

Book Reviews

Textbook of Medicine. 14th Edition. Edited by Paul B. Beeson and Walsh McDermott. W. B. Saunders, Philadelphia, Pa. 1975. lxxvii + 1892 pp. 20 × 31 cm. \$34.50.

This authoritative, well-organized text represents the efforts of 200 contributors. Although it stands as a continuation of the classic book by Cecil and Loeb, and has been preceded by 13 other editions (the 13th in 1971), fully half of the present edition (according to the preface) was assembled from new manuscripts. Only one unacquainted with earlier editions might find the title and dark gray book cover to be foreboding; the book continues to provide a rich, imaginative, smoothly written coverage of medicine. In fact, if one desired to obtain a readable and yet rigorous book about medicine, this is such a book. General background discussions of diseases, along with practical information about therapy, are emphasized, making the book fully relevant to both the beginning medical student and the practitioner. The biochemistry and pathophysiology of disease also are covered adequately. For some diseases, a special, spicy paragraph of "history" is provided, offering such insights as "...Thomas Sydenham (1683), sometimes called the Shakespeare of gout, wrote clinical descriptions of the disease which have yet to be improved on". Since the book provides a rich blend of doctrine, on-going ideas, practical comments, descriptions, explanations, and information in regard to medicine, it certainly belongs on the book shelf of anyone directly associated with this field.

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The Use of Antibiotics. Second Edition. A. Kucers and N. McK. Bennett. J. B. Lippincott Co., Philadelphia, Pa. 1975. xvi + 679 pp. 14 × 22 cm. \$26.00.

The authors have divided this topic into five major sections. In the first section, they discuss all of the more common naturally occurring antibiotics used for gram-positive and -negative organisms. In the second section, they cover the synthetic antibacterial agents. The last three sections are based on disease states, covering antitubercular, antifungal, and antiviral agents.

For each drug or drug class, there is a brief description including the chemical name and the salt forms available; the spectrum of activity; a table presenting in vitro minimum inhibitory concentrations; the mode of administration; recommended dosage forms; serum levels following administration; distribution and excretion data; mode of action; toxicity; and clinical uses. These various subtopics run from a sentence in length to 2-3 pp. For example, in the case of clinical uses of penicillin G, 19 different disease states were discussed.

This book is totally devoid of structures which, to the reviewer, is its only failure. It would have been simple to have included the structure of the drugs discussed. The use of structures, for example, would have made it easier for the reader to picture the similarities between natural substrates and the antibiotics during discussions of the mode of action.

This book should prove to be a useful reference for students and faculty alike who are involved in the study of antibiotics and their clinical uses.

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Aliphatic Chemistry. Volume 3 (Specialist Periodical Reports). A. McKillop, senior reporter. The Chemical Society, Burlington House, London. 1975. xii + 409 pp. 13.5 × 21.5 cm. £13.50.

This volume reviews the literature published during 1973. Chapter 1, "Acetylenes, Alkanes, Alkenes and Olefins", is further subdivided according to topics relevant to each particular class of compounds. Chapter 2, which treats functional groups other than those above, contains sections on 13 common functionalities plus a "Miscellaneous" section and one on "Reviews".

The three chapters which follow may be of particular interest to medicinal chemists. Chapter 3, "Naturally Occurring Polyolefinic and Polyacetylenic Compounds", includes sections on polyacetylenes; allenes; acetylenes and olefins from marine sources; a substantial section on polyolefinic microbial metabolites; cyclopentenones; degraded and/or modified isoprenoid compounds; insect pheromones; and some miscellaneous compounds. Chapter 4, "Chemistry of the Prostaglandins", contains sections on nomenclature, syntheses, metabolism, biosynthesis, physiological effects, and analysis. Chapter 5, "Fatty Acids and Related Compounds", is divided according to Natural Compounds, Synthetic Compounds, Physical Properties, Chemical Properties, Biological Reactions, and Reviews.

As appears customary in this series, there is no subject index, but there is a detailed table of contents and a complete author index. Altogether, over 1800 individual references are covered in this book, which makes it an invaluable tool to any investigator who is hard pressed to keep up with the world's chemical literature. Of necessity, the coverage of any particular reference must be brief and occasionally somewhat superficial, but most researchers dealing with aliphatic compounds should consult this volume to supplement their normal reading coverage.

