

## Book Reviews

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## BOOK REVIEWS

*New Comprehensive Biochemistry Volume 19: Biosynthesis of Tetrapyrroles.* Edited by P.M. JORDAN. Elsevier Science Publishers, P.O. Box 882, Madison Square Station, New York, NY 10159. 1991. xii + 310 pp. 16.5 × 24 cm. \$115.50. ISBN 0-444-89285-0.

Investigations of the biosynthesis of the naturally occurring tetrapyrroles have been a continuing source of novel and exciting discoveries. This volume provides a readable and comprehensive review of the progress in this field over the last ten to fifteen years. The volume includes chapters on: (1) the biosynthesis of 5-aminolevulinic acid and its conversion to uroporphyrinogen III, (2) the mechanism and stereochemistry of the enzymes involved in the conversion of uroporphyrinogen III into haem, (3) the biosynthesis of vitamin B<sub>12</sub>, (4) the biochemistry of coenzyme F430, (5) the biochemistry and regulation of photosynthetic pigment formation in plants and algae, (6) the structure and biosynthesis of bacteriochlorophylls, and (7) the genes of tetrapyrrole biosynthesis. The chapters are written by investigators who are active in the field.

Since the subject matter of the various chapters is related, there is some inevitable duplication of material. However, this is not excessive, and it allows the chapters to be read independently of one another. Some chapters are more current than others, but most contain references from 1990 and a few contain references from 1991. The authors attempt to be even-handed in their discussion of the contributions made by the many investigators in this relatively competitive field, but they do not always succeed. The text is relatively free from errors, and the ones noticed by the reviewer were either minor or obvious.

Overall, this volume is a highly useful summary of a fascinating area of chemistry. It is regrettable that the high cost of the book will probably limit its availability.

RONALD J. PARRY, *Rice University*

*Taxonomy of Economic Seaweeds, Volume III.* Edited by I.A. ABBOTT. California Sea Grant College, 9500 Gilman Drive, La Jolla, CA 92093-0232. 1992. xiv + 241 pp. 15 × 22.5 cm. \$10.00 (paper). No ISBN.

This volume contains the papers presented at the third international workshop on the taxonomy of economically important seaweeds of the Pacific, held at Scripps Institute of Oceanography in August 1989. It is subtitled "with reference to some Pacific and Western Atlantic species." Eight papers deal with the *Sargassum* genus, three with the *Gelidiales* genus, three with the *Gracilaria* genus, and one short one with the *Euclima* genus. The volume concludes with a taxonomic index.

DAVID G.I. KINGSTON, *Virginia Polytechnic Institute and State University*

*Chromatography, 5th Edition. Part A: Fundamentals and Techniques. Part B: Applications.* Edited by E. HEFTMANN. Elsevier Science Publishing Co., P.O. Box 882, Madison Square Station, New York, NY 10159. 1992. xxxvi + 552 pp. (Part A); xxxii + 630 pp. (Part B). 16.5 × 24 cm. \$333.50 (set); \$179.50 (Part A); \$189.50 (Part B). ISBN 0-444-88404-1 (set); 0-444-88236-7 (Part A); 0-444-88237-5 (Part B).

This set of two volumes has been published as a completely new work, although it has evolved from the same type of organizational structure that was used in the previous four editions. These meticulously produced books are intended for both the novice and the seasoned chromatographer, and for use as a standard text at the graduate level. Altogether 37 international authorities have participated in the writing of this outstanding new edition, and the fact that each section has been peer-reviewed by two referees adds significantly to the value of the resultant volumes.

Part A of *Chromatography, 5th edition* contains an introductory chapter by L.R. Snyder that covers basic chromatographic theory, including a short section on preparative methods. The remaining ten chapters provide concise descriptions and valuable updates on countercurrent chromatography (Y. Ito), planar chromatography (S. Nyiredy), column liquid chromatography (H. Poppe), ion-exchange chromatography (H.F. Walton), size-exclusion chromatography (L. Hagel and J.-C. Janson), affinity chromatography (T.M. Phillips), supercritical-fluid chromatography (P.J. Schoenmakers and L.G.M. Uunk), gas chromatography (C.F. Poole and S.K. Poole), field-flow fractionation (J. Janča), and electrophoresis (P.G.

Righetti). Most of these chapters provide a classification of the methods that fit into the overall category being dealt with, and then describe the relevant principles, recent advances, and instrumentation. The topics of affinity, countercurrent, and supercritical-fluid chromatography, and forced-flow fractionation are covered for the first time in this new edition. A short Foreword to this volume has been provided by Prof. T. Reichstein of the University of Basel.

