Book Reviews

The ACS Style Guide. 3rd Edition. Edited by Anne M. Coghill and Lorrin Garson. Oxford University Press, New York. 2006. xiv + 430 pp. 18 × 20.5 cm. ISBN 13: 978-0-8412-3999-9. $41.70.

This latest edition is in a hardcover format, and it has almost twice the number of pages as the second edition. The book attempts to give chemist authors information and guidance in all aspects of chemical writing, from an introductory chapter on ethics in scientific communication to (inter alia) chapters on writing style and word usage, peer review, copyright basics, and extensive discussions of grammar and punctuation, editorial style, units of measure, names of chemical compounds, chemical conventions, formats for literature references, construction of tables and figures, and proper drawing of chemical structures. Included are discussions of electronic submission of manuscripts, a list of some 1000 "ACS-approved" journal abbreviations, extensive lists of abbreviations, acronyms, and symbols (information that is difficult to access in one place elsewhere). A useful multipage index is included.

The quoted price is a discount (30%) price for ACS members who order the book at the Oxford Press Web site www.us.oup.com/us/acs.

The multiauthored book is well-written and is extremely readable. No typos were noted. This volume is a veritable treasury of authoritative information for all chemists who are writing manuscripts, whether they be experienced publishers or novices. This reviewer enjoyed browsing through the book, savoring the scope and depth of topic coverage. The ACS Style Guide has a place on every chemist's shelf; moreover, it should be required reading for every chemistry graduate student who is in the process of writing a thesis. The editors and authors merit congratulations for assembling a well-done and highly useful addition to the literature.

Joseph G. Cannon

Division of Medicinal and Natural Products Chemistry
College of Pharmacy
The University of Iowa
Iowa City, Iowa 52242

JM068034Q

10.1021/jm068034q

Synthesis of Essential Drugs. By Ruben Vardanyan and Victor Hruby. Elsevier, Amsterdam, The Netherlands. 2006. xvi + 617 pp. 17 × 24.5 cm. ISBN 10 0-444-52166-6. $240.00.

The title and the authors of this volume suggest that this book might be a very useful one for medicinal chemists. Perhaps we sense a foreboding of things to come, however, when we read in the preface that "the book turned out different than what was originally planned." We read on in the preface and find that what the authors intended the book to be "cannot be completed by a reasonable deadline." Despite the authors' belief that that the book will "harmonize the chemical aspects with the pharmacological curriculum that is studied by future physicians and pharmacists" and that it was "carefully streamlined into a specific form", one is hardpressed to find useful examples of this process in most of the book. The authors note that 7 years were spent writing this book. In this reviewer's opinion their labor has resulted in a work that will not prove useful to many people. The steep price of the volume is a further disincentive to explore any possible utility that it might have.

The book is organized into 38 chapters covering the major classes of therapeutic agents, with extensive documentation in each chapter. Superficially, one ought to expect to glean a great deal of useful information from such a book. Unfortunately, the understanding and presentation of the pharmacological concepts is often incorrect, outdated, or obsolete. Introductory pharmacological discussions in many of the chapters are rudimentary at best, and the terminology is often just plain wrong (e.g., "ganglioblockers"). Much of the book is riddled with typographical and grammatical errors, as well as errors of fact and understanding, particularly with regard to pharmacological concepts. There are numerous synthetic schemes with brief but useful accompanying commentaries that are extensively referenced, but most of the synthetic schemes and citations are from original patents where the therapeutic agents were first reported; the reader rarely sees the best or most economical way to make a molecule.

It may be useful to provide specific illustrations of the types of problems common in this volume. In the chapter on analgesics, for example, the authors state on page 20 that opioid analgesics interact with G-protein-coupled receptors "that are localized in the membranous part of the synaptosomal head; it has been found that they are glycoproteins. They are prone to conformational changes in certain situations, which is essential for their selective binding with agonists or antagonists." Synaptosomal head? Conformational changes in what situations? Is this explanation for the structure and action of G-protein-linked receptors really insightful or helpful? The authors also state that "unfortunately, even extremely short use of these analgesics can lead to habitual use", giving the reader the misimpression that, however well they relieve pain, they are very difficult to use without their leading to addiction.

In the chapter on soporific agents, it is stated that "presently, the less toxic benzodiazepines are edging out the class of barbiturates more and more because of the possibility of chronic dependence associated with the use of barbiturates." This conclusion might have been written in 1965, but it is not relevant in 2006. The era when benzodiazepines were merely "edging out" the barbiturates for sleep induction is surely several decades past.

