

Book Review

Classics in Total Synthesis. By K. C. Nicolaou, E. J. Sorensen. VCH: Weinheim, 1995, 798 pp, paperback. DM 78. ISBN 3-527-29231-4.

Professor Nicolaou and Dr. Sorensen have assembled a book that must be regarded as essential reading for those involved with or aspiring to contribute to synthesis.

The book is divided into 37 chapters, the first of which presents an historical overview of synthesis and an introduction to the key concepts that have underpinned the development of this area of chemistry over the last 40 years. Each of the remaining 36 chapters then focuses on the total synthesis of either an individual natural product or a group of closely related structures, starting with Woodward's synthesis of strychnine (1954) and the text ends with Nicolaou's own synthesis of brevetoxin (1995).

The same style is used by the authors to handle each case. The individual molecule is first introduced and then subjected to a comprehensive analysis. This component of the discussion is presented along with other important background information (degradation studies etc.) available at the time the original work was done. Once the analysis is complete, the remainder of the chapter describes the execution of the total synthesis. The authors also offer their own insights into the way that the chemistry was used, an aspect that reflects the evolution of this book from a graduate course on synthesis.

However, to restrict my description of the book to this simple pattern of analysis and descriptive treatment of a synthesis is to understate greatly the content and value of each chapter; the chapter title represents the tip of the iceberg. The target molecule is just one component of the discussion.

Natural products, while often of importance in their own right, also offer fertile ground for the exploration of new chemistry and impetus for its continued development. The book highlights these more general aspects of the chemistry relating to the individual targets and the reader is led to consider the impact that new ideas have made and, where appropriate, to recognise related but more recent advances.

The reality is that **Classics in Total Synthesis** is a book of chapters within chapters. For example, chapter 23 (hirsutene and $\Delta^{9(12)}$ -capnellene) not only describes Curran's contributions, but also illustrates the use of radical cyclisation procedures in the synthesis of various other terpenes, prostaglandins and carbohydrates (tethered cyclisations), alkaloids, the use of tandem cyclisations and a host of other aspects of contemporary radical chemistry. The breadth and depth of coverage will absorb, stimulate and challenge the reader. The clarity of the discussion is to be commended and clever use of structural diagrams helped the pages to turn freely. The potential of this book in teaching (both for students and teachers) must also be recognised.

The choice of target molecules used in this book is, of course, necessarily subjective but there is no doubt that those presented are "classics". The authors do allude to the possibility of a second volume and that is something that anyone who reads this first one will look forward to.

Finally, synthesis is not, of course, confined to those with a direct interest in natural products and it should be appreciated that the authors offer valuable lessons and insights that will be of benefit to anyone wanting to make molecules of almost any description.

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