In Part B of *Chromatography, 5th edition*, there are chapters on the separation of inorganic substances (P.R. Haddad and E. Partalides), amino acids and peptides (C.T. Mant, N.E. Zhou and R.S. Hodges), proteins (F.E. Regnier and K.M. Gooding), lipids (A. Kuksis), carbohydrates (S.C. Churms), nucleic acids (N.-I. Jang and P.R. Brown), porphyrins (K. Jacob), phenolic compounds (J.B. Harborne), drug analysis (K. Macek and J. Macek), fossil fuels (R.P. Philp and F.X. de las Heras), synthetic polymers (T.H. Mourey and T.C. Schunk), pesticides (J. Sherma) environmental analysis (K.P. Naikwadi and F.W. Karasek), and amines from environmental sources (H.A.H. Billiet). Given the present phenomenal rate of publication of papers on chromatographic applications and their wide dispersal in so many scientific journals, the selection of significant work for inclusion in a single volume by these experienced authors is to be warmly welcomed. Like its companion volume, Part B of this edition has an extensive subject index. However, since these two books also have identical lists of abbreviations, and of italic symbols, Greek symbols, and manufacturers and dealers of chromatographic supplies, either would stand alone if purchased separately.

There appears to be little doubt that Part A of *Chromatography, 5th edition* is destined to become a highly regarded textbook for courses in which chromatography is a major component. Part B is no less a major contribution, but would seem to be more relevant as a reference source to the practicing separations scientist, rather than for student or didactic use. Although this new edition must necessarily be recommended for purchase by institutional libraries rather than by individuals because of its high cost, the editor and the authors have done the field of chromatography a very great service by providing such an authoritative, exacting, and topical contribution to the literature.

A. DOUGLAS KINGHORN, *University of Illinois at Chicago*

*Heterocyclic Chemistry, 2nd edition.* T.L. GILCHRIST. Longman Scientific and Technical, copublished in USA with John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158. 1992. xvi + 396 pp. 15.5 × 23 cm. \$37.95. ISBN: 0-582-06420-1.

The second edition of Tom Gilchrist's well-regarded *Heterocyclic Chemistry* will be welcomed by its many friends and will be of considerable utility to a wide range of chemists and, indeed, other scientists. Nowhere is this more true than in the United States, where formal courses in heterocyclic chemistry are rare both at the undergraduate and graduate levels. Most American organic chemists who enter industry (and that is the majority of them) have to learn heterocyclic chemistry at the bench as they discover its fundamental industrial importance.

The second edition contains relatively few major changes compared to the well-established treatment given in the first edition. It has been brought up to date, and a number of major topics such as a fuller treatment of cycloaddition reactions and radical cyclizations added. The order of the chapters has also been changed so that the more common heterocycles are now treated first.

Some of the particularly useful characteristics of the book should be mentioned. Each chapter finishes with a very useful summary and also includes a set of questions. The number of references given is not excessive but is sufficient for the reader to find further information on most topics. Most references are appropriately given to reviews.

The writing is clear and authoritative and the book should be easy to follow by anybody with a reasonable background in general organic chemistry. The author has made a very brave attempt to achieve the near impossible, i.e., to condense the whole of heterocyclic chemistry into one small volume. The reviewer considers he has successfully covered most of the important topics and has used the space available to him well. It is only to be hoped that this book will receive the wide use that it and its subject deserve.

The book is remarkably free from errors. It is unfortunate that the printers have interplaced two pages thus intertwining the preface to the first and second editions, but this is pretty much the exception that proves the rule.

A.R. KATRITZKY, *University of Florida*

*Sustainable Harvest and Marketing of Rain Forest Products*. Ed. by MARK PLOTKIN and LISA FAMOLARE. Island Press, Suite 300, 1718 Connecticut Ave. NW, Washington, DC 20009. 1992. xv + 329 pp. 15 × 22.5 cm (soft cover). \$20.00. ISBN 1-55963-169-4.

This is a collection of the papers presented at a conference held in Panama City, June 20–21, 1991, sponsored by Conservation International and the Asociación Nacional para la Conservación de la Naturaleza. The objectives of the conference were to "clarify the ecological, cultural, ethical and economic obstacles that must be addressed" in striking a balance between our use of the rain forest environment and the protection and conservation of the species and the native cultures living within it.

The proceedings were published in five major sections, each dealing with a particular aspect of what will be necessary to our understanding of rain forest use: the collection and use of ethnobotanical data (Chapters 1–7); nontimber products in local and world markets (Chapters 8–16); palms as sources of unexploited products (Chapters 17–22); the potential of rain forest medicinals (Chapters 23–26); and the international marketing of rain forest products (Chapters 27–33). A final section contains recommendations and suggestions for rain forest development while compensating the native peoples from whose ethnobotanical lore these products were, or presumably will be, derived.

Participants, from visionaries to realists, included representatives of academia, agriculture, government, industry, and local native populations whose specific environments were, in some cases, the focus of discussion. A few moot questions were raised: Do we really believe that "all species have a right to exist?" (p. 18) and that "modern medicine uses 7000 natural drugs?" (p. 291). If sustainable harvest of non-timber forest products is technically possible (p. 4), to what extent is it politically possible (Chapters 31, 32)?

The problem is surely a complex one—spotted owls and yew trees on a global scale—and in defining it, the congress participants have given us a guide to its eventual solution. The book will be a valuable addition to the knowledge of all who profess an interest in the future management of rain forests and their products.

ROBERT F. RAFFAUF, *Northeastern University*