conformation for hormonal activity, it does not have the electronic characteristics which make halogenated structures better protein binders. On the basis of these binding and activity data,[2,3] the concept of the hormone molecule acting as a structurally specific matrix was developed as opposed to a particular functional portion of the molecule being involved in hormone action. Thus, the unique contribution of iodine to the thyroid hormone may be in biosynthesis and metabolism where evolution favored a system with ready access to iodine.[3]

In conclusion, this crystallographic determination of the first halogen-free thyroactive analogue shows the molecular conformation to be the same as the active natural hormone, T_3. These data show that methyl substituents are sufficiently large to maintain the conformational constraints required by the active hormone.

Acknowledgment. Supported in part by Grant AM-15051 awarded by the National Institute of Arthritis, Metabolism and Digestive Diseases, DHEW. The author thanks Q. Bright, E. DeJarnette, and J. Hazel for technical assistance.

Supplementary Material Available: Positional and anisotropic thermal parameters, bond distances and angles, calculated structure factors, and packing diagram (16 pages). Ordering information is given on any current masthead page.

Book Reviews

Metal Ions in Biological Systems. Volume 8. Nucleotides and Derivatives: Their Ligating Ambivalency. Volume 9. Amino Acids and Derivatives. Edited by Helmut Sigel. Marcel Dekker, New York. 1979. Volume 8: xix + 232 pp. 16 × 23 cm. $29.75. Volume 9: xix + 277 pp. 15 × 23.5 cm. $34.50.

Volume 8, dealing with the complexation of nucleosides and nucleotides with metal ions, will be of considerable interest to scientists concerned with nucleic acid biochemistry and gene-related biological effects of metals. It will provide basic background for two future volumes in this series dealing specifically with metal carcinogenesis and anticarcinogenesis.

The first chapter reviews the X-ray structural studies of metal complexes of nucleoside, polynucleotide, and nucleoside–peptide mixed complexes. It is very well illustrated and gives a good summary with some useful generalizations about preferred modes of coordination for various metals and nucleoside derivatives *in the solid state*. Chapter 2 extends this to the solution phase. It is a highly recommendable discussion of proton binding sites and proton basicity vs. the metal coordination behavior of bases, nucleosides, and nucleotides. Kinetic, pH, and hard/soft effects are brought out and illustrated well, and a concise discussion of the power and limitations of various methods for studying metal ion–nucleoside derivative interactions in solution is given. In a similar vein, Chapter 3 covers metal binding by base-modified nucleosides, particularly *N*-oxides and several nucleoside/base "antimetabolites". Chapter 4 deals with the application of principles developed in the first three chapters to the problem of developing base-specific heavy-metal "stains" for visualization and sequencing of polynucleotides and nucleic acids by electron microscopy. It is a very interesting, if somewhat specialized, discussion. The last chapter dealing with "macromolecules of biological interest in complex formation" appears a bit out of place in this volume, as it does not deal with nucleic acids. Its main point concerns cooperativity effects in multimetal binding and the formation of binding sites involving groups close in *space* but not in *sequence* in the macromolecules. Included in the latter are the prothrombin/Ca^{2+} system, albumin, insulin, and some synthetic polymers.

Overall this volume conforms to the standard set by earlier volumes in this useful series. While the last three chapters will probably be of greatest interest to more specialized readers, the first two chapters may be recommended for a very broad readership among scientists whose interests include metal ions in biological systems, in general, or nucleic acid chemistry and biochemistry, in particular.

