

Book Reviews

Progress in Pharmacology. Volume 2. Number 1. The Action of Drugs on Calcium Metabolism. Edited by P. A. van Zwieten and E. Schönbaum. G. Fischer, Stuttgart, N.Y. 1978. 83 pp. 17 × 25 cm. \$21.60.

Our knowledge of the role of calcium in biological systems is now accumulating at an almost overwhelming rate. That calcium is a critical intracellular regulator of biological processes and serves as a vital cell signal is now quite clear. The importance of this cation is demonstrated by the publication of several recent symposium proceedings that have dealt, in fairly comprehensive fashion, with calcium-binding proteins, calcium and contraction and secretion, etc. The present volume is more limited in its scope but, nonetheless, covers areas of considerable current interest to medicinal chemists, pharmacologists, and clinicians.

There are 14 contributions in this volume, the majority dealing with Ca^{2+} movements, Ca^{2+} antagonists, and cardiac contractility. These chapters constitute rather brief reviews of the sources and roles of Ca^{2+} in cardiac E-C coupling and of the Ca^{2+} antagonists, varepamil, D-600, and Nifedipine. Subsequent chapters deal with Ca^{2+} and smooth-muscle function and the role of Ca^{2+} in the visual process and pancreatic enzyme release. Several of these chapters are, however, extremely brief, being no more than 1-4 pages in length. Even from such brief and restricted viewpoints it is clear that the modulation of Ca^{2+} movements by drug action is of very considerable importance and that, given current impetus, new and more selective Ca^{2+} antagonists will likely be forthcoming.

The brevity of the articles, together with the fact that much of the material has been published previously, will reduce the value of this volume to those already in the field. To those wishing a limited perspective on calcium movements and drug action the volume will be of more use. It is, on the whole, a pity that the individual contributions were not allowed more space to present adequate background material in addition to the more specialized material. This would have made for a more valuable volume. As it is, at almost 25 cents a page, there will not be many individual purchasers.

State University of New York at Buffalo D. J. Triggle

Advances in Behavioral Biology. Volume 24. Cholinergic Mechanisms and Psychopharmacology. Edited by D. J. Denden. Plenum Press, New York, N.Y. 1978. 885 pp. 25.5 × 16 cm. \$49.50.

This volume includes 56 papers presented at a "Symposium for Cholinergic Mechanisms and Psychopharmacology" held at La Jolla, Calif., March 28-30, 1977. The majority of the articles are contributions by investigators in the United States, but there are representative papers from workers in Australia, Canada, England, France, Hungary, Italy, Sweden, Switzerland, The Netherlands, Venezuela, and West Germany. Seven major categories of acetylcholine (AcCh) research are included: (1) attempts to identify cholinergic receptors by enzymatic, histological, biochemical, and pharmacological methods; (2) critiques of assay methods employed for choline (Ch), AcCh, and related substances; (3) the interrelationships of AcCh, cAMP, and cGMP; (4) the mechanisms of formation, action, and metabolism of Ch and AcCh; (5) the storage and release of AcCh; (6) modulators of AcCh; and (7) the probable clinical roles of cholinergic function or disfunction.

The single dominant theme of essentially all of the articles is that the studies being reported are no more than status reports. That all of the investigators indicate the need for more research is not unexpected; what is distressing is the dearth of definitive conclusions. For example, the papers describing the possible role of cholinergic mechanisms in such diseases as myasthenia gravis, Huntington's chorea, tardive dyskinesia, and mania are well-presented but, in fact, reveal not only the slow rate of progress

being achieved in their treatment but, in addition, suggest that each disease is not a single entity and is, instead, a complex of diseases. Thus, the dominant reaction of the reader is that these investigations raise more questions than they answer.

The book is intended for the experienced investigator in this field and should be useful as a reference text. Each article is followed by an excellent bibliography. The printing is clean and laid out well. The reviewer found only one very minor typographical error.

The Squibb Institute for Medical Research Harry L. Yale

Structure-Activity Relationships among the Semisynthetic Antibiotics. Edited by D. Perlman. Academic Press, New York, N.Y. 1977. xi + 739 pp. 15.5 × 23.5 cm. \$39.50.

