

Book Reviews*

Free Radicals in Organic Chemistry. By Jacques Fossey (CNRS, Ecole polytechnique), Daniel Lefort (CNRS, Groupe des laboratoires de Vitry-Thiais), and Janine Sorba (CNRS, Ecole polytechnique). John Wiley & Sons, Inc., New York. 1995. xiv + 307 pp. 16 × 24 cm. \$39.95. ISBN 0-471-954969.

This book provides an introduction to free radical chemistry and is intended as a text at the advanced undergraduate/graduate student level or for researchers wishing to become more familiar with fundamental concepts of radical chemistry. The book is organized into three principal sections. Part one deals with general concepts and basic principles from a physical point of view. Topics covered include the detection of radicals via spectroscopic methods (ESR, CIDNP, etc.), radical structure, thermochemistry, and kinetics. Part two, dealing with the reactions involving radicals, covers a variety of topics including methods for generating free radicals, radical–radical reactions, substitution reactions involving radicals (S_H2), addition/fragmentation reactions, radical rearrangements, and radical ions. The final section of the book examines the use of radicals in organic synthesis, including functional group interconversions involving radicals (i.e., $R-H \rightarrow R-X$, $R-X \rightarrow R-H$, $ROH \rightarrow R-H$, $RCO_2H \rightarrow R-Z$, where $Z = H$, halogen, CN, SePh, etc.), additions of radicals to multiple bonds, cyclizations of radicals to form 5- and 6-membered rings, aromatic substitution, and $S_{RN}1$ reactions.

The strength of this text is that it does fill a void. Despite the immense interest in free radical chemistry, there are very few texts available which are suitable at the graduate level. Overall, the book does manage to cover most of the important topics associated with the field, and at a very economical price.

However, there are a number of weaknesses as well. This text is an English language translation of a text which was originally published in French in 1993, and the flow is not always smooth. Frequently, concepts are presented as “bullets,” such as might be expected for lecture notes, rather than being written in a narrative form more typical of a textbook. In addition, there are a fair number of typos, and the text is occasionally redundant. Overall, these concerns are relatively minor.

However, there is a major deficiency associated with this text which a potential user should be cognizant of. Specifically, contrary to promotional statements on the back cover, the book does not adequately cover the most recent advances in the field of free radical chemistry. Most of the references are to books and reviews that were published well before 1990. Important recent developments in areas such as radical kinetics and thermodynamics, radical ions, radicals in biological systems (to name a few) are not mentioned. For example, although there is an entire chapter devoted

to radicals in biochemistry, most of the references in this chapter predate 1984. The chapter dealing with radical ions summarizes the major reactions (dimerization, fragmentation, proton-transfer, disproportionation), but provides few if any specific examples. (In fairness, it should be noted that the sections dealing with radicals in synthesis are slightly more up-to-date, with some literature citations as recent as the early 1990's).

Consequently, it is impossible for me to give this text an unqualified endorsement. To summarize: In terms of its strengths, the book is reasonably priced and it adequately presents fundamental principles of free radical chemistry. The weakness is that the book only covers the period up to (roughly) the mid 1980's. As such, the text does not provide sufficient references to direct the interested reader to the recent literature. Most of the cited references are to reviews or other books, rather than the primary literature. Used as a primary text in a lecture course on free radical chemistry, this book would require lecture supplement and outside reading in order to acquaint the student with recent developments.

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Studies in Natural Products Chemistry, Vol. 17: Structure and Chemistry (Part D). Edited by Atta-ur Rahman (H. E. J. Research Institute of Chemistry). Elsevier, Amsterdam, The Netherlands. 1995. Xiv + 665 pp. 16.5 × 24 cm. \$382.25. ISBN 0-444-82265-8.

This is the seventeenth volume of collections of essays on various aspects of natural products chemistry and biology. Professor Atta-ur-Rahman has a remarkable ability to induce so many experts to write chapters on topics of their special interest and expertise. The physical characteristics of the volume are excellent. The paper is good quality, the type is easy to read, there are comparatively few obvious typos, the book lies open readily at nearly any point, the figures are nearly always clear and accurate, and the binding is good. Whether the final product pleases or not in an intellectual sense depends upon one's particular interests and taste for the individual contributions as there is no connecting theme between most of the essays other than a general focus on natural products.