The theme of Volume 9 closely parallels that of the previous volume on nucleosides and derivatives, and the tone is clearly set by the opening chapter dealing with complexation of metal ions by amino acids with chelatable side-chain donor groups. Eighteen such amino acids are identified and twelve of these are given a case-by-case review, being treated as substituted glycines. The much overworked series Mn–Zn is again the principal focus, but other metals receive some mention. The remaining six "glycine derivatives" are covered in the next four chapters in terms of X-ray structural studies and solution studies involving equilibrium and spectroscopic methods. Included in this group are aspartate and glutamate (Chapter 2), L-cysteine and D-penicillamine (Chapter 3), glutathione (Chapter 4), and L-Dopa (Chapter 5). In the last three chapters, the additional complication of ligand redox chemistry and its metal catalysis or inhibition is also dealt with, a much broader range of metals is considered, and quite a bit of tabulated data is presented. Chapter 6 covers complexation of metals by two or more polydentate ligands, including a discussion of factors such as ring size, strain, and flexibility, enthalpic vs. entropic effects, and stereoselectivity and methods for its detection. The final chapter deals with specific studies of metal complexation by corticotropin (ACTH) and basic bovine pancreatic trypsin inhibitor, two medium-sized peptides with well-defined structures.

Each of the chapters is well written and quite readable. The chapter on L-Dopa will be useful to medicinal chemists and pharmacologists interested in catecholamines and those on cysteine and glutathione will interest toxicologists concerned with metal compounds, but, in general, this volume is more for the specialist or the reference collection than for those looking for a more didactic approach to this subject as found in earlier volumes in this series.

University of Kansas **Robert P. Hanzlik**

Membrane Proteins in Energy Transduction. Edited by R. A. Capaldi. Marcel Dekker, New York. 1979. xi + 526 pp. 16 × 23 cm. $48.50.

This book summarizes the extent of current research mainly on mitochondrial proteins, with chapters on photosynthetic reaction centers (J. M. Olson and J. P. Thornber), energy transducive components of *E. coli* (P. D. Bragg), and the purple membrane of *H. halobium* (J. K. Lanyi). Titles of other chapters are "Mitochondrial Iron–Sulfur Flavodehydrogenases" (T. Ohnishi), "Succinate–Cytochrome c Reductase Complex of the Mitochondrial Electron Transport Chain" (B. L. Trumpower and A. G. Katki), "Structure of Cytochrome c Oxidases" (R. A. Capaldi), and "The Mitochondrial ATPase" (A. E. Senior).

This book is supposed to provide an up-to-date compilation of investigations in specialized research area by experts. Like many edited volumes, this book lacks a certain degree of organization and continuity, since the last three chapters have little connection and/or relevance to those that precede them. However, the individual coontributions are generally very good and contain references through 1976 or 1977.

The book is intended for the experienced researchers and should also be of interest to graduate students wishing to become acquainted with membrane proteins. This reviewer finds the book, the second volume of a series, very readable with excellent author and subject indexes.

Michigan State University **H. Ti Tien**

Amino Acids, Peptides and Proteins. Volume 10. Specialist Periodical Reports. By R. C. Sheppard, Senior Reporter. The Chemical Society, Burlington House, London. 1979. xix + 537 pp. 13.5 × 22.5 cm. $68.00.

