Book Reviews

Asymmetric Synthesis of Natural Products. By A.M.P. Koskinen. Wiley: Chichester; 1993, XIII + 234 pp., paperback. £ 16.95. ISBN 0-471-93848-3.

The title of this book is somewhat misleading and it might have been more accurately called "Asymmetric Synthesis and Natural Products". The principles and applications of asymmetric synthesis on one hand, and the structures and biosynthetic origin of natural products on the other are two areas of great importance in modern organic chemistry, but I suspect that it is rare for them to be combined in a single undergraduate course. To integrate these and at the same time to include coverage of strategy of total synthesis is a worthy objective, but I feel the effort to do this in this book has not been very successful. The ten chapters do cover important material in all these areas but there is little coherence between the different elements.

The first chapter is a survey of the diverse structures and activities of naturally occurring compounds and contains some good up-to-date examples as well as some interesting anecdotes. This is followed by a chapter on general principles of chirality and asymmetric synthesis which includes sections on determination of e.e., the thermodynamic basis for asymmetric synthesis, the need for enantiomerically pure compounds and a survey of the major methods available to obtain them. This is quite well done although the continued use of such disfavoured terms as "chiral centre" is unfortunate. In the third chapter many of the most useful recent asymmetric methods are described in detail. As the author admits, any comprehensive coverage in the 45 pages available is clearly impossible, but the examples included are well chosen and the inclusion of nearly 200 references for this chapter alone is commendable. The classification is at times very curious here: for example, the section on "asymmetric reduction of olefins" consists of asymmetric hydride reduction of ß-hydroxy ketones and asymmetric hydroboration! Surely it is also high time that "olefin" was replaced by "alkene".

The remaining seven chapters cover in turn carbohydrates, amino acids proteins and peptides,

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.

nucleosides nucleotides and nucleic acids, isoprenoids, shikimic acid derivatives, and alkaloids. The depth of coverage is variable with the chapter on nucleosides, nucleotides and nucleic acids being only 6 pages. In all these chapters the main emphasis is on the structures of naturally occurring compounds, their biosynthetic origin, and their biological activity. Only in a few cases has the opportunity been taken to show a few typical asymmetric syntheses. Where this is done the examples are well chosen and carefully described, but it is regrettable that both the asymmetric synthesis of the product classes and their use in the preparation of chiral auxiliaries, reagents and catalysts did not receive fuller and more uniform coverage. In my view this could have been done at the expense of some of the more exotic structures shown and such topics as receptor site structure and peptide bioisosteres which really do not belong in this book.

The book is well produced with good quality structures and well referenced with coverage up to 1992. There are both subject and compound name indexes which are quite comprehensive.

The book arises from a series of lectures presented by the author and it seems to me that this is the root of the problem. The material presented is perfectly valid in the context of a lecture course. However for a textbook at this level to be widely adopted, a greater degree of organisation, balance and uniformity is desirable. Having said that, the book does contain much interesting material and may be useful for reference at the advanced student level and above.

R. Alan Aitken, University of St. Andrews, Scotland

Book reviews are generally by invitation. Publishers should send books to Dr Ray J. Boucher, Book Review Editor, Synthesis Editorial Office, Georg Thieme Verlag, Rüdigerstrasse 14, D-70469 Stuttgart, Germany.

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.