

Book Reviews

Chemistry of Alicyclic Compounds. By Gunter Haufe and Gerhard Mann. Elsevier, Amsterdam. 1990. 468 pp. 17 × 24 cm. ISBN 0-444-98878-5. \$179.50.

This is volume 38 in the *Studies in Organic Chemistry* series. It provides an illustrative overview of the synthesis, structure, and chemical transformations of alicyclic, or carbocyclic, compounds. The book is organized to first present the classification and structural description of alicyclic compounds and an assessment of their stability. This is followed by a description of the processes characterizing their dynamic behavior and various synthetic routes, e.g. ring contraction, ring enlargement, and transannular cyclization, employed for their synthesis. Lastly, the utility of alicyclics for the preparation of natural products and pertinent model compounds is discussed. This progression is arranged by six major sections: (1) structural foundations: topology and topography of alicyclic compounds, (2) structure-energy relations in alicyclic systems, (3) ring transformations by dynamic processes, (4) preparation of alicyclics by ring contraction, (5) preparation of alicyclics by ring enlargement, and (6) transformation of alicyclics by transannular reactions. Each of the six major sections contains many up-to-date references. A detailed subject index is also included.

This comprehensive, clearly written book will be of interest to almost all organic, physical, and medicinal chemists. It is recommended for all chemistry libraries.

Staff

The Nuclear Overhauser Effect in Structural and Conformational Analysis. David Neuhaus and Michael P. Williamson. VCH Publishers, New York. 1989. 16 × 24 cm. xxi + 522 pp. \$95.00.

Understanding the nuclear Overhauser enhancement (NOE) is one of the more difficult aspects of NMR for the nonexpert. At the same time, its application to the determination of structure is often extremely simple since, at the qualitative level, the effect

can often be predicted on the basis of straightforward geometric considerations. This dichotomy poses a difficult problem for anyone wishing to address a text on the subject to an audience ranging from the layman to the semiexpert. In my opinion, the authors have been successful and this book will find its way onto the bookshelves of many who wish to extract the maximum information concerning structure, stereochemistry, and conformation from NMR spectroscopic techniques.

The authors do provide a rather complete account of the basic theory of NOE but, wisely, they have stopped short of the more rigorous and general density matrix formulation. What makes this book so valuable is that each theoretical subsection is usually followed by a description of its physical significance, so that those readers who shun the formal mathematical presentation can none-the-less readily extract its essential information content.

The book is in three sections—Theory, Experimental, and Applications. The first section includes, in addition to basic concepts, treatments of steady state and time-dependent NOE's as well as exchange phenomena. The experimental section presents a nice introduction to 2D NMR (NOESY) which includes a pragmatic assessment of the utility of such experiments in various situations.

The final section, which deals with applications, will be the main strength of the book for many medicinal chemists. In particular, no one should embark on an attempt to use NOE for conformational analysis before assimilating the material in chapter 11. The final chapter surveys the application of NOE to biopolymers. This is still a rapidly evolving topic and the presentation is therefore little more than an introduction to the field. As such, it may be recommended to anyone who is new to the subject.

In summary, this is an excellent book and one which I thoroughly enjoyed reading. It covers many topics of interest to medicinal chemists and is likely to substantially enhance their use of NMR spectroscopy in their research endeavors.

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