This volume, the tenth in a continuing series of annual Chemical Society "Specialist Periodical Reports" devoted to amino acids, peptides, and proteins, continues to uphold the standards of its predecessors in assembling within its now familiar yellow-jacketed covers a treasure trove of information spanning every facet of the field. The Senior Reporter, Professor R. C. Sheppard of the MARC Laboratory of Molecular Biology, Cambridge, is assisted by 39 contributors from Great Britain, Germany, Switzerland, and the United States, in distilling the essential knowledge from over 4000 articles published during 1977 and early 1978 (a few 1976 papers are also included in those sections which were absent in the preceding volume). Chapter 1 (G. C. Barrett) is devoted to amino acids, their synthesis and resolution, their physical and stereochemical properties, their chemical behavior, and their analysis. Chapter 2 deals with the much larger topic of peptides and proteins and is divided into three major parts: structural investigations including isolation and characterization (R. Harrison), sequencing (M. Rangarajan), and chemical modification (A. Dell); X-ray studies (W. D. Mercer); and conformation and interactions in solution (R. H. Pain and nine other contributors). Chapter 3 (E. Atherton and R. C. Sheppard) focuses on peptide synthesis and includes two very valuable appendices listing syntheses reported during 1977 and newly described amino acid derivatives used in synthesis. Chapter 4 (B. W. Bycroft and A. E. Faruk) concerns itself with peptides whose properties are not typical of proteins: homodetic peptides such as gramicidin S, heterodetic peptides (depsipeptides) such as the actinomycins and valinomycin, peptide alkaloids, the penicillin and cephalosporin antibiotics, and several other interesting classes of compounds. Chapter 5 consists of detailed reviews of structure–activity relationships among hormones from the anterior pituitary (R. Schwyzer and eight other contributors), posterior pituitary (M. Manning, K. Bankowski, and W. H. Sawyer), and pancreas (D. Brandenburg and D. Saunders), as well as among gastrointestinal hormones (D. Gillessen, R. O. Studer, and U. Ludescher), vasoactive peptides (P. D. Roy), and the members of the enkephalin–endorphin families (B. A. Morgan). Of great help to the reader are numerous well-arranged tables listing, for example, proteins purified by ligand binding or other methods of chromatography and also sequencing studies, chemical reagents and their targets, X-ray structural data, and fluorescent and spin-resonance probes reported during the survey period. Also helpful are the many formulas and reaction schemes provided throughout the text. On the other hand, as noted more than once previously by this reviewer, the value of these Specialist Reports would be markedly enhanced by the inclusion of a subject index. Even without such an index, however, these books continue to be an indispensable addition to every peptide chemist's bookshelf.

Sidney Farber Cancer Institute **Andre Rosowsky**

Recent Developments in Chromatography and Electrophoresis. Chromatography Symposia Series. Volume 1. Edited by Alberto Frigerio and Leika Renoz. Elsevier Scientific, Amsterdam, Oxford, and New York. 1979. ix + 358 pp. 17 × 25 cm. $58.50.

This text is a record of the 9th International Symposium on Chromatography and Electrophoresis held in 1978 and which was organized by the Italian Group for Mass Spectrometry in Biochemistry and Medicine, the Belgian Society and the Italian Society for Pharmaceutical Sciences. The 34 contributed articles deal with various aspects of chromatography and electrophoresis. Some of the most interesting articles are "Biochemical and Clinical Applications of Isoelectric Focusing" (P. C. Righetti, E. Gianazza, and A. Bosisio), "Chemical Carcinogenesis and Mutagenesis Contribution of Gas Chromatographic Methods in the Elucidation of Some Fundamental Mechanisms" (M. Mercier), "The Combination Liquid Chromatography Mass Spectrometry: A Review" (L. F. Zerilli), "High Performance Glass Capillary Columns with Chemically Bonded Stationary Phases of Various Polarity" (C. Mandani and E. M. Chambaz) "Flow Programming in Capillary Gas Chromatography" (F. Poy), and "The Role of Water in Liquid–Solid Chromatography. Comparative Study of Commercial Silica Gels and Application to the Analysis of Pharmaceutical Products" (Z. El Rassi and C. Gonnet). The remaining articles cover specific applications of chromatography and electrophoresis techniques in studies dealing with the identification and quantitation of drugs, drug metabolites, pollutants, and endogenous metabolites in living organisms. The medical applications of these techniques for diagnostic purposes are also presented.

The various articles are well written and referenced. There are numerous tables, figures, and an author index, but no subject index. Because of the wide range of subjects covered and the high price of this volume, the book definitely belongs to the library.

Northeastern University **Simon H. Kuttab**

Handbook of Analytical Derivatization Reactions. By Daniel R. Knapp. Wiley-Interscience, New York. 1979. xvii + 725 pp. 23.4 × 15.8 cm. $34.95.