The particular volume contains seventeen chapters of various types. The references generally peter out in 1993. Two of the chapters have a few references referring to work in 1994, providing a clue as to who made the last submissions. For those with a taste for trivia, one reference at the other extreme comes from

*Unsigned book reviews are by the Book Review Editor.

1808. Eight of the chapters contain catalogs of related natural products, five deal with synthesis, five with biological activity, three with stereochemical matters, two each with transformation chemistry and tissue culture, and one each with chemical ecology, spectroscopy, and predictions of the manner in which an enzyme will transform particular substrates. Three chapters deal with natural products of marine origin and the remainder with terrestrial products and microorganisms. Readers interested in gastropod products, halenquinols, echinoderm and bryozoan products, triterpenes, sesquiterpenes, bile alcohols, Annonaceous acetogenins, flavanoids, nargenicin macrolides, lignans, diarylheptanoids, tropane alkaloids, Moraceous Diels–Alder products, phenolics, exciton chirality methods for determination of absolute configuration, applications of O-17 spectroscopy, use of enzymes in selectively transforming complex molecules, and use of natural products in semisynthesis of more complex materials will find material of specific interest. Those who like to keep generally abreast of developments outside of the specific natural products areas which they normally read are likely to find this volume and its congeners of special value.

The reviewer found much of interest in the various chapters but doubts that many will choose to read the book from cover to cover. Nonetheless, the chapters are of good quality and informative. Unfortunately, the high price of this volume will largely restrict ownership to libraries with subscriptions to the series or with unusually flush budgets. Few individual chemists will be interested intensely enough in a sufficient number of chapters to justify purchasing a copy for themselves at this price.

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Modern Pharmaceutics, 3rd Edition. Edited by Gilbert S. Banker (University of Iowa) and Christopher T. Rhodes (University of Rhode Island). Marcel Dekker, New York, NY. 1996. ix + 943 pp. 17.5 × 25 cm. \$195.00. ISBN 0-8247-9371-4.

The purpose of this book, as stated in the preface, is “to provide a basic background in the design and evaluation of modern pharmaceutical dosage forms, with emphasis on both the manner in which the quality of the dosage forms may be assessed and the relationship between quality features and actual drug product performance.” The book is multiauthored, with 36 authors from industry and academe contributing 24 chapters between them. The major part of the book describes various dosage forms and drug product classes

and seeks to make connections between drug product features and subsequent drug performance. A comprehensive index (37 pages) is provided.

The book is number 72 in the series “Drugs and the Pharmaceutical Sciences.” A reduced price is available for classroom adoption.

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S0163-3864(96)00309-6

Organic Electronic Spectral Data, Volume XXXI.

Edited by John P. Phillips (University of Louisville), Dallas Bates (Michigan Technological University), Henry Feuer (Purdue University), and B. S. Thyagarajan (University of Texas at San Antonio). John Wiley and Sons, New York, NY. 1995. xvi + 887 pp. 15 × 23 cm. \$175.00. ISBN 0-471-14093-7.

This volume is the latest compilation of UV and visible spectra of organic compounds in this respected series. It is dedicated to the memory of Dr. John P. Phillips, who was the managing editor of the series for Volumes V–XXXI and who died in 1995. Both synthetic compounds and natural products are included, with the former providing the bulk of the data.

The data format is the same as in previous editions, with compounds listed by elemental composition and with solvent, absorption maxima, and the logarithm of the molar absorptivities listed for each compound. Data on over 8000 compounds are provided in this condensed format. There is no index.

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Good Laboratory Practice Regulations, 2nd Edition.

Edited by Sandy Weinberg (Weinberg, Spelton, and Sax, Inc.). Marcel Dekker, New York, NY. 1995. x + 294 pp. 15 × 22.5 cm. \$125.00. ISBN 0-8247-9377-3.

This volume provides an overview of Good Laboratory Practice (GLP) Regulations. Chapter 1 gives a historical overview of GLP regulations, particularly from the perspective of the Food and Drug Administration (FDA) and Environmental Protection Agency (EPA). Chapter 2, which comprises almost one-third of the book, discusses the FDA’s GLP regulations. Chapter 3 covers EPA and foreign country GLP regulations, and Chapters 4–6 deal with GLP regulations in analytical laboratories, automated laboratories, and computer systems. Chapter 7 describes the FDA’s GLP inspection program, and the final chapter provides summary commentary. The book concludes with an extensive bibliography and an index.

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