

## BOOK REVIEW

*Alkaloid Chemistry*, MANFRED HESSE (trans. by I. R. C. Bick), Institute of Organic Chemistry, University of Zürich. Wiley-Interscience, John Wiley and Sons, Inc., 605 Third Avenue, New York, New York 10158. 1981. xii+231 pp. 16 x 23.5 cm. \$28.50.

The purposes stated for this volume in the Preface are "to give the student some concept of the aims and methods of research in the alkaloid field," to provide "an introduction to methods of continuing importance in alkaloid research," and "to stimulate the student's interest in this fascinating branch of natural products chemistry." The author describes the text as "intended primarily for advanced students of organic chemistry as an introduction to the complex chemistry and spectroscopy of alkaloids."

The book consists of eleven sections of chapters: The first four chapters present in nine pages the introduction, the concept and definition of an alkaloid, nomenclature, and artifacts. Chapter 5 on the "Classification of Alkaloids" treats eleven classes of heterocyclic alkaloids (49 p.), as well as alkaloids with exocyclic nitrogen (1 p.), putrescine, spermidine and spermine alkaloids (1 p.), peptide alkaloids (one-half p.), diterpenoid alkaloids (1 p.), and steroidal alkaloids (3 pp.). Then follows a 24 page chapter entitled "Aspects of Alkaloid Biogenesis" dealing mainly with 1-benzylisoquinoline alkaloids and alkaloids of *Papaver somniferum* and *P. orientale*. Chapter 7, "Aspects of Chemotaxonomy" (29 pp.), deals mainly with the plumerane-type indole alkaloids.

The most useful chapters as far as students are concerned are those entitled "Structural Elucidation by Modern Methods: Villalstonine" (32 pp.) and "Important Degradation Reactions of Alkaloids" (18 pp.). The former chapter is perhaps the best in the book, and illustrates well the use of modern methods of structure elucidation, including IR, proton NMR, UV, mass spectrometry and selective degradation reactions as applied to the complex alkaloid villalstonine (C<sub>41</sub>H<sub>48</sub>N<sub>4</sub>O<sub>4</sub>). Unfortunately applications of carbon-13 NMR spectroscopy are not mentioned in this chapter.

Chapter 9, "Important Degradation Reactions of Alkaloids," reviews the Hoffman, Emde, and Von Braun (BrCN) degradations. Because chemical degradations continue to play an important role in elucidation of the structures of alkaloids, this chapter should prove especially valuable to students. Chapter 10 (13 pp.) entitled "Dimeric Alkaloid-Bisalkaloids" treats the Mannich Reaction, Michael condensations, various aldehyde-amine reactions, oxidative phenolic coupling reactions, and lactonization reactions. A final chapter, "Examples of Alkaloid Synthesis," (26 pp.) is devoted to a discussion of the synthesis of mesembrin, porantherine (a biomimetic synthesis), the spermidine alkaloid, oncinotine, and vincamine. A bibliography of 339 entries and an index (15 pp.) are provided.

From the topics discussed, the book appears to satisfy the purposes outlined by the author in the Preface. However, I believe the book is too brief to be useful except as a very cursory introduction to the subject of alkaloid chemistry. The heart of the book, chapter 5, dealing with classification of alkaloids, is basically a listing of plant and alkaloid names illustrated by structures. Frankly, I found this chapter boring and wanted to read something substantial about the chemistry of the alkaloids presented.

The design and format of the book is excellent and very few typographical errors were noted.

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