This book is an excellent compendium of chemical derivatization reactions applicable to GC (EC, FID), MS (GC–MS–SIM), and high-pressure LC (UV, fluorescence) analyses. The book is divided into three parts: Introduction, Derivatization of Particular Compound Types, and Appendices–Indices. The Introduction discusses uses, types, reagents, and apparatus for derivatization. The bulk of the book is found in Part II, where specific classes of compounds are discussed and include hydroxyl, sulfhydryl, epoxy and amino compounds, carboxylic acids, unsaturated and cyclopropane compounds, amino acids, peptides, aldehydes, ketones, phospho and sulfo compounds, fatty acids, steroids, prostaglandins, carbohydrates, nucleotides, drugs, and derivatives for chromatographic separation of optical isomers. When a derivative type is discussed, reagents, compound type, chemical reaction, typical chemical derivatization procedure, comments, and references current to 1977 are listed. The author has added very useful descriptive comments after each typical procedure. Whenever necessary, cautions are listed. The appendices contain compositions of brand-name reagents and suppliers of reagents and apparatus. The indices are complete and include derivatives, reagents, authors, and general subjects.

This volume is a major contribution to workers in GC, MS, and high-pressure LC by virtue of the fact that a very wide spectrum of derivatives has been thoroughly compiled in one volume. The book is well written with very few errors and omissions and will be an excellent source of information to newcomers. It is also profitable for more experienced workers in the field to browse through the book to uncover other derivatives which may be applicable to their area of research. The author has rendered an invaluable service to researchers in GC, MS, and high-pressure LC by culling from the literature the most appropriate and applicable derivatization reactions most generally useful. This review of the literature is a comprehensive task and is a reflection on the extensive inventiveness of chemists to meet a plethora of needs and potential applications. The book is useful in both lab and office.

University of Tennessee, Memphis **Dominic M. Desiderio**

Mass Spectrometry. Volume 5. Specialist Periodical Reports. Edited by R. A. W. Johnstone. The Chemical Society, Burlington House, London. 1979. xii + 450 pp. 15 × 22 cm. $55.00.

The preparation of a comprehensive review of the progress in the field of mass spectrometry, or for that matter most areas of science, presents a formidable if not unenviable task. The Spe-

cialist Periodical Reports in Mass Spectrometry has succeded in providing not only a relatively thorough coverage of the field but also a systematic presentation of the information. This has been made possible by the division of the subject into specific categories, each examined thoroughly by a respective specialist or team of specialists. Moreover, despite the obvious constraints of space and the vastness of the literature, most of the authors have been able to include a few brief and critical comments about most of the more noteworthy publications, rather than limit themselves to a dry enumeration of the facts.

Over the last several years, workers in the field of mass spectrometry have grown to look forward to this biennial edition, and this 5th volume in the series should be no exception. The current issue covers the developments during the period from July 1976 through June 1978. In addition, a cumulative decennial index has been included. Conceivably, this is designed to save time for researchers so that they would not have to search through each individual volume. It is certainly debatable how effective this may prove to be.

With regard to the main part of the volume, namely, the literature of the 2-year period, July 1976 through June 1978, the editor has divided the subject into the following 13 principal categories: "Theory and Energetics" (R. A. W. Johnstone); "Structure, Energetics, and Mechanism in Mass Spectrometry" (T. W. Bentley); "Drug Metabolism" (B. J. Millard); "Photoelectron–Photoion Coincidence Spectroscopy" (J. H. D. Eland); "Computerized Data Acquisition and Interpretation" (F. A. Mellon); "Trends in Instrumentation" (A. McCormick); "Gas Chromatography–Mass Spectrometry" (C. J. W. Brooks and B. A. Middleditch); "Mass Spectrometry in Food Science" (I. Horman); "Environmental Applications of Mass Spectrometry" (S. Safe); "Organic Geochemistry" (C. T. Pillinger); "Reactions of Organic Functional Groups; Positive and Negative Ions" (J. H. Bowie); "Natural Products" (D. E. Games); "Organometallic, Coordination, and Inorganic Compounds" (T. R. Spaulding). Within this general framework, the interested reader should be able to find a more than adequate coverage of the pertinent literature, proof of the success of this publication.

Northeastern University **Paul Vouros**

Advances in Cyclic Nucleotide Research. Volume 11. Edited by P. Greengard and G. A. Robison. Raven Press, New York. 1979. 387 pp. 16 × 24 cm. $35.00.

