scope and give high yields. A future edition should correct this flaw.

Despite the criticism put forward in the last paragraph, I regard this book as one of the best ever written about this subject. It gives the reader a fresh and innovative perspective on the design and methods for the synthesis of natural products. Every graduate student will benefit from reading this book!

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