The chapter on anti-Parkinsonian drugs states that Parkinson's disease "is associated with damaged basal ganglions (sic)" and that the "motor problems could be a lack of dopamine which has an inhibitory effect on the regulatory function of the spinal cord." Further, it is stated that "during treatment of Parkinsonism, anticholinergic drugs should be used." The authors also state that "levodopa diffuses across the blood−brain barrier, where it turns into dopamine and normalizes the level of dopamine. In this manner, levodopa stops or slows the development of Parkinsonism (sic)." In reality, levodopa therapy provides purely symptomatic relief; it neither stops nor slows the condition, and it eventually fails. Much of the book suffers from this type of misinformation and/or obsolete information.

Is there some redeeming feature of the work? Several chapters, particularly those in the later portion of the book, are

written in a different (and much better) style than the earlier ones; they were more enjoyable to read, were more up-to-date, and were more informative. The chapters on anticoagulants and on antimicrobial drugs are good examples. Had the entire book been written in this style, this review likely would have been more favorable. The synthetic schemes appear to be remarkably free from errors, with only an occasional typo or missing reagent, although admittedly the narratives that accompany the schemes are often naive and more at an undergraduate level than appropriate for the practicing medicinal chemist.

Taken as a whole, if one ignores completely this reviewer's negative comments about the pharmacological and biological narratives for each class of drugs, the book might be retitled "A Compendium of Original Methods for the Synthesis of Important Medicinal Substances." Those who conclude that this portion of the book would be useful may wish to make a purchase.

David E. Nichols

Department of Medicinal Chemistry and Molecular Pharmacology
Robert E. Heine Pharmacy Building
Purdue University
West Lafayette, Indiana 47907-2091

JM0680373

10.1021/jm0680373

Annual Review of Biochemistry. Volume 75. Edited by Roger D. Kornberg, Christian R. H. Raetz, James E. Rothman, and Jeremy W. Thorner. Annual Reviews, Palo Alto, CA. 2005. x + 892 pp. 15 × 25 cm. ISBN 0-8243-0875-1. $208.00.

This book is the 75th volume of this excellent review series. A number of timely topics is covered in 30 reviews written by experts in the respective fields. The first review, if it can be so called, is an extremely interesting short autobiography of Robert Lehman's life and scientific endeavors entitled "Wanderings of a DNA Enzymologist: From DNA Polymerase to Viral Latency". This tale of life and scientific success may serve many mentors well, regardless of discipline, as suggested reading for undergraduate, graduate, and postdoctoral students who are in need of a little inspiration and/or perspective in their pursuit of scientific careers. Mentors themselves will be reminded of their significance in inspiring young scientists. The remaining 29 reviews cover various individual topics in biochemistry, with a number devoted to membrane proteins.

Each of the individual reviews will be of value to medicinal chemists working in fields related to the respective topics. A number of reviews are likely to be of more direct interest to medicinal chemists in select fields. These include (1) Tyrphostins and Other Tyrosine Kinase Inhibitors, (2) Asparagine Synthetase Chemotherapy, and (3) Domains, Motifs, and Scaffolds: The Role of Modular Interactions in the Evolving and Wiring of Cell Signaling Circuits. All reviews are informative and well-written, although there is the expected variation between highly detailed reviews and those of a somewhat more general nature. The subject index is thorough. Citations appear extensive and up to date. A short but useful list of related reviews available in other annual review publications is presented. Volume 75 is an excellent addition to this long-standing series, providing an array of timely summaries for recent advances in the biochemical sciences. This book, as well as prior *Annual Review of Biochemistry* volumes, is located online at http://biochem.annualreviews.org.

Robert J. Kerns

Division of Medicinal and Natural Products Chemistry
College of Pharmacy
University of Iowa
Iowa City, Iowa 52242

JM0680427

10.1021/jm0680427

Catalysis of Organic Reactions. By John R. Sowa, Jr. CRC Press, Taylor and Francis, Boca Raton, FL. xv + 574 pp. 16 × 23.5 cm. 2006. ISBN 978-0-8247-2729. £115.00.

This is the 104th volume of the series *Chemical Industries*. This book is a collection of 63 peer-reviewed contributions that were presented at the 20th Conference on Catalysis of Organic Reactions, a conference organized by the Organic Reactions Catalysis Society. The emphasis of the proceedings is on processes with actual or potential industrial applications. The book is organized into five major chapters: catalytic hydrogenation, novel concepts and approaches to catalysis of organic reactions, acid−base catalysis, catalytic oxidation, and catalysis in organic synthesis.