This volume of "Advances in Cyclic Nucleotide Research" is principally devoted to reviewing the relationship between calcium and cyclic nucleotides. The first chapter reviews the informational role of calcium in the cytosol (R. H. Kretsinger) and emphasizes the fundamental aspects of the biological role of calcium for readers who are not primarily oriented to this subject. The properties and functions of the calcium-dependent regulator protein (D. J. Wolff and C. O. Brostrom), now commonly referred to as calmodulin, have been the object of intense research in the last few years. The role of cyclic AMP in the regulation of calcium homeostasis in bone and mineral metabolism (W. A. Peck and S. Klahr) is discussed in the first half of a two-part review to be concluded in Volume 13. The control of cell movement through the regulation of microfilaments and microtubules by calcium and cyclic AMP (J. R. Dedman, B. R. Brinkley, and A. R. Means) is also reviewed. The role of the contractile proteins and sarcoplasmic reticulum in the response of the heart to catecholamines, a process involving both calcium and cyclic nucleotides, is discussed from a historical and personal point of view by Arnold Katz. The remaining chapters cover topics discussed much earlier in this series. The properties and regulation of guanylate cyclase and some proposed functions for cyclic GMP are reviewed (F. Murad and others). Our knowledge of the regulation of protein synthesis by polypeptide hormones and cyclic AMP is brought up-to-date in a chapter by M. G. Rosenfeld and A. Barrieux. J. Pober and M. Bitensky summarize some of the important advances that have been made recently in our understanding of the role of cyclic nucleotides in vision via light-regulated enzymes of vetebrate retinal rods. This series appears to continue meeting its goal of helping readers remain current in the specialized fields under discussion while at the same time stimulating additional productive research.

Northeastern University **Jeffrey B. Blumberg**

Organophosphorus Chemistry. Volume 10. Specialist Periodical Reports. D. W. Hutchinson and S. Trippett, Senior Reporters. The Chemical Society, Burlington House, London. 1979. viii + 306 pp. 14 × 32 cm. $61.50.

This volume, which reviews the phosphorus literature published between July 1977 and June 1978, is by the same reporters as Volume 9 and has the same format. It remains a valuable, if not quite indispensable, service for researchers in the field of phosphorus chemistry.

Staff

Comprehensive Organic Chemistry. Volumes 1–6. Sir Derek Barton and W. D. Ollis, Chairman and Deputy Chairman of the Editorial Board. Pergamon Press, Oxford, England. 1979. 7940 pp. 19.5 × 28 cm. $1250.00.

"Comprehensive Organic Chemistry", a project initiated in large measure by the late Sir Robert Robinson, represents an effort to document the continuing rapid development and achievements of modern organic chemistry. The lack of a current treatise designed to bridge the gulf between smaller and necessarily more restricted textbooks and monographs and established series published sequentially over a period of years reflects the magnitude of such an undertaking rather than a lack of interest on the part of the organic chemical community. To accomplish a task of such proportions, Sir Derek Barton and W. D. Ollis, chairman and deputy chairman of the editorial board of "Comprehensive Organic Chemistry", assembled a team of over 100 eminent organic chemists to design and produce a medium-sized work which could simultaneously offer a critical appraisal of the many facets of modern organic chemistry to the cognoscenti and provide a convenient entry for those scientists, such as biologists, biochemists, pharmacologists, and medicinal chemists, whose interests lie on the periphery of organic chemistry. The result of these efforts is a handsomely bound 6-volume set containing nearly 8000 pages and over 20 000 references to the literature of organic chemistry. The first 5 volumes are referenced through 1977, while the sixth volume, consisting of five separate indices, contains additional references through mid-1978.

