Book Reviews*

Capillary Electrochromatography. Edited by Keith D. Bartle (University of Leeds, U.K.) and Peter Myers (X-tec Consulting Ltd., U.K.). Royal Society of Chemistry: Cambridge. 2001. xiv + 150 pp. £ 49.50. ISBN: 0-85404-530-9.

This book features contributions from leading experts on the theory, practice, and application of capillary electrochromatography. The range of topics covered is reflected in the titles of its eight chapters: An Introduction to Capillary Electrochromatography; The Capillary Electrochromatograph; Supports and Stationary Phases for Capillary Electrochromatography; Electroosmosis in Complex Media: Bulk Transport in CEC; Capillary Electrochromatography with Open Tubular Columns (OTCEC); Capillary Electrochromatography/Mass Spectrometry; Pharmaceutical Applications of Capillary Electrochromatography; and Capillary Electrochromatography in Natural Product Research. References are current through the late 1990s.

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Catalytic Polymerization of Cycloolefins: Ionic, Ziegler−Natta and Ring-Opening Metathesis Polymerization. Studies in Surface Science and Catalysis. Volume 131. By Valerian Dragutan (Institute of Organic Chemistry of the Romanian Academy, Bucharest, Romania) and Roland Streck (Hüls AG, Marl, Germany). Elsevier: Amsterdam. 2000. xx + 1272 pp. $406. ISBN 0-444-89519-1.

This book is a comprehensive study of the polymerization of cyclic alkenes. It is organized primarily according to the structure of the cyclic monomer and secondarily according to the type of polymerization catalysis: cationic, Ziegler−Natta, and ring-opening metathesis polymerization (ROMP). Although some discussion of mechanism is included and some discussion of the best way to polymerize a given alkene is provided, the book provides little more than a collection of references. There is very little *critical* discussion of the literature and no new insights or new organization of data. The book has little focus: chapters on synthesis of cycloolefin monomers and on related acyclic polymerizations simply appear to be an effort to increase the number of pages of an already overlong book. In my view, the book will be useful only to look up references on how a specific cyclic alkene has been polymerized.

The quality of the printing and figures in the book is terrible (the letters are fuzzy and the figures look like not enough pixels have been used). There are numerous errors that indicate that the copy editors at Elsevier either did nothing or knew nothing. For example, the figure on page 2 to clarify ROMP shows an addition polymerization. The editors gave the authors little help with English usage: for example, 1,2 additions to alkenes are discussed as "the carbon−carbon double bond can be opened..." There are a number of nonsentences and errors in the tables and figure on pages 344−348.

This book is the 131st in the series of *Studies in Surface Science and Catalysis*, which contains monographs similar to this one and many Conference Proceedings (usually conscripted articles from participants and largely consisting of previously published or not-yet-ready for peer review work). In these days of tight library budgets, this overpriced series is one that libraries should consider dropping.

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Infrared and Raman Spectroscopy of Biological Materials. Practical Spectroscopy Series. Volume 24. Edited by Hans-Ulrich Gremlich (Novartis Pharma AG, Basel, Switzerland) and Bing Yan (ChemRx Advanced Technologies, Inc., South San Francisco, California). Marcel Dekker: New York and Basel. 2001. xii + 582 pp. $195.00. ISBN 0-8247-0409-6.

This book provides an up-to-date review of the progress made in developing and applying techniques of vibrational spectroscopy to biological problems, including those of clinical interest. The dual themes of the book deal with the central issues of the spectroscopy of complex systems: developing more selective experimental probes to address specific problems more incisively and developing more sophisticated methods of data analysis to extract information from congested spectra. The book is written by spectroscopists for spectroscopists; it will serve as a useful reference for graduate students and postdoctoral fellows wishing to get an introduction to the field as well as will provide a contemporary overview for scientists already working in the field. My guess is that the book will not prove particularly useful to biologists or biomedical researchers looking for new methods or approaches to their areas of interest.

The book is well-organized, and the coverage is broad. A wide variety of experimental techniques are discussed, and it is impressive to see the progress that has been made in recent years. A large number of technical tricks are discussed, some of which are novel and likely to be generally useful and others that fall into the "gee whiz" category. I was impressed by the progress reported in the areas of chemometrics and artificial neural networks for spectral interpretation. Although I am not an expert in the area, it seems to me that these methods have become much more systematic and robust in recent years and can now extract information with confidence. There is some redundancy in the examples chosen by the authors of the various chapters that probably could have been eliminated by more forceful editing; however, this is probably more annoying to a reviewer who has read the whole book than to readers who will likely pick and choose individual chapters.