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Alfred Viola

Concepts of Membranes in Regulation and Excitation. Edited by M. Rocha e Silva and G. Suarez-Kurtz. Raven Press, New York, N.Y. 1975. 226 pp. 16.5 × 24 cm. \$16.50.

This volume assembles a collection of 18 papers presented at a symposium held in Rio de Janeiro in 1974. The majority of the contributors are associated with Brazilian institutions. Six of the participants came from the United States. The contributing scientists belong to widely differing disciplines. Consequently, a wide range of methods and preparations was employed in the reported studies. Each paper has some merit, but the articles vary greatly in scope. The most frequently recurring theme is the role of calcium in membrane-related processes in skeletal muscle and in smooth muscle. The papers cover the regulatory role of calcium in the integration of metabolic processes with contractile events; the influence of calcium on $ATP \rightleftharpoons P_i$ exchange in sarcoplasmic reticulum; the calcium regulating properties of skinned fibers; evidence of correlation between membrane calcium conductance and the initiation and development of tension; the role of the calcium transport system in drug-induced smooth muscle contraction; and discussion of a model for drug-receptor mechanisms based on calcium translocation. Several articles concern theoretical models and experimental investigations of angiotensin and histamine receptors. Some of the other topics are the process of acidification in renal tubules and in the urinary bladder; the use of spin probes to study permeation within lipid bilayers; and antagonism between calcium and aminoglycoside antibiotics.

I do not believe that individual scientists would choose to own this volume, but those interested in specific articles would hope

to find the book in the Bio-Medical library of their institution. The volume is well illustrated and its format is pleasing.

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Organometallic Compounds. Volume I. Second Edition.

First Supplement. By Klaus Bauer and Gilbrecht Haller. Edited by Michael Dub. Springer-Verlag, New York, N.Y. 1975. xxxvi + 1171 pp. 20.6 × 26.0 cm. \$46.80.

This volume, which covers the transition metals including the lanthanides and actinides, follows the same format as the first edition. This edition represents the literature published during 1964–1969 and results from the compilation of data derived primarily from *Chemical Abstracts*, Volumes 62–69, although references from earlier volumes which were missed in the previous edition are also included. The inclusion of compounds from Soviet Union patents and articles should also be noted.

In recognition of the fact that more literature has been published on organometallic compounds of the transition metals during the 4 years surveyed than in the previous 27, many sections were expanded and subdivided. This increase is most notable with the compounds of titanium, manganese, cobalt, and, in particular, iron, to which 406 of the 1171 pages are devoted. Specific groups which are sparsely referenced are the Group III metals, the lanthanides and actinides which have been investigated, albeit somewhat recently, as NMR shift reagents and "uranocene-type" compounds, and the Group V metals. As in the first edition, the pertinent data, such as synthesis, yield, physical and spectral properties, uses, reactions, and derivatives, are presented in as concise a manner as possible. To efficiently include structurally similar compounds, the authors have compiled a total of 223 tables which save space without sacrificing clarity. The 2581 references are tabulated alphabetically at the end of the work rather than at the end of each section, which this reviewer found to be a minor inconvenience.

All in all, this is a formidable work which will be of value as a reference text to its particular field of organometallic chemistry. However, because of its breadth of coverage, its period of coverage, and its relatively high price, it is probable that this volume will find its way more to libraries and the earnest organometallic chemists than to general use.

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Separation and Purification Methods. Volume 3. Edited by Edmond S. Perry, Carel J. van Oss, and Eli Grushka. Marcel Dekker, New York, N.Y. 1975. xii + 463 pp. \$32.50.

This book is the latest in a series of collected issues of the journal of the same name; each contains all the papers from one volume of the original journal. Volumes 1 and 2 have not been reviewed here. The stated purpose of the series is to provide authoritative summaries on new developments in separation science and critical reviews of current methods, apparatus, and techniques. Each volume is photographically reproduced directly from the authors' typewritten manuscripts. Although these are very uneven in format and organization, the reviews are all reasonably well written and free from significant errors. The amount of experimental detail given in each contribution varies widely.