Although sections on theoretical organic chemistry and fundamental stereochemistry are not included, the selection of topics is otherwise comprehensive. The series is introduced with a brief discussion of recent conceptual developments in stereochemistry and the inevitably associated nomenclature. Volume 1 (edited by J. F. Stoddart) covers stereochemistry, hydrocarbons, halogen compounds and oxygen compounds; Volume 2 (edited by I. O. Sutherland) covers nitrogen compounds, carboxylic acids, and phosphorus compounds; Volume 3 (edited by D. N. Jones) covers sulfur, selenium, silicon, boron, and organometallic compounds; Volume 4 (edited by P. G. Sammes) covers heterocyclic compounds; Volume 5 (edited by E. Haslam) covers biological compounds; and Volume 6 (edited by C. J. Drayton) contains author, formula, subject, reagent, and reaction indices.

The individual chapters are written in a concise and logical fashion and outline the properties and reactions of all the important classes of organic compounds of natural and synthetic origin. To provide a sense of continuity between the separate chapters and volumes and to aid in correlating what, to the uninitiated, may seem a hopelessly large amount of unrelated material, the editors have chosen to adopt a mechanistic rather than a descriptive approach.

A particularly attractive feature of "Comprehensive Organic Chemistry" is the inclusion of extensive indices in Volume 6, prepared by a group from Pergamon Press. The formula index consists of approximately 20 000 molecular formulas compiled from compound names and displayed structural formulas in Volumes 1–5. The subject index contains entries both to classes of organic compounds and to individual compounds mentioned in the text.

The author index contains the names of over 25 000 authors cited in the roughly 20 000 references in Volumes 1–5. The reaction index contains entries both to specific types of reactions and to named reactions. With the aid of this index a reader can rapidly locate examples of a particular reaction mentioned in "Comprehensive Organic Chemistry" and the various reagents employed to effect that reaction. The reagent index lists over 2500 organic and inorganic compounds, including catalysts, useful in synthesis. Using this index, a reader can quickly ascertain the use and scope of almost all the reagents currently utilized in organic chemistry. In each index, additional references extracted from the literature through mid-1978 supplement those included in the first 5 volumes of "Comprehensive Organic Chemistry".

Teachers at all levels, students, and scientists in any discipline which requires any of the varied facets of modern organic chemistry will find "Comprehensive Organic Chemistry" a highly valuable and well-presented source of authoritative and accurate information. Although the price will likely discourage individual purchase, this 6-volume set should be a welcome addition to all scientific libraries.

Northeastern University **David E. Seitz**

Catalytic Hydrogenation in Organic Syntheses. By Paul N. Rylander. Academic Press, New York. 1979. x + 325 pp. 16 × 23.5 cm. $34.00.

This book is a useful update of Dr. Rylander's 1967 volume entitled "Catalytic Hydrogenation Over Platinum Metals". The present volume includes the changes in this field which have occurred since the initial publication, as well as newer techniques of reduction using soluble catalysts. After a short general chapter on catalysts, reactors, and reaction conditions, subsequent chapters are organized by functional group. Individual chapters cover reduction of acetylenes, olefins, carboxylic acids, esters and anhydrides, aldehydes, ketones, nitro compounds, nitriles, a chapter on reductive alkylation, reduction of carbocyclic aromatics, and reduction of heterocyclic compounds. Additional chapters on dehydrohalogenation, hydrogenolysis of small rings, and miscellaneous hydrogenolyses complete the book. Each of the chapters contains material on catalysts and supports, reaction conditions, examples of methodology, and mechanisms and stereochemistry where appropriate. Some generalities from the previous, larger volume have been summarized and referenced, and new material has been added. The book reflects the changes in heterogeneous catalytic hydrogenation over the past decade and the addition of innovative, homogeneous catalytic methods. It is noted, however, that the growth in catalytic hydrogenation has been substantially less than in hydride reduction methodology during the same period. Thus, many of the references cited are more than 2 decades old. Heterogeneous catalytic methods, however, many times remain superior to hydride reduction techniques, since they are clean, relatively inexpensive, and sometimes without suitable alternatives.

The book is easy to read, with sufficient structures to keep the reader well informed. The book is well referenced; however, it is marginally indexed according to subject and no author index appears. The book should prove useful to synthetic organic chemists in academia, government, and industry whose responsibilities include consideration of catalytic reduction techniques in their work. The book is a welcome update on these important methods.

