

## References and Notes

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- (3) I. DeCaneri, *Farmaco*, **11**, 926 (1956).
- (4) P. T. Main, N. W. Bristow, P. Oxley, T. I. Watkins, G. A. H. Williams, E. C. Wilmshurst, and G. Woolfe, *Ann. Biochem. Exp. Med.*, **20**, 441 (1960).
- (5) German Patent 42 187, Mar 5, 1877.

## Book Reviews

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**Organophosphorus Chemistry. Volume 9. Specialist Periodical Reports.** By S. Trippett, Senior Reporter. The Chemical Society, Burlington House, London. 1978. ix + 288 pp. 14.5 × 22.5 cm. \$48.00.

This year's volume of this continuing series, covering publications appearing between July 1976 and June 1977, lacks a chapter on "Photochemical, Radical, and Deoxygenation Reactions". In other respects, it is similar to last year's report, with its many virtues and minor defects.

University of Massachusetts

Bernard Miller

**Metal Toxicity in Mammals. Volume 1. Physiologic and Chemical Basis for Metal Toxicity.** Edited by T. D. Luckey and B. Venugopal. **Volume 2. Chemical Toxicity of Metals and Metalloids.** Edited by B. Venugopal and T. D. Luckey. Plenum Press, New York. Vol 1: 1977. x + 238 pp. 16 × 23.5 cm. \$27.50. Vol 2: 1978. 16 × 23.5 cm. x + 409 pp. \$35.00.

This two-volume treatise provides biologists and physical scientists with an understanding of the chemical toxicity of metals, metalloids, and their inorganic compounds. Volume 1 offers introducing and background information about metals and their salts in mammalian nutrition, physiology, and toxicology and summarizes the chemical toxicity of all nonradioactive metals. This volume also explores the role of metals in carcinogenicity teratogenicity, including the phenomenon of surface carcinogenesis. The second volume focuses on the toxic effects of inorganic salts, and discusses the chemical toxicity and metabolism of radioactive metals. In addition, there are chapters which deal with comparative toxicity of metals by interspecies, routes of administration, as well as a discussion of metal toxicity in groups 1-8 in the periodic table. A summary of the toxicity of all metals by groups, periods, modes of administration, and species is given in a summary chapter. An appendix, a glossary, a list of pertinent source materials and references, and a subject index is provided in each volume.

These volumes provide easy access to the toxicological effect of metals and should be valuable to medicinal chemists, as well as to toxicologists, pharmacologists, and other biological scientists.

Staff Review

**Metal Ions in Biological Systems. Volume 7. Iron in Model and Natural Compounds.** Edited by Helmut Sigel. Marcel Dekker, New York, N.Y. 1978. xvii + 417 pp. 15.5 × 23.5 cm. \$39.50.

Like previous volumes in this series, this volume contains recent review chapters on various aspects of its principal topic, "iron in model and natural compounds". Three chapters deal with small-molecule iron compounds, covering "Prebiotic Coordination Chemistry", the "Biological Significance of Low Molecular Weight Iron(III) Complexes", and "Synthetic Analogs of the Oxygen-Binding Hemoproteins". Four more chapters cover macromolecular topics such as "Iron-Sulfur Proteins and their Synthetic Analogs", "Catalases and Iron Complexes with Catalase-Like Properties", "Monooxygenase Hemoproteins", and "Mechanisms for the Modulation of Hemoglobin Oxygenation". Finally, there are two chapters dealing with iron in living systems, covering the

"Storage and Transport of Iron" and "Human Iron Metabolism".

Each of the chapters is full of tabular data, well illustrated, and thoroughly referenced. In reviewing them it is interesting to note the extent to which "models" have (or have not) approached the biological realities; the iron-sulfur proteins and cytochromes P-450 are particularly interesting cases in point. Several of the chapters on coordination chemistry and metabolism of iron will be valuable to medicinal chemists concerned with the therapy of iron deficiency and/or iron overload. They may also provide valuable background for contemplating the therapeutic uses of transition metal derivatives of other compounds, such as L-dihydroxyphenylalanine or antiinflammatory agents, which have shown recent successes.

In conclusion, Dr. Sigel and his collaborating authors have produced a fine addition to a highly worthwhile series.

