Book Reviews

Make Your Mark in Science. Creativity, Presenting, Publishing, and Patents. A Guide for Young Scientists. By Claus Ascheron and Angela Kickuth. John Wiley & Sons, Inc., Hoboken, NJ. 2005. ix + 235 pp. 14 × 20 cm. $29.95. ISBN 0-471-65733-6.

This book is divided into three sections. The first section deals with creativity in science. The second section describes, in detail, how to present one's scientific accomplishments via presentations and publications. The third section covers patents.

The first section explores scientific creativity. While it is the least practical chapter, Chapter 1 gives insight into what makes a scientist. Topics explored include the following: what is creativity in science, personal working conditions, and cooperation verses competition. It is enjoyable reading, but it seems somewhat out of place.

The second section, consisting of Chapters 3−6, discusses scientific presentations and publications. Chapter 3 contains advice on preparing oral presentations. This chapter also covers the topics of poster presentations and chairing conference sessions. Chapters 4−6 describe the process of writing scientific papers. Topics include ethics in publishing, when to write, how to structure a scientific paper, and the formal aspects of manuscript preparation. At the end of Chapters 3 and 4 there are lists of do's and don't's for presentations and publications. These lists are very helpful and worth reading before writing and/or presenting results.

Chapter 7 is a great introduction to the patent process. This chapter includes discussions on what can and cannot be patented, when and how to apply for patents, the patent process, costs associated with patents, and the differences between U.S. and European patents. As a young scientist, I learned a lot from this chapter.

I have two minor criticisms of this book. First, a number of the figures (mainly pictures) are quite pixilated, making them less clear and not aesthetically pleasing. The second criticism regards Chapter 1; this chapter would be best positioned as the last chapter in the book rather then the first. All in all, *Make Your Mark in Science* is a good book containing great advice on publishing and presenting scientific results, patenting scientific work, and the creative side of science.

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Organic Chemistry at a Glance. By L. M. Harwood, J. E. McKendrick, and R. C. Whitehead (University of Reading, University of Reading, and University of Manchester, respectively). Blackwell Publishing, Oxford. 2004. v + 103 pp. 21 × 29 cm. £13.99. ISBN 3-8654-2782-8.

The title, *Organic Chemistry at a Glance*, accurately represents this book as an overview of the key terms and concepts of an undergraduate (sophomore) level organic chemistry course—with the exception of the biochemistry section. The chapters are logically organized, starting with basic general chemistry useful for an organic chemist and followed, in sequence, by bonding and molecular structure, configurational and conformational analysis, structure−activity, and reaction types. The book concludes with flow diagrams for important functional group interconversions—the minimum required at this level—which help students understand much of the breadth and depth of the subject. Comparing mechanisms and cross-referencing helps to reinforce the concepts that students learned from earlier chapters and further deepen their understanding.

The book flows with a clear, concise, and comprehensive presentation of concepts alongside diagrams, although there are a few printing errors. Some of the terms used in the book are not very common; examples include carbenium ion (carbocation); nucleofuge (leaving group), and hydroxonium (hydronium) ion. Giving both terms helps to reduce the confusion. The authors should consider covering each step in the mechanisms instead of combining steps, which may puzzle students. With some revisions, this book could become a useful and comprehensive handbook for most undergraduates and their instructors.

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Chemoinformatics in Drug Discovery. Edited by Tudor Oprea (University of New Mexico). Wiley-VCH, Weinheim. 2005. xxii + 493 pp. 17 × 25 cm. $149.00. ISBN 3-527-30753-2.

True to the goals outlined in the managing editor's preface, this compilation of seventeen separately written chapters provides a comprehensive survey of the complexities and practical considerations of applying chemoinformatics to the already difficult process of new drug discovery and bringing compounds found thereby into applied chemotherapeutics. The book offers a balanced coverage of the more salient aspects of drug discovery, beginning with Garland Marshall's Personal View, followed by collections of chapters covering the major topics of Virtual Screening, Hit and Lead Discovery, Databases and Libraries, and Chemoinformatics Applications. Mixed within these four major topics are thorough, up-to-date subchapters containing detailed support for existing chemoinformatic approaches that both defend and critically challenge current strategies.

