

BOOK REVIEWS

Physical Methods of Chemistry, Second Edition. Volume VIII. Determination of Electronic and Optical Properties. Edited by B.W. ROSSITER and R.C. BAETZOLD. Wiley-Interscience, John Wiley and Sons, 605 Third Avenue, New York, NY 10158. 1993. xi+531 pp. 15.5×23.5 cm. \$150.00. ISBN: 0-471-54407-8.

This volume of the series *Physical Methods of Chemistry* deals primarily with "techniques that probe the electronic, optical, and dielectric properties of matter, or those that are principally in the solid state." Its seven chapters thus cover Visible and Ultraviolet Spectrophotometry (L.G. Hargis and J.A. Howell), Photoacoustic and Photothermal Spectroscopies (R.A. Palmer), Molecular Fluorescence and Phosphorescence Spectroscopy (E.L. Wehry), Absorption Spectroscopy of Transient Species (W.G. Herkstroeter and I.R. Gould), Transient Photoconductivity Measurements (A.R. Melnyk and D.M. Pai), Experimental Methods for Chemists, A Simplified Approach, Dielectric Properties of Polymers and Other Materials (J.M. Pochan, J.J. Fitzgerald, and G. Williams), and Photoemission and Inverse Photoemission (J.G. Tobin).

The approach in these chapters is to give a basic introduction to the technique and to provide some illustrative examples of its use, but to refer the reader to other sources for further discussion of applications. The only techniques likely to be of interest to natural products researchers are those of visible and uv spectrophotometry and possibly molecular fluorescence and phosphorescence spectroscopy, but even these techniques are discussed more from the perspective of the physical method itself than from that of its application to structure elucidation. This volume, unlike volumes IIIA and IIIB of the series, thus contains little material that will be of interest to natural product researchers.

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Dictionary of Organic Compounds, Fifth Edition. Tenth Supplement and Cumulative Indexes, Supplements 6-10. Executive Editor, J. BUCKINGHAM. Chapman and Hall, 29 West 35th Street, New York NY 10001. 1992. ix+597 pp. (Supplement 10); ix+611 pp. (Indexes). 21×28 cm. \$925.00 ISBN 0412-17100-7 (two-volume set).

The tenth supplement to the well-established *Dictionary of Organic Compounds, 5th Edition* continues the tradition and quality of earlier volumes in the series. As in previous volumes, the structures of new natural and synthetic organic compounds are listed in alphabetical order, with each compound accompanied by a structural diagram, composition, limited physical data, and references. The coverage is up-to-date, with four new taxane diterpenoids included from the 1991 literature, for example, but it is not and cannot be comprehensive. The main value of the work is as a convenient source of information on commonly encountered natural and unnatural products, and it fills the gap between shorter works such as *The Merck Index* and comprehensive works such as *Beilstein* and *Chemical Abstracts*. Natural products are well represented in the volume, and it thus continues to be of significant value to the natural products community.

This tenth supplement is published as a two-volume set, with the second volume consisting of cumulative indexes to supplemental volumes 6-10. Three indexes are included: a name index, a molecular formula index, and CAS registry number index. Regrettably an index of biological sources for natural products is not included, but this is the only obvious omission in this otherwise excellent and useful work. All libraries serving the natural products community will profit from this latest addition to the *Dictionary of Organic Compounds*.

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Alkaloids: Chemical and Biological Perspectives. Volume 7. Edited by S. WILLIAM PELLETIER. Springer Verlag New York, 175 Fifth Avenue, New York, NY 10010. 1991. xv+591 pp. 1.55×23.5 cm. \$98.00. ISBN 0-387-97290-0.

This book constitutes the seventh volume in a series of books on alkaloids and related nitrogenous natural products. It contains three chapters, on Homoerythrina and Related Alkaloids (by I.R.C. Bick and

S. Panichanum), C-13 NMR Spectroscopy of Steroidal Alkaloids (by P.K. Agrawal, S.K. Srivastava, and W. Gaffield), and Carbon-13 and Proton NMR Shift Assignments and Physical Constants of Norditerpenoid alkaloids (by S.W. Pelletier and B.S. Joshi).