University of Kansas

Robert P. Hanzlik

**Synthetic Methods of Organic Chemistry. Volume 32.**

Edited by W. Theilheimer. (1978 Yearbook mit deutschem Registerschlüssel). S. Karger AG, Basel 1978. xvi + 593 pp. 16 × 23 cm. \$267.00.

New methods for the synthesis of organic compounds and improvements of known methods are being recorded continuously in this classic reference source. This is the second volume of the seventh series. New references to material in the preceding series have been included in the text. The index is cumulative for volumes 31 and 32 and also contains additional and revised entries to previous volumes. The formula index of functional combinations has been expanded to include pertinent items from all previous volumes, as well as nomenclature which had been discontinued in the later volumes. Most of the references in this volume are to papers published between 1975 and 1977. It is inconceivable that any library that serves the needs of organic chemists can be without this most valuable reference source, even at the staggering price of this volume.

Staff Review

**Aromatic and Heteroaromatic Chemistry. Volume 6. Specialist Periodical Reports.** Edited by H. Suschitzky and O. Meth-Cohn, Senior Reporters. The Chemical Society, Burlington House, London. 1978. xii + 326 pp. 14 × 22 cm. \$56.00.

Those who are familiar with this series of "Specialist Periodical Reports" will find a pleasant surprise in this latest volume. The new senior reporters have recast the format so that it parallels that of the "Saturated Heterocyclic Chemistry" series. Thus, there are chapters concerned with all of the expected ring sizes, except for the six-membered homocycles which are to be covered in the next volume. Electrophilic and nucleophilic substitution reactions and substitutions by free radicals, carbenes, and nitrenes are covered in three chapters. The report is completed with three chapters on porphyrins and other naturally occurring aromatic compounds. While these last chapters are of particular interest to medicinal chemists, almost everyone will also find a topic of interest elsewhere in the report. The new format makes it easier to locate that topic via the table of contents.

The literature surveyed is that abstracted by Chemical Abstracts in volumes 85 and 86 (July 1976 to June 1977). The price and size have both been reduced in order to make the report more saleable. It is worth a leisurely perusal in the library.

SISA Incorporated

James Quick

**Encyclopedia of Chemical Technology. Volume 3. Third Edition.** Edited by Kirk-Othmen. Wiley, New York. 1978. xxv + 958 pp. 18.5 × 26 cm. \$120.00.

The third volume of the third edition of this classic encyclopedia covers antibiotics (phenazines) to bleaching agents. Besides a very complete and thorough coverage of the phenazine, polyenes, polyethers, and tetracycline antibiotics (the remaining antibiotics were covered in volume 2), medicinal chemists will also find up to date, authoritative, and comprehensive coverage of such topics as appetite-suppressing agents, beer, beverage spirits, and biopolymers of interest. It is definitely worth a trip to the library to examine this latest volume. Prosit!

Staff Review

**Progress in Medicinal Chemistry. Volume 15.** Edited by G. P. Ellis and G. B. West. North Holland, Amsterdam, New York, and Oxford. x + 432 pp. 15.5 × 21.5 cm. \$69.00.

Eight timely topics are reviewed in this volume by 12 contributors. They range from subjects of intensive current research, such as adriamycin, nontricyclic antidepressants, prostaglandins, thromboxanes, and hypophysiotrophic hormones, to areas of continuing interest, such as stable isotopes in medicinal chemistry, membrane activity of antimicrobial agents, Cu-containing antiarthritic drugs, and heterocyclic aldehyde thiosemicarbazones.

It would be unwise for a reviewer to single out any of these goodies and belabor their significance. Suffice it to say that this is one of the best written and most appropriate volumes in this series. Any medicinal scientist should enjoy reading this collection of articles. Only the price of the book shows run-away inflation.

University of Virginia

Alfred Burger

**Annual Reports in Medicinal Chemistry. Volume 13.** Edited by Frank H. Clarke. Academic Press, New York, N.Y. 1978. 352 pp. 17 × 25 cm. \$17.00.

"Annual Reports in Medicinal Chemistry" traditionally has brought together under one cover a combination of brief reviews stressing recent advances in major research fields and short state of the art summaries on selected topics which are less familiar or of special interest to most medicinal chemists. Reviews of the former type are an important source of annually updated information in areas where numerous publications appear. The selected topics are intended to broaden one's knowledge base and stimulate new thinking.

