

## Book Reviews

**Antiviral Drugs: Mode of Action and Chemotherapy of Viral Infections of Man. Volume 11.** Edited by Yechiel Becker. S. Karger, Basel, Munchen, Paris, London, New York, Sydney. 1976. xiii + 135 pp. \$30.50.

Doctor Becker has done a skillful and thorough job of organizing a difficult subject into 11 (individual chapters) headings that describe a specific site of action for antiviral drugs including a list of the drugs acting at that site. The data presented in these chapters combine studies found elsewhere in the literature and save the reader much searching to determine the specific action site and virus affected by a particular drug.

In the first chapter of the book a detailed classification is given for viruses affecting humans. This table plus the following one describing the molecular events in the replication of a virus in eukaryocytes provides the reader with a basic virology background which is essential for understanding the remainder of the book. The following tables covering potential antiviral drugs and antiviral drugs in current medical use are an excellent summary of the more detailed data presented in the following chapters.

One of the major contributions of the book is the reference section which lists over 500 articles on antiviral drugs. These serve as a possible expansion of knowledge to the reader who wishes more details than are provided in the book under the separate headings.

The book is well organized, extremely well referenced, and amply illustrated. I recommend it to those interested in the subject covered.

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**Practical Pharmaceutical Chemistry. Third Edition. Parts I and II.** By A. H. Beckett and J. B. Stenlake. Humanities Press, Atlantic Highland, N.J. 1975. Part I, x + 370 pp, 15 × 23.5 cm, \$25.00. Part II, xii + 552 pp, 15 × 23.5 cm, \$37.50.

This volume which is in two parts is intended to serve as a practical treatise on pharmaceutical analysis for undergraduate students. In part I the more traditional chemical methods of drug analysis are described. Part II deals with physical and instrumental techniques. The theory behind the various techniques, together with descriptions of the procedures and instrumentation, is presented in a concise readable manner. Experiments which can be used as laboratory exercises accompany each topic.

The first part begins with a general discussion of the impurities that are present in pharmaceuticals and some of the limits placed on their presence. Other chapters describe the British drug laws, acid-base titrations, gravimetric analysis, the use of ion-exchange resins, nonaqueous titrations, oxidation-reduction titrations, argentimetric titrations, complexing agents used to analyze for materials, aquametry, solvent extraction methods, and procedures used to analyze dosage forms. For part II the authors drew upon the talents of six pharmaceutical scientists to write the material. Among the subjects covered in this part are optical activity, viscometry, particle size determination, differential thermal analysis, various types of chromatography, emf measurements, conductometric titrations, polarography, spectrophotometric methods (absorption and fluorescence), NMR, mass spectrometry, atomic absorption, and radiochemical methodology. The authors have made a great effort to survey pharmaceutical analysis comprehensively. Very few techniques which have proven to be of value to the analyst were omitted; a few that were are microcopy, x-ray diffraction, and electrophoresis.

The depth of the subject matter is such that the student would need to do outside reading to obtain anything more than a superficial understanding. This would not be a serious flaw for an

introductory text, if it were not for the inconsistency of references. Some chapters provide general and specific references, but there are a large number without any bibliography.

Any time a quantitative measurement is made it is necessary to have an estimate of its accuracy. It would have been appropriate for this volume to have a section on the practical topic of error analysis of data.

This volume cannot be recommended as a reference source principally because of its depth. The cost of the volume coupled with its faults will deter many from using it as a text and laboratory guide for a pharmaceutical analysis course.

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**Clinical Neuropharmacology. Volume 1.** Edited by Harold L. Klawans. Raven Press, New York, N.Y. 1976. xii + 225 pp. \$18.50.

This is the first volume in a new series intended to present correlative information on neurological disorders and basic neuropharmacology. The text covers a broad spectrum of topics from psychiatric problems to basic neurological abnormalities. The first three chapters are primarily concerned with the pathophysiology of schizophrenia and associated pharmacological problems, viz., tardive dyskinesia, and anticholinergic toxicity. The remaining six chapters cover a number of unrelated neurological problems including Gilles de la Tourette's syndrome, vitamin B<sub>6</sub> therapy, spasticity, increased intracranial pressure, anticonvulsants used for the treatment of pain, and, lastly, migraine.

Although the chapters themselves are clearly presented, the text follows no logical sequence. It is a collection of various unrelated topics on central nervous system disorders. The emphasis is definitely clinical, i.e., an in-depth neuropharmacological presentation is lacking. Perhaps this is due to the choice of material presented. The basic pharmacology of many of these disorders has not been fully elucidated. It is noted that future volumes will include many topics, such as myasthenia gravis, that have been and are currently being studied in depth from a neuropharmacological aspect. Presentation of this subject matter, I assume, will contain more biochemical evidence of interest to the neuropharmacologist.

The text may be of interest to neurologists and pharmacologists as a general presentation of the etiology and treatment of neurological disorders. It is not, and perhaps was not meant to be, an in-depth biochemical treatise on the neuropharmacology of these disease states.

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**Methods in Narcotics Research (Modern Pharmacology-Toxicology. Volume 5).** Edited by Semour Ehrenpreis and Amos Neidle. Marcel Dekker, New York, N.Y. 1975. xiii + 408 pp. 16 × 23.5 cm. \$29.75.

In this book, the fifth volume of the Modern Pharmacology-Toxicology series, Drs. Ehrenpreis and Neidle have assembled an impressive collection of articles dealing with the methodology of narcotic drug research. Although no attempt has been made to survey all possible techniques, the authors have presented an excellent review of the current representative biochemical, pharmacological, and behavioral methods employed in the de-

termination and measurement of narcotic drug effects. Moreover, special emphasis has been placed on those methods which provide useful information for research workers during the early stages of drug investigation.