The time interval from issue of the first number of the journal to publication of the collected volume is almost 1 year, so the material in these reviews cannot be considered to be highly current. With this limitation in mind, however, the stated purpose of the series is generally served well. Volume 3 contains the following (the titles are arranged in roughly decreasing order of importance for readers of this journal): "Ligand Specific [Affinity] Chromatography" by S. W. May and O. R. Zaborsky (79 pp, 138

references up to 1973); "Separation of Nucleic Acid Constituents by Column Liquid Chromatography" by P. M. Rajcsanyi et al. (34 pp, 81 references up to 1973); "Separation and Analysis of Nucleic Acids and Their Constituents by Ion-Exclusion and Ion-Exchange Column Chromatography" by R. P. Singhal (52 pp, 150 references up to 1974); "High Pressure Ion Exchange Chromatography as Applied to the Separation of Complex Biochemical Mixtures" by C. D. Scott (32 pp, 30 references up to 1973); "Fusion Reaction Gas Chromatography" by L. R. Whitlock and S. Siggia (35 pp, 33 references up to 1974); "A Comparison of Semipermeable Microcapsules and Standard Dialyzers for Use in Separation" by T. M. S. Chang (16 pp, 18 references up to 1974); "Porous Layer [Support-Coated] Open Tubular Gas Chromatography Columns" by J. G. Nikelly (18 pp, 20 references up to 1974); "Countercurrent Chromatography" by Y. Ito et al. (31 pp, 10 references up to 1973); "Open Pore Polyurethane. A New Separation Medium [for Gas and Column Liquid Chromatography]" by W. D. Ross (19 pp, 19 references up to 1974); "Concerning the Nature of Ionically Modified Aromatic Polyamide Membranes" by R. McKinney, Jr. (22 pp, 8 references up to 1972); "Plasma Chromatography" by R. A. Keller and M. M. Metro (35 pp, 25 references up to 1973); and "How to Design Liquid Membrane Separations [for Inorganic Ions]" by E. L. Cussler and D. F. Evans (21 pp, 22 references up to 1974).

Fusion reaction gas chromatography involves use of on-line fusion reactions to convert nonvolatile (monomeric or polymeric) species to volatile products which are subsequently separated gas chromatographically. Countercurrent chromatography is a continuous form of countercurrent extraction. Plasma Chromatography is a term applied to the use of time-of-flight mass spectrometry for the "separation" of ion-molecules. The content of the rest of the reviews is apparent from their titles. Although substantial overlap might be expected between the contributions by Rajcsanyi et al. and Singhal, in reality there is very little, due to the different approaches of the two authors. Neither review covers new developments in the use of microparticle (5–10 μm) column materials for such separations.

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LSD—A Total Study. Edited by D. V. Siva Sankar. PJD Publications, Westbury, N.Y. 1975. 960 pp. \$29.75.

While this voluminous book contains several well-written chapters on the chemical parameters of LSD, the rest of the text fails to meet its goals in presenting a total study of the hallucinogen. A number of chapters by contributing authors offer clear, detailed descriptions of the chemistry (Albert Hoffmann), structure-activity relationships (Ronald Bradley and John Smythies), and stereoelectronic considerations (Jack Green and his associates) of LSD. While the remainder of the book includes the subjects necessary for an exhaustive study of LSD, many sections are sketchy and lack any critical analysis of the research data presented. The chapters reviewing the pharmacological and physiological characterizations of LSD are both short and contain no evaluation of the data. For example, little to no attention is paid to methodological considerations and the consequent limitations which they impose upon the generation of theories of the mechanism of action of the drug. In other instances Sankar speculates hypotheses without any evidence to support his ideas, e.g., "If there is less cancer in the schizophrenic, production of schizophrenia (by LSD) may help the cancer patient" (my emphasis).

Furthermore, for a total study of LSD there seems to be an unbalanced approach to the material in that approximately 45% of the book deals with the drug abuse aspects of LSD and other illicit drugs. Stylistically these sections are written with the highly personal perspective of the author and contain a distinct bias against any personal drug use and in favor of a more traditional religious approach to life problems. In discussing the LSD generated interest in Eastern philosophies, Sankar decries that "most Westerners know absolutely nothing about the traditional

Hindu philosophy" and "even to know what ancient Hindu philosophies are, one should be born in a traditional well-learned Hindu family and be a student of the ancient Sanskrit (literature)...". The author also seems prone to present broad and questionable statements in these chapters, such as "London has traditionally been the world headquarters for deviance". In addition, rather vague information like "LSD patients prefer suicide by drowning" is left unexplained. On a more general level, for numerous issues the author uncritically draws information from the lay press (e.g., *Women's Day*, *Daily News*) and secondary journals reporting other's original research (e.g., *Medical World*, *Current Medical Digest*). Several times the author begins tangentially to concentrate on other illicit drugs like heroin and marihuana without any clear relevance to the discussions of LSD.