Volume 13 of this series follows the established format of six sections, each containing five to six chapters. The section on CNS agents includes the usual updates of activity in the fields of antidepressant, antipsychotic, antianxiety, anticonvulsant, and analgetic agents. A new chapter on agents affecting GABA in the CNS was added this year. This chapter is an excellent summary of the relevant biochemistry and medicinal chemistry.

Chapters which update the status of research on diuretics, antihypertensive agents, and pulmonary and anti-allergy drugs again appear in the section on pharmacodynamic agents. Reviews on cardiac stimulants and inhibitors of the renin-angiotensin system comprise the newest additions to this section.

The section on chemotherapeutic agents has the highest concentration of updating-type chapters (antibiotics, antifungal, antineoplastic, antiparasitic, and antiviral agents). An additional review on antibiotics covers the  $\beta$ -lactam type in which the bicyclic nucleus has been altered.

Articles on diabetes, inflammatory disease, and atherosclerosis appear under metabolic diseases and endocrine function. The chapter on diabetes stresses the chronic complications of the disease with emphasis on the role of aldose reductase. Inflammatory disease is handled with chapters on mechanisms of glucocorticosteroid action and the newer agents for treating arthritis. Agents which regulate serum lipoproteins are discussed in terms of potential for controlling atherosclerosis.

"Topics in Biology" is the part of this series which changes the most from year to year. Volume 13 has four chapters dealing with various aspects of several enzyme systems. The first discusses the role of the cytochrome P-450 containing monooxygenase system in metabolism. A general chapter briefly covers the several approaches which have been used to search for enzyme inhibitors. The two remaining reviews are on methods of inhibiting proteolytic enzymes and properties of  $\beta$ -lactamases with emphasis on their inactivation by the newer  $\beta$ -lactam antibiotics. Included also in this section are chapters on iron chelation therapy and peptide conformation. The former discusses the induction of iron excretion as a therapeutic approach to  $\alpha$ - and  $\beta$ -thalassemia. The latter describes attempts to relate bioactivity and conformation for TRH, enkephalin, and angiotensin by studying, in each case, analogues, spectral data, and theoretical calculations.

Included in the final section, "Topics in Chemistry", are a chapter on asymmetric synthesis which emphasizes good methods using chemical reagents and one on enantioselectivity in biotransformations. The emphasis on stereochemistry in this part is concluded with a review of drug-DNA intercalation studies using X-ray crystallographic results for model building.

Quality short reviews, modest cost, and rapid publication have been important attributes of this series. The sacrifices (minimal indexing and some fragmentation of material) made to gain the above advantages are well worth it. Retaining much of the format of the first four sections from year to year serves a useful function. It makes it possible to use this series as a gauge of annual progress in several important research areas. The disadvantage is that it limits the space available for new material. Nonetheless, the balance between new topics and the updating of old ones in volume 13 is in step with the stated objectives of the series and the interests of many students and scientists in the biomedical sciences. "Annual Reports in Medicinal Chemistry", volume 13, is both a tribute to the hard work of its editors and contributors and a bargain for medicinal chemists.

Merck Sharp & Dohme Research  
Laboratories

Paul S. Anderson

**Dopamine. Volume 19. Advances in Biochemical Psychopharmacology.** Edited by Peter J. Roberts, Geoffrey N. Woodruff, and Leslie L. Iversen. Raven Press, New York, N.Y. 1978. xviii + 422 pp. 16.5 × 24.5 cm. \$27.50.

In conjunction with the sixth meeting of the International Society for Neurochemistry in Copenhagen, a satellite symposium on dopamine was held at the University of Southampton, England, in 1977. This volume, based on the 23 papers and 13 short communications by the participants of this symposium who described their most update research, provides a comprehensive review of the anatomy, biochemistry, and pharmacology of the dopamine system in the brain. The initial papers are devoted to the anatomy of the dopaminergic neuron systems in the brain, the update and release of the transmitter from its storage sites, the nature of the dopamine receptor, and the pharmacological properties of this receptor. This is followed by a consideration of the effects of pharmacologic agents on the function of the dopamine systems and their role in neurology and psychiatry. A index is also included.

Unfortunately, the book lags over a year following the symposium, which detracts from the value of this volume. Nevertheless, the high quality of much of the research described in the book makes it valuable for those concerned with recent (and not so recent) advances in the chemical basis of neuronal disorders.

Staff Review