The first chapter is a well-written (without errors), 41-page exposé of the advances in homoerythrina alkaloid research since 1981. It covers structure determination (spectroscopy as well as chemical interconversions) carefully and lucidly and reviews the limited amount of total synthesis in the field appropriately. It made this reviewer feel pleased to fully have been brought up-to-date on the homoerythrina alkaloids.

The second chapter (also without errors) is composed of 228 pages of compilation of carbon δ values for steroidal alkaloids and a prior 24-page preamble on ^{13}C -nmr spectral analysis in general and ^{13}C -nmr analysis of the steroid alkaloids in particular. At first sight, a description of general methods of signal assignment (and their application to the ^{13}C -nmr spectra of the alkaloids under consideration) is amazing in the face of innumerable texts and chapters on the market more than two decades into this organochemical, instrumental analysis domain. However, on more careful scrutiny this reviewer was led to believe that the charming, but succinct write-up is suited ideally for teaching, i.e., for university chemistry courses in instrumental analysis at the advanced undergraduate and/or beginning graduate level.

The third chapter consists of (a) four pages of introduction, revisions of earlier carbon shift assignments, and a discussion of new features in recent norditerpenoid alkaloid structures, (b) a table of plant species and the norditerpenoid alkaloids therein, another of bases (or their salts) whose X-ray crystal structure has been determined, yet another listing the alkaloids and their derivatives, and, finally, two tables of molecular formulas and calculated high-resolution mass values, and (c) 205 pages of tabulation of the mp, $[\alpha]_D$, and ^1H and ^{13}C chemical shifts of the norditerpenoid alkaloids and their derivatives. The write-up reveals a limited number of typographical mistakes: page 298 line 16, "...table..." should read "...tables..."; page 300 line 24, "...hydroxyl..." should read "...hydroxyl..."; page 301 lines 43, 44 "...cataloged..." should read "...catalogued..."; pages 410, 473, 510, and "1. ..." at the beginning of the reference is unneeded.

Justification for the inclusion of chapter 3, a topic which has been covered as recently as 1984 in Volume 2 of the present series, is the appearance since then of over 160 new norditerpenoid alkaloids. However, this argument is hardly convincing as the entire field attracts the interest of only few natural product chemists. Fifty-three of 189 publications cited in the first two sections and 105 out of 253 publications in the third are those of one research group, and the predominant number of the remaining 148 references of the latter group emanate from only half a dozen other laboratories. The molecular formulae and weight tables (26 pages long) are of dubious value. In short, the composite picture of the chapter will make it difficult for the natural products community (including students) and hard-pressed libraries to contribute enthusiastically \$98 for the purchase of the book.

Finally, it is worth inquiring: How many reviews on alkaloid chemistry [the Brossi (formerly Manske) series, the Pelletier series, the Royal Society's Natural Product Reports, etc.] does a scientific community need to stay up-to-date?

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Methods in Carbohydrate Chemistry. Volume IX. Edited by J.N. BEMLER, R.L. WHISTLER, and D.H. SHAW. Wiley-Interscience, John Wiley and Sons, 605 Third Avenue, New York, NY 10158. 1993. xi + 197 pp. 16×23 cm. \$59.95. ISBN 0-471-52941-9.

This volume is subtitled "Lipopolysaccharides, Separation and Analysis, and Glycosylated Polymers," and consists of nineteen separate chapters in four sections. The first section consists of six chapters on lipopolysaccharides, three on their preparation, and three on their analysis. The second section, on separation and analysis, contains five chapters on chromatographic methods and four chapters on chemical, enzymic, and physical methods of analysis. Readers of this journal will be most interested in a helpful chapter by F.R. Seymour on the identification of saccharides by glc and ms analysis of their peracetylated aldononitrile and ketaloxime derivatives, and in a chapter by K.L. Olson and K.L. Rinehart on mass spectrometry of carbohydrates. The third section of the book consists of two chapters on natural and synthetic glycoproteins, and the fourth and final section contains two chapters on immobilization of carbohydrates.

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