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JA004845M

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Computational Organometallic Chemistry. Edited by Thomas R. Cundari (University of Memphis). Marcel Dekker: New York, Basel. 2001. xii + 428 pp. $185.00. ISBN: 0-8247-0478-9.

Tom Cundari has collected a fine series of articles for *Computational Organometallic Chemistry*. Several of the chapters review methodology, with primary emphasis devoted to organometallic compounds. These include two chapters on molecular mechanics (MM) techniques by Norrby and White in which parametrization of force fields and of MM to quantify steric interactions, respectively, is discussed. A comparison of ab initio molecular orbital (MO) methods, namely DFT, MP2, and CCSD, is given by Frenking and co-workers, who focus on how well DFT methods perform for predicting geometries, bond dissociation energies, activation energies, etc. Nondynamic correlation effects (CASSCF and CASPT) in metal−ligand bonding are discussed by Pierloot, and the principles behind combined MM/MO techniques are briefly reviewed by Maseras. Four other chapters offer broad overviews of specific areas in chemistry. These include a discussion by Harvey about how to handle spin-forbidden reactions, a chapter covering the electronic structure of organoactinide complexes by Li and Bursten, a review by Hamilton and co-workers on π-bonding in main-group analogues of ethylene, and an article on main-group metallocene compounds by Kwon and McKee. The other six chapters are directed more toward the authors' research. A variety of topics include modeling an HIV inhibitor, the use of MM methods to study hydrogenation and a number of industrially relevant processes, aspects of Ti chemistry, and oxidative addition of H_2 to d^8 square planar complexes, among others.

Each chapter has been carefully written with a general audience in mind. Equations are essentially absent from this book. In most cases, enough detail has been given, and the book as a whole does an excellent job of covering current theoretical techniques. One minor quibble is that molecular dynamics approaches and solvation effects have not been included. In general, the material presented is either totally new or has been presented in a very different manner from the original journal articles. The references appear to cover through 1999. This is not really

*Unsigned book reviews are by the Book Review Editor.

a "how-to" manual and is certainly not a book that presents a derivation of the theoretical techniques. In my estimation, it offers an overview of what can be done in the organometallic field and how to approach various problems. In other words, this is a good starting point for the nonspecialist to see if it is worthwhile to use a particular theoretical method and what kinds of problems can be tackled. It also provides an excellent set of models for how theoretical research should be presented. I highly recommend this book to organometallic/inorganic experimentalists.

Thomas A. Albright, *University of Houston*

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From Bench to Market: The Evolution of Chemical Synthesis. By Walter Cabri and Romano Di Fabio (Milan, Italy). Oxford University Press: Oxford and New York. 2000. xvi + 266 pp. $100.00 hardback. $24.95 paperback. ISBN: 0-19-850383-0.

This author of this book records in 11 chapters the process of industrial chemical synthesis from discovery, to patenting, to the making of generic drugs. The first chapter gives an overview of modern process research and development processes, whereas Chapters 2−10 describe actual case studies of the syntheses and development of different types of drugs, such as sanfetrinems, to illustrate different synthetic routes, patent issues, environmental concerns, costs, etc., and to identify the most competitive syntheses available. The final chapter focuses on the changes in the drug discovery process in the last decade. Owing to the topics under review, there are relatively few references later than the mid-1990s.

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Molecular Material and Functional Polymers. Edited by Werner J. Blau (Trinity College, Ireland), Panagiotis Lianos (University of Patras, Greece), and Ulrich Schubert (Vienna University of Technology). Springer-Verlag: Wien, New York. 2001. vi + 192 pp. $119.00. ISBN: 3-211-83597-0.

The 19 chapters in this book, which were previously published in a special edition of *Monatshefte für Chemie/Chemical Monthly*, **2001**, *132*, (1), were derived from presentations at the European Cooperation in the Field of Scientific and Technical Research 518 workshop held in Patras, Greece in the summer of 2000. Some of the topics covered include the synthesis, physical properties, and applications of molecular materials, inorganic and inorganic−organic hybrid materials, and functional polymers.

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