Unfortunately there is no uniform format for the chapters and many lack summaries or conclusions for the flood of individual facts presented. The book often repeats the same data from one section to another and fails to combine related areas into single chapters. Numerous typographical errors are apparent. Although published in 1975 the most recent studies cited, contained in a special updated addendum, were published in 1973. This publishing delay is readily apparent in the "Slang Terminology" appendix.

It is disappointing that a volume purporting to be a total study fails to propose any hypotheses for the drug's mechanisms of action or conclusions regarding the behavioral and psychological responses to this psychedelic chemical.

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Terpenoids and Steroids. Volume 5. Specialist Periodical Reports. K. H. Overton, Senior Reporter. The Chemical Society, London. 1975. x + 390 pp. 13.5 × 21.5 cm. £21 (\$57.75).

To chemists interested in research on the chemistry of terpenoids and steroids, the "Terpenoids and Steroids" series of Specialist Periodical Reports has been of indispensable assistance in keeping them abreast and in perspective of current developments in these areas. The present volume is as necessary and as elegant as its predecessors. The format is substantially unaltered, and, equipped with the full table of contents and a complete and accurate author index, the reader can quickly locate topics of interest, which are summarized concisely and placed in the larger framework of the field.

The emphasis throughout is on chemical structures and transformations; but medicinal chemists will find physiologically active compounds treated from their own viewpoint also, and those in every specialization will learn much both inside and outside their field of expertise. There is a valuable list, new of its kind, of terpenoid structures determined by x-ray analysis. Professor Overton tells us that these narrowly escaped exclusion on economic grounds; when one considers the value of this list, and indeed of

the whole volume, one becomes the more grateful for the work of the Reporters and the Society in publishing this series.

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Selenium. Edited by Ralph A. Zingaro and W. Charles Cooper. Van Nostrand-Reinhold, New York, N.Y. 1974. xvii + 835 pp. 16.5 × 23.5 cm. \$47.50.

Selenium is not one of the most familiar elements but this book with its 16 chapters and 24 contributing authors could aptly be named "Everything You Might Want to Know about Selenium". The subject matter covers virtually every aspect of selenium from its historical aspects and commercial isolation, its structural and chemical properties, to its application in such diverse fields as rubber and electrophotography. Each section is reviewed by an expert in that particular area without the creation of gaps or redundancies.

The contents of the book can be divided into four sections: Introduction, Physical Chemical Properties, Chemistry and Biochemistry, and Industrial Applications. The first section, comprising chapters 1 and 2, provides a historical overview followed by a description of commercial techniques for the recovering of selenium from ores and slimes and for the refining of the selenium. The structural, optical, and electrical properties of elemental selenium are covered in chapters 3-5. Of particular interest is the chapter entitled "The Interaction with Light of Phonons" by Zallen and Lucovsky which concerns the optical interactions, primarily infrared and Raman, of incident light waves (photons) with lattice waves (phonons) in the three principal allotropic forms of selenium. The major section of the book, composed of chapters 6-12, covers the various components of selenium chemistry and biochemistry. Individual chapters are devoted to structural aspects, coordination chemistry, organic chemistry, biochemistry, analytical chemistry, toxicology, and nutrition. The industrial applications of selenium are reviewed quickly in the last four chapters which describe its utilization in glass, rubber and plastics, metallurgy, and electrophotography.

For the breadth of material covered, the book is a clear, cohesive work. The subject matter is presented in a lucid, well-referenced, well-organized manner that would provide a fundamentally sound basis for the understanding of selenium. For the questions of a more theoretical or more applied nature that it does not answer, it indicates the directions that one should go for the answers. There are the expected variations in style from author to author but the readability of the book was very good and the liberal use of tables, figures, graphs, and photos was appreciated. Although selenium may not be one of the more popular elements chemically, "Selenium" has something for practically everyone and is well worth its modest price.

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