The collection of subchapters are all well written and sufficiently detailed to enable the reader to grasp (i) the challenges associated with each of the four major topics; (ii) the existing software tools that one might consider for their own application; (iii) guidelines for future strategies; and, in some cases, (iv) novel perspectives into strategies for assessing successful and failed approaches. The breadth and balance of the subchapters in each major topic are strong attributes. The authors were not simply using this book to publish articles that may not have been otherwise

acceptable, or to promote their own agendas; rather the book is aimed at providing the reader with a detailed insight into the difficulties associated with applying chemoinformatics to the drug discovery process. Toward this end, each subchapter includes a comprehensive bibliography comprised of peer-reviewed articles as well as collections of relevant URLs.

This book will be of interest to professionals in the pharmaceutical industry as well as students of pharmacy, medicine, or life sciences and others interested in drug discovery.

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Name Reactions and Reagents in Organic Synthesis, 2nd Edition. By B. P. Mundy, M. G. Ellerd, and F. G. Favaloro, Jr. (Colby College, Maxim Technologies, and Helicon Therapeutics, respectively). Wiley-Interscience, Hoboken. 2005. xv + 882 pp. 6 × 9.5 in. $89.95. ISBN 0-471-22854-0.

The second edition of *Name Reactions and Reagents in Organic Synthesis* is, like the first edition, a homerun in the now competitive arena of named reactions texts. The reactions and reagents are once again divided into two separate sections, each in alphabetical order. Each entry in the reactions section is headed by a detailed and highly acceptable mechanism. In a few instances, citations are given to alternative mechanisms or greater discussion in the primary literature, *March's Advanced Organic Chemistry*, 5th ed. (by Smith and March) or *Named Organic Reactions* (by Laue and Plagens). Mechanistically related named reactions are either grouped together or cross-referenced.

A real strength of the text that separates it from the competition is that each named reaction is illustrated with interesting and relevant examples from the primary literature, a feature highly useful to both instructors and students; actual reactions are provided, not just a list of references. The book unfortunately lacks a detailed table of contents, which makes it somewhat difficult to know exactly how many named reactions are presented, but the section spans 713 pages and I estimate it covers about 350 primary entries. The text is prefaced by a table of acronyms and abbreviations that provides the chemical structure as well as the name. An excellent comprehensive index is provided.

The named reagents section covers about 150 reagents, their commercial availability, a mechanism (in most cases), and a few literature examples. Given the availability of Paquette's *Encyclopedia of Reagents*, one may question the usefulness of an abbreviated reagents listing, but the authors appear to have been appropriately critical in their selections, limiting the examples to the must-know reagents routinely encountered in synthetic chemistry.

Several free named reactions databases are available over the Internet, but in addition to these resources I highly recommend *Name Reactions and Reagents in Organic Synthesis* for graduate students in organic chemistry and others wishing to stay abreast of core synthetic transformations. Considering the book's 880+ pages and extensive coverage, at $89.95 the hard cover edition is a bargain.

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Dead Ends and Detours. Direct Ways to Successful Total Synthesis. By M. A. Sierra and M. C. de la Torre (Universidad Complutense and Consejo Superior de Investigaciones Cientificas, Madrid). Wiley-VCH, Weinheim. 2004. xiv + 276 pp. 17 × 24 cm. $79.95. ISBN 3-527-30644-7.

This book is a contribution to the same genre as other popular recent reviews on natural product total synthesis and offers examples from a fairly diverse set of investigators. The book provides examples where original strategies or plans failed to lead to a successful synthesis and the final routes had to be changed.

At the beginning of each case study there is a "predictable problems" section after the retrosynthetic analysis, and that is a nice touch. A practitioner of total synthesis will generally accept that deviating from a planned synthetic route by making simple changes to protecting groups, oxidation states, assembly order, and such, is a commonplace occurrence in total synthesis efforts. The text endeavors to categorize these synthetic hiccups in a systematic way; however, the resulting organizational structure is forced and contrived.

The supporting text is stylistically tedious and plagued throughout with annoyingly numerous typographical errors. The discussion generally fails to elaborate in a useful way on what happened in reactions that went awry (such as overreduction, elimination, etc.). Moreover, the text fails to provide original strategies, ideas, or theories for how "mistakes" in synthetic planning might be avoided in the future. Chemists with access to those reviews in peer-reviewed journals alluded to above would be better off prioritizing their reading efforts and fully analyzing those excellent reports before moving on to *Dead Ends and Detours*.

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