This volume contains reviews about the structure-activity relationships of eight chemotherapeutic agents, including members of the groups of antibiotics. Most of the β -lactam, aminoglycoside and peptide antibiotics chapters were originally written for *Advances in Applied Microbiology* and reflect the format and style of that serial. Some of these have been supplemented to bring the material up-to-date. The articles present data on structure-activity relationships and, as far as possible, discuss the effects of molecular manipulation on the chemistry and biological activities of the antibiotics. Each article has a bibliography reflecting the extensive research being carried out on these antibiotics.

The molecular manipulation of natural products by chemical and biological means to obtain new and better antibiotics is the source of many new compounds with improved therapeutic properties. A book of this kind is a valuable asset to the research worker in this field because it gives an overview of what types of manipulations have been tried and what the effects were. There is so much intensive work in this area being conducted by various groups and disciplines, including academic and industrial laboratories, that it is sometimes difficult to find all the pertinent information which this set of reviews has drawn together. Statements on pages 6 and 7 by Dr. Ken Price lack historical accuracy.

Massachusetts Institute of Technology Dagmar Ponzi
John C. Sheehan

Immunochemistry: An Advanced Textbook. Edited by L. E. Glynn and M. W. Steward. Wiley, Chichester, New York, Brisbane, and Toronto. 1977. x + 628 pp. 16.5 × 23.5 cm. \$57.50.

Written for those with some background in immunology, this book addresses, in comprehensive fashion, numerous problems of current interest in immunochemistry. Like many edited volumes, this text lacks a certain degree of organization and continuity, since several chapters appear to stand in isolation, having little relevance to those that precede or follow. However, the individual contributions are generally excellent, frequently authored by leaders in their field, and include, almost unfailingly, references through 1976 or 1977.

Several chapters concerning various aspects of the chemistry of immunoglobulins are grouped at the beginning of the book, providing information on structure and function, antigen-combining region, biosynthesis, antibody diversity, immunoglobulinopathies, and genetics. These are followed by reviews of antigen-antibody reactions and by a particularly interesting chapter on the chemical and spatial requirements associated with immunogenicity and antigenicity. A very well written and up-to-date account of the current state of complement research, covering both the classical and alternative pathways, is presented

by Drs. Fearon and Austen. The final third of the volume is concerned with polysaccharide antigens, hapten-protein interactions, collagen immunochemistry, amyloid, histocompatibility systems and cell-surface chemistry, and adjuvants. In view of the significant interest currently being shown in small molecules that may amplify immunologic reactivity, it is unfortunate that the chapter on adjuvants is superficially written, overly speculative, and exhibits several incorrectly drawn chemical structures.

The medicinal chemist will find relatively little mention of drugs in this book, either as allergens or therapeutic agents. The cost of this volume, as well as the presence of several typographical and other errors, also may deter some from its acquisition. However, the high quality and inclusive nature of most of the material presented serve to recommend this text to those wishing to increase their familiarity with a broad range of immunochemical subject matter.

Pfizer, Inc.

Saul B. Kadin

The Porphyrins. Volume II. Structure and Synthesis, Part B. Edited by David Dolphin. Academic Press, New York, N.Y. 1978. xix + 437 pp. 16 × 23 cm. \$46.50

This book is the second part of what is intended to form a comprehensive seven-volume treatise on porphyrin chemistry and biochemistry.

The first chapter concerns the synthesis and stereochemistry of hydroporphyrins (Scheer) and is followed by one on their chemistry, spectroscopy, and oxy and oxo analogues (Scheer and Inhoffen). Reduction of porphyrins and metalloporphyrins (or their dihydro derivatives) by chemical, photochemical, and electrochemical methods to yield an array of products is discussed in some detail. There is also a section on problems arising from the introduction of asymmetric centers. Misprintings, such as "porphyrin-free bases" and "porphyrin-free radicals", rear their heads for the first time in this chapter but will not mislead the alert reader. Chapter 2 commences with an outline of hydro-porphyrin reactivity, the main emphasis being on chlorin and phlorin chemistry. A summary of the main spectroscopic characteristics of these species (and the porphodimethenes) leads to sections on meso- and β -oxygenated compounds. Discussion of the hydroporphyrin series concluded with a short essay (Mauzerall) on the porphyrinogens, which includes a comment on the possible evolutionary origin of the porphyrins.