The editors have enlisted 28 leading authorities and experts in the field of narcotic research to author the 19 chapters which make up this book. In general, the chapters are extremely well written, current, and well documented. In addition to clear and concise procedural details, most chapters include a consideration of the advantages, disadvantages, limitations, and pitfalls which may be encountered for a particular experimental method. When appropriate, special requirements and sources for equipment used in specialized techniques are also provided.

Included among the numerous topics presented are: method and routes of drug administration, procedures and problems involved in assessing the analgesic efficacy and dependence liability of narcotic drugs, methods used to determine the behavioral effects of narcotics, procedures employed to assess tolerance to and physical dependence on narcotic agents, the induction of opiate dependence in laboratory animals, and techniques applied in the experimental and clinical evaluation of narcotic antagonists. Recent methods for studying narcotic drugs at the tissue and molecular levels are also considered.

In the preface to this book, the editors state: "If this volume eliminates, at least to some extent, the frustrating job of tracking down an experimental procedure from one research report to another and then finding that the description is inadequate or the method inappropriate to the task at hand, our efforts will have been justified." The authors and editors have superbly achieved these objectives and should be congratulated on a job well done. This book fills an important need and provides a wealth of information for pharmacologists, neurochemists, physiologists, and all others interested in this area of research.

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**Metal Ions in Biological Systems. Volume 5. Reactivity of Coordination Compounds.** Edited by Helmut Sigel. Marcel Dekker, New York, N.Y. 1976. 384 pp. 16 × 24 cm. \$39.50.

Like previous volumes in this series, which was begun in 1974 and intended "to break down the barriers between the historically separate spheres of chemistry, biochemistry, biology, medicine, and physics", this volume is a collection of reviews focusing on one central theme, the reactivity of coordination compounds. Actually the reactivity of the *ligands* in the complexes, and the effects of co-ligands on this reactivity, probably receives more emphasis than the purely inorganic aspects of the complexes. Most of the chapters have an introductory section on the appropriate reactivities of the ligands in metal-free systems, which provides an excellent context for discussing the *effects* of metal ions on ligand chemistry. Both redox and nonredox topics are included, and some of the chapters interface nicely with others in earlier volumes with surprisingly little redundancy. In this volume the first four chapters are probably of the greatest interest to medicinal chemists.

In the first chapter D. L. Leussing briefly reviews Schiff base chemistry and then thoroughly reviews both kinetic and thermodynamic effects of metal ions on Schiff base chemistry. Pyridoxal systems are given considerable attention. Following

a similar format, B. S. Cooperman reviews the mechanisms of phosphoryl transfer to water (i.e., hydrolysis) and other types of acceptors. Several metal-dependent phosphoryl transferase enzymes are also mentioned briefly. Metal ion catalyzed decarboxylations of biological interest, as well as selected decarboxylase enzymes, are reviewed by R. W. Hay. It is apparent that this area is now quite mature, nothing having changed really significantly in 20 years. With P. J. Morris, Hay also reviews metal ion promoted hydrolysis of amino acid esters and peptides, providing a lucid introduction to a heavily researched but far from mature area of metal-organic chemistry. So far the *synthetic applications* of this mechanistic chemistry are largely untapped.

From a more theoretical viewpoint M. Hatano and T. Nozawa bridge the gap between metal ion catalysis and metalloenzyme catalysts with a review of enzyme models based on metal ions bound to polymers of L-amino acids. The last two chapters contain reviews of two very active areas of contemporary bioinorganic chemistry. J. T. Spence reviews reactions of Mo complexes as models for molybdenum redox proteins, and A. D. Zuberbühler reviews the interactions of Cu(I) complexes with dioxygen. Both chapters are highly relevant to the rapidly developing field of superoxide chemistry and biology.

Like other volumes in this series this volume has a wealth of references, both author and subject indices, and an expensive price tag (\$39.50 for 384 pages of double-spaced type). Overall, however, this volume is full of nutritious "food for thought" for enzymologists, biochemists, and mechanistically oriented chemists and will be a valuable reference work and bibliography for bioinorganic chemists.

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**Biogenesis. Specialist Periodical Reports. Volume 4.** By J. D. Bu'Lock, Senior Reporter. The Chemical Society, London. 1976. x + 274 pp. 13.5 × 21.5 cm. £16.00 (\$44.00).

Subscribers to this series will recognize two innovations which distinguish the fourth volume from its predecessors: the editorship has passed from the hands of Professor Geissman to those of Professor J. D. Bu'Lock; a "special survey" chapter has been added to accommodate topics deserving, in some way, more inclusive treatment. Nonetheless, the general style of the presentations remains familiar. The chapter on Polyketides (T. Money) represents an update of work in this field which was reported last in 1972; the chapters on Terpenoids (J. R. Hanson), Triterpenes, Carotenoids, and Steroids (L. J. Mulheirn), Phenolic Compounds (J. B. Harborne), Biosynthesis of Alkaloids (E. Leete), and NMR with Stable Isotopes in Biosynthetic Studies (M. Tanabe) follow the general outline of Volume 3. A seventh chapter deals with Non-protein Amino Acids, Cyanogenic Glycosides, and Glucosinolates (A. K. Kjaer and P. Olesen Larsen); an eighth, the "special survey", with recent developments in the Biosynthesis of Penicillins and Cephalosporins (P. A. Fawcett and E. P. Abraham) as a class of compounds. Readers will continue to enjoy the crisp, condensed style of these reviews.

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