Basic Organic Stereochemistry. By E. L. Eliel, S. H. Wilen, M. P. Doyle. Wiley: Chichester, **2001**, 688 pp, £ 57.50, paperback. ISBN 0-471-37499-7.

The "Stereochemistry of Organic Compounds" published in 1994 has become an excellent reference text and has served as a reliable source of stereochemical information for both established chemists and graduate students. However, its length (1267 pages) makes it less suitable for teaching stereochemistry to students at undergraduate level. To readdress the balance "Basic Organic Stereochemistry" represents a substantially condensed version of the 1994 book (688 pages). The authors have done well in preserving the essential tenets of the subject, making it an appropriate text for taught courses at undergraduate level. It should also be emphasized that the book has much to offer to both industrial and academic chemists of all levels. It contains a plethora of citations and although most are taken form the 1994 book, more recent references are included and preference given to review articles and books.

This volume consists of thirteen chapters, beginning with a brief history and introduction. Chapters 2 to 6 concentrate on the fundamentals of stereochemistry i. e. structure, stereoisomers, symmetry, configuration, properties of stereoisomers and stereoisomer discrimination. All of these chapters form a strong base for the stereochemical understanding required, not only in chemistry, but also in the ever expanding areas of materials chemical science and biochemistry.

The separation of stereoisomers, resolution and racemization are discussed at length in Chapter 7 (105 pages). In particular an interesting account of kinetic resolution is superbly presented (p 257). The mathematical relationships that govern kinetic resolutions, which relate to their efficiency, dependence on conversion and the relative rate of the competing reactions of each enantiomer ($k_R/k_S = \mathbf{s}$, the stereoselectivity factor), are given in a concise format. For more information it is thoroughly recommended to see *Top. Stereochem.* 1988, *18*, 249 written by Kagan and Fiaud. Examples of stoichiometric and catalytic kinetic resolutions are given, which show the effect of **s** on the efficiency of individual resolutions. The attractiveness of organometallic catalysts is illustrated with specific emphasis on the Sharpless reagent applied to the resolution of allylic alcohols. The authors suggest that students should read this chapter independently and the reviewer firmly agrees with this.

Chapter 8 deals with heterotopic ligands and faces: prostereoisomerism and prochirality. The use of NMR in assignment of configuration and of descriptors of prostereoisomerism is of particular interest. Several examples of how NMR can distinguish compounds of meso and chiral forms are given. For example, an excellent explanation for distinguishing meso and racemic 2,3-epoxybutane (*cis*- and *trans*-2,3-dimethyloxirane) using a common Europium chiral shift reagent is presented (p 321).

The stereochemistry of alkenes is split into three sections (Chapter 9). The structure of alkenes and nature of *cis-trans* isomerism is followed by determination of configuration, which describes the use of both chemical and physical methods. An excellent account of NMR, including valuable citations, illustrates the versatility of this spectroscopic technique for distinguishing *cis-trans* isomers. Finally the interconversion of *cis-trans* isomers, the position of equilibrium and methods of isomerisation are discussed.

Understanding the processes which affect the conformational properties of molecules forms an integral part of this text (Chapters 10 and 11). The dependence of reaction rate on conformational composition, with reference to the Winstein-Holness equation, is well illustrated by the debromination of meso and chiral 2,3-dibromobutane with potassium iodide.

The chiroptical properties of chiral molecules are examined in Chapter 12. The origin and theory of optical activity and anisotropic refraction and the application of two chiroptical techniques, namely optical rotatory dispersion (ORD) and circular dichroism (CD), in the assignment of configuration or conformation are presented in detail (p 548).

The chirality of molecules devoid of chiral centres, dealt with in Chapter 13, is often an area that is difficult to understand. However, the concepts used by the authors to demonstrate these properties are clearly defined, and this enables the reader to gain a firm grasp of the area. The classes of compounds chosen are allenes; cumulenes; alkylidene-cycloalkanes; spiranes; atropisomers; helicenes; propellerlike structures; cyclophanes; and arene-metal compounds including metallocenes (metal "sandwich compounds").

In conclusion this book offers an excellent guide to stereochemistry for both undergraduate and postgraduate students. Experienced chemists will also benefit greatly from this text and there can be no doubt it will be a popular addition to both academic and industrial libraries.

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