Chapter 4 (Clezy) extends the introduction to oxophlorins given earlier. Their synthesis and properties receive attention, as do the consequences of in vitro and in vivo oxidation. The theme of chapter 5 (Fuhrhop) is irreversible reactions (mainly electrophilic) at the porphyrin periphery. Alkylation (both intra- and intermolecular), acylation, nitration, sulfonation, and halogenation are discussed in turn after some introductory remarks concerning the spectrum of reactivity arising from the placing and the variation of metal ions in the porphyrin cavity. Chapter 6 (Hopf and Whitten) describes temporary and permanent photochemical transformations of porphyrins and their metallo derivatives. A section on electronic energy transfer includes an outline of the chemistry responsible for the effects of erythropoietic protoporphyria. The photoreduction route to hydroporphyrins (cf. chapter 1) receives further exposure.

Chapter 7 (Gossauer and Engel) deals comprehensively with the synthesis and properties of linear polypyrrolic compounds ranging from grandfather dipyrromethane to the tetrapyrrolic bilins, while chapter 8 (Subramanian and Fuhrhop) describes the chemistry and spectroscopy of open-chain tetrapyrrolic metal complexes. Of particular interest are ring-closure reactions, e.g., of secocorrinoids to yield corrinoids. The penultimate chapter (Brockmann) is mandatory reading for those concerned with the stereochemistry and absolute configurations of the chlorophylls the important corrole and corrin systems, and the interesting 22 π -electron saphyrins.

and naturally occurring linear tetrapyrroles. The volume concludes with chapter 10 (Grigg), an expansive and informative discourse on pyrrolic macrocycles other than porphyrins, including

References are about as up-to-date as one has come to expect but rather thinner on the ground for 1976 and 1977. There is a useful index. The price of this volume will probably deter many from purchasing personal copies.

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David Grayson

Progress in Cancer Research and Therapy. Volume 6. Immunotherapy of Cancer: Present Status of Trials in Man. Edited by William D. Terry and Dorothy Windhorst. Raven Press, New York, N.Y. 1978. xxix + 696 pp. 16 × 24 cm. \$49.50.

This book reflects the current state of the immunotherapy of cancer. Specific sections of the book include recent data and discussion on melanomas, lung cancer, osteogenic sarcoma, acute myelogenous leukemia, acute lymphatic leukemia and lymphomas, gastrointestinal cancer, and breast cancer. The editors carefully selected and arranged the articles so that they followed a logical progression. First there was some general background data for each malignancy and some prognostic indicators, followed by results of many clinical trials. In each section various therapeutic methods are discussed, with BCG clearly being the dominant approach. Other methods include the use of vincristine, levamisole, fluorouracil, and neuraminidase-treated autochthonous tumor cells. In most every case, the authors include a large enough sample population so that significant conclusions can be made.

The book also contains a section on new approaches to immunotherapy where the use of immune RNA is reviewed. This and all the other articles are enhanced by a discussion section where critical points are raised with the author.

In a special section, Dr. Windhorst describes the "International Registry of Tumor Immunotherapy" and points out that its functions are "to provide a current annotated listing of work actually being done in a specific field and to facilitate direct communication between investigators".

Overall, the data and conclusions presented in this volume are sometimes contradictory, sometimes negative, and sometimes conclusive. The current state of immunological knowledge is reflected. This book should be read and studied by experimental researchers and clinicians involved in immunotherapy.

Northeastern University

James J. Gozzo

Books of Interest

Substance P. Volume 1. 1977. Annual Research Reviews.

By P. Skrabanek and D. Powell. Eden Medical Research, Montreal and St. Albans, Vt. 1978. 15 × 21.5 cm. 181 pp. \$18.00.

Oral Contraceptives. Volume 2. Annual Research Reviews.

By Michael Briggs and Maxine Briggs. Eden Medical Research, Inc., Montreal and St. Albans, Vt. 1978. 14 × 21.5 cm. 186 pp. \$16.00.

High Density Lipoproteins and Atherosclerosis. By A. M.

Gotto, Jr., N. E. Miller, and M. F. Oliver. Elsevier/North Holland, Amsterdam. 1978. 17 × 24.5 cm. viii + 227 pp. \$32.75.

Hepatotoxicity. By Hyman J. Zimmerman. Appleton-Century-Crofts, New York, N.Y. 1978. 18 × 26 cm. x + 597 pp.

\$48.50.

Peripheral Metabolism and Action of Thyroid Hormones.

Volume 2. 1977. By D. B. Ramsden. Eden Medical Research, Montreal and St. Albans, Vt. 1978. 15 × 21.5 cm. 294 pp. \$24.00.