

## Book Review

**Organic Synthesis.** Second, Revised and Enlarged Edition. By J. Fuhrhop and G. Penzlin. VCH: Weinheim, 1994, 432 pp., hardback DM 148, £ 61. ISBN 3-527-29086-9. paperback DM 78, £ 32. ISBN 3-527-29074-5.

The revised and enlarged second edition of this book will be welcomed by all organic chemists, but will be most useful to advanced undergraduate students of chemistry and those involved in research in organic synthesis. The new edition builds on the strengths of the original book, and deals quite successfully with a mass of topics, ranging from a clear explanation of the donor and acceptor synthon concept in synthesis to specialised areas such as enzyme cleft models and self-replicating systems.

The book is divided into five main parts, each of which has many subsections, followed by a very brief appendix dealing with the concept of prochirality and then a listing of literature references (referred to in the text by first author and year of publication) and finally, a useful subject index. Chapter one deals with the use of synthons in the synthesis of carbon chains and carbocycles, and is a useful review of carbon-carbon bond forming reactions, arranged according to the type of product obtained (e.g. alcohols, 1,2-difunctional compounds, cyclopentane derivatives). Chapter two covers functional group interconversions (FGI) and includes topics as diverse as simple oxidation and reduction (e.g. of alcohols and carbonyls) and the Sharpless asymmetric epoxidation protocol. Chapter three outlines the principles behind synthesis design and retrosynthetic analysis, and includes a very useful systematic presentation of commonly

available starting materials. The fourth, and largest, chapter is entitled "Methods in the Construction of Complex Molecules", and illustrates synthesis and synthetic methods in a number of target areas, including oligonucleotides, peptides, porphyrins, carbohydrates, prostaglandins, steroids, alkaloids, synthetic drugs, and "esoteric polycyclic hydrocarbons". Of necessity, each of these areas can be given only brief treatment, but on the whole the selections are good and serve to give the reader a representative "taste" of that particular synthetic area. The final, rather brief, chapter introduces the reader to "Concepts in Nanometer Size Architecture" and includes mention of DNA cleavage, enzyme-cleft models, self-replication, dendritic polymers and covalent vesicles.

Overall, this is a useful, informative, and enjoyable volume with a great many clear (although in places rather small) illustrations and synthetic schemes. Inevitably with a work of such scope the literature references are a little thin in places (although over a thousand references are provided overall), with rather few published after 1990 being cited. This reasonably priced softback volume is a recommended purchase for postgraduate students of organic chemistry, and will be a welcome addition to the personal libraries of many others working in the area.

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