The first section is subdivided into hydrogenation on Raney-type catalysts, anchored and supported hydrogenation catalysts, and hydrogenation of interesting substrates and renewable sources. The first subsection includes the 2004 Murray Raney award address, "Electrocatalytic Hydrogenation of Organic Compounds at Raney Metal Electrodes: Scope and Limitations", by Prof. Jean Lessard. The second section is subdivided into combinatorial and parallel methods in catalyst design—optimization and utilization and general papers. The last section is subdivided into general papers, deprotection reactions, and asymmetric catalysis. The last section also includes the 2004 Paul N. Rylander award address, "Palladium-Catalyzed Annulation and Migration Reactions", by Prof. Richard C. Larock.

The contributions do not always follow an exact format, but most of them have an abstract, introduction, results and discussion, experimental section, conclusions, and literature cited. Although the emphasis is on industrial processes, about 70% of the contributions are from academic departments. The P. N. Rylander award address is a nice and concise review of Larock's recent developments in the area.

This book is likely to be of more utility to industrial chemists and those interested in industrial processes because of its focused content. The section on novel concepts and approaches to catalysis of organic reactions might be of interest to industrial medicinal chemists.

Horacio F. Olivo

Division of Medicinal and Natural Products Chemistry
College of Pharmacy
The University of Iowa
Iowa City, Iowa 52242

JM068035I

10.1021/jm068035i

Frontiers in Drug Design and Discovery. Volume 2. Edited by Gary W. Caldwell, Atta-ur-Rahman, Michael R. D'Andrea, and M. Iqbal Choudhary. Bentham Science Publishers Ltd., Hilversum, The Netherlands. 2006. vi +365 pp. 16.5 × 25 cm. ISBN 90-77527-03-6. $130.00.

This book is the second volume of a new series from the publisher. The first volume was previously reviewed in this journal (Wolff, M. E. *J. Med. Chem.* **2006**, *49*, 838). The book comprises 17 chapters written by 45 authors from academic and industrial laboratories in the U.S., Japan, Singapore, Thailand, Italy, India, U.K., The Netherlands, Greece, France, and Belgium. The book is suitable for a broader audience of pharmaceutical scientists interested in biosensors and biomarkers. The first 15 chapters discuss the use of biomarkers and biosensors in drug development, microarrays, proteomics, and metabonomics. The last two chapters discuss modeling and preparation of drug delivery systems, and they appear to be something of a departure from the biosensor/biomarker focus of the book. While this volume is not necessarily the "one-stop" reference book for biomarker and biosensor programs that it purports to be, it does provide extensive up-to-date and comprehensive references in each of the chapters that will be valuable in pointing readers in the right direction for further information. Random spot checks on a selected number of cited works in this volume revealed them to be accurate. The abbreviations listing at the end of each chapter is useful.

The book is well-written with an excellent 13-page index. The chapters are generally well-illustrated with tables to help summarize key salient points. A complete alphabetical listing of all authors listed by last name follows the last chapter. This book would be a valuable addition for libraries (industrial and academic) and for individuals who have acquired the first volume in this series.

Aliasger K. Salem

Division of Pharmaceutics
College of Pharmacy
The University of Iowa
Iowa City, Iowa 52242

JM0680326

10.1021/jm0680326

Proteomics in Drug Research. Edited by Michael Hamacher, Katrin Marcus, Kai Stühler, André van Hall, Bettina Warscheid, and Helmut E. Meyer. Wiley-VCH Verlag, Weinheim, Germany. 2006. xxi + 362 pp. 17.5 × 25 cm. ISBN 3-527-31226-9. $185.00.

If the reader picks up Proteomics in Drug Research expecting to read about the latest methods or results, the first two chapters may be discouraging. These chapters are all about administration, logistics, and data management. They are excellent discussions about the way these matters ought to be handled, but they are not likely to excite the working chemist.

Chapters 3−9 describe technologies ranging from 2D gel electrophoresis and mass spectrometry to peptidomics, protein biochips, surface plasmon resonance, isothermal titration calorimetry, and protein network mapping. The chapters are generally well written and nicely illustrated, and the references are quite up to date.

Chapters 10−16 describe applications to specific problems. Müllner et al. address identification of new targets and lead structures for rheumatoid arthritis. Two chapters describe development of diagnostics using proteomics. Other chapters describe current developments in areas such as Alzheimer's and cardiovascular disease.

The final chapter again leaves the realm of chemistry and deals with marketing aspects of proteomics-based projects.

This volume appears to provide very good coverage of a rapidly growing field. The scope is broad, encompassing administrative, scientific, and marketing components, so few individual readers will find every chapter useful. The price may also inhibit purchase for personal use. However, this book can certainly find a place in the library of any organization that makes use of proteomics.

D. Eric Walters

Department of Biochemistry and Molecular Biology
Rosalind Franklin University of Medicine and Science
North Chicago, Illinois 60064

JM068039N

10.1021/jm068039n

Pharmacokinetics and Metabolism in Drug Design. Methods and Principles in Medicinal Chemistry. Volume 31. Second Revised Edition. By Dennis A. Smith, Han van de Waterbeemd, and Don K. Walker. Wiley-VCH, Weinheim, Germany. 2006. xix + 187 pp. 17.5 × 24.5 cm. ISBN 3527313680. $125.00.

This is a relevant and timely addition to the series *Methods and Principles in Medicinal Chemistry*. The authors of this book combine to provide a highly experienced team of researchers from both industry and academia. Together, their experiences culminated in this work that ties the ever-so-important aspects of pharmacokinetics and drug metabolism with the work of the medicinal chemist. Overall, this is a quick and easy read. Adequate detail is provided in most essential areas, and relevant examples are used to emphasize and clearly communicate the principles covered in this book. In fact, additional topics and examples have been added since the first edition was published in 2001, thus introducing previously omitted and up-to-date information and references. Several sections are brief summaries providing the reader with the concepts and references for follow-up, if desired.

The book flows nicely, opening with basic physicochemical properties, various methods for measuring these properties, and their use as predictors for drug absorption. Following is an introduction to pharmacokinetics with individual chapters dedicated to dosing routes, absorption, and distribution. Elimination is covered in brief chapters on general and renal clearance along with an extensive chapter on hepatic clearance and specific metabolic enzyme classes. Toxicity is then covered within the framework of pharmacophore-, structure-, and particularly metabolism-induced concepts. An essential chapter on interspecies scaling illustrates important means for predicting PK parameters in humans from measured parameters in other animals. The book ends with a chapter on high-throughput studies of ADME properties, briefly reviewing current strategies for integration of pharmacokinetcs into early screening techniques. An introductory section following the table of contents provides a quick and easy reference for abbreviations and symbols organized by chapters. One minor error was noted: the book spine lists Smith, van de Waterbeemd, and Waler as editors instead of authors.

Overall, this book is a brief but comprehensive summary of DM/PK topics relevant to the drug designer. These topics are compressed into less than 200 pages, and the authors successfully balance breadth and brevity with detail on crucial topics. This work will interest and inform both the beginning professional in the field of drug discovery/design and the medicinal

chemist eager to better utilize the principles of pharmacokinetics and metabolism. I also highly recommend it for students as a vehicle for understanding the fundamental concepts and interplay between drug design and pharmacokinetics.

James T. Dalton
College of Pharmacy, Parks Hall
The Ohio State University
Columbus, Ohio 43210

JM068041E

The Sigma-RBI Handbook of Receptor Classification and Signal Transduction. Fifth Edition. Edited by Keith J. Watling. Sigma-RBI, Natick, MA. 2006. viii + 376 pp. 23.5 × 218 cm. ISBN 0964054841. $60.00.

This is an updated version of a handbook last published in 2001. Over 220 authors and reviewers contributed to this latest version. This edition contains 26 new entries with a focus on ion channels and kinases. Specific categories covered by the book include Intracellular Signaling Enzymes and Receptors (18); Ion Channels (8); Nonpeptide Receptors, Synthesis and Metabolism (24); Peptide Receptors and Peptide Metabolism (24); Protein Serine/Threonine/Tyrosine Kinases (30); and Transporters (4). Each topic within the category includes 12 key references, a concise overview including relevant physiology, a large table listing nomenclature, tissue expression, and disease relevance, common abbreviations, and a notes page. For ion channels, the table also includes information on conductance and selective blockers. For receptors, the table includes both selective agonists and antagonists, nonselective agonists and antagonists, and radioligands of choice. For kinases, the table includes information on isoforms, phosphorylation sites, upstream and downstream activators, and inhibitors.

The overviews are well written, informative, and brief. This book contains a wealth of knowledge of receptors and signal transduction mechanisms in an easy-to-use format. Most key references are from 2003 or later. This updated version is likely to be a very valuable resource for medicinal chemists working in the nervous system, and it is as well an excellent resource for graduate students beginning in the field.

Thomas E. Prisinzano
Division of Medicinal and Natural Products Chemistry
College of Pharmacy
The University of Iowa
Iowa City, Iowa 52242

JM068040M

10.1021/jm068040m