University of Washington **Wendel L. Nelson**

Annual Review of Pharmacology and Toxicology. Volume 19. Edited by R. George, R. Okun and A. K. Cho. Annual Reviews, Inc., Palo Alto, CA. 1979. 648 pp. 23 × 16 cm. $17.00.

This volume continues to present the thorough reviews of topics important to pharmacology and toxicology. This issue continues the same high standards of writing and careful editing that readers have found in past volumes. There are 26 contributors, and all authors, except five, are American. The editors must make a special effort to be sure that international pharmacology is represented.

The volume covers most of the major areas of pharmacology. Topics covered are shown in the following summary. *Renal*: angiotensin antagonists, micropunctures; *pharmacokinetics*: plasma levels for antihypertensive agents, clinical considerations, steady-state serum concentrations, presystemic drug elimination; *hypertension*: role of salt, β-adrenoceptor blocking agents; *central nervous system*: mechanisms of anesthesia, opioid peptides, behavioral effects of carbon monoxide, molecular mechanisms for benzodiazepines; *toxicology*: antibacterial agents, toxic fungi, primary aromatic amines; *cancer*: rodent carcinogenicity tests, ethical considerations in cancer chemotherapy; *developmental*: drugs and the fetus, perinatal renal pharmacology; *steroids and nonsteroids*: glucocorticoid action on immune process, nonsteroid antiinflammatory agents; *molecular*: H_2 receptors, antigen–antibody cell activation, role of zinc.

The volume begins with a most enjoyable chapter by Professor Kosterlitz, who reviews the highlights of his scientific career and closes by a Review of Reviews. Professor E. L. Way will continue this fine tradition began by the late Professor Chauncey Leake. This is an excellent volume to read and gain a broad perspective of pharmacology and toxicology.

University of Iowa **J. P. Long**

The Alkaloids. Volume 9. Edited by M. F. Grundon, Senior Reporter. The Chemical Society, Burlington House, London. 1979. xii + 273 pp. 14 × 22 cm. $70.00.

The 9th volume of "The Alkaloids" furnishes a comprehensive survey of the alkaloid literature published between July 1977 and June 1978. As a result of omissions in the 8th volume, a 2-year coverage is provided of tropane alkaloids and, within the isoquinoline group, of the chemistry of emetine and related bases, dibenzopyrrocolines, benzophenanthiridines, and colchicine. The chapter on "Miscellaneous Alkaloids" (muscarine, imidazole, peptide alkaloids and unclassified alkaloids) are also surveyed for a 2-year period. Purine alkaloids are not included in Volume 9.

Staff

Books of Interest

Advances in Enzymology. Volume 49. By Alton Meister. Wiley, New York. 1979. v + 373 pp. 16 × 23.5 cm. $24.95.

The Chemistry of Silica, Solubility, Polymerization, Colloid and Surface Properties, and Biochemistry. By Ralph K. Iler. Wiley, New York. 1979. xxiv + 866 pp. 16 × 23.5 cm. $65.00.

Handbook of U.S. Colorants for Foods, Drugs, and Cosmetics. By Daniel M. Marmion. Wiley, New York. 1979. vii + 350 pp. 14.5 × 22 cm. $21.50.

Disposition of Toxic Drugs and Chemicals in Man. Volume 2. Peripherally-acting Drugs and Common Toxic Chemicals. By Randall C. Baselt. Biomedical Publications, Davis, CA. 1979. vii + 281 pp. 16 × 23.5 cm. $22.50.

Biological Regulation and Development. Volume 1. Gene Expression. By Robert F. Goldberger. Plenum Press, New York. 1979. xvii + 558 pp. 19 × 26 cm. $39.50.

Neurobiology of Chemical Transmission. By Masanori Otsuka and Zach Hall. Wiley, New York. 1979. x + 326 pp. 18 × 26 cm. $25.50.

Circulating Catecholamines and Blood Pressure. By W. H. Birkenhagger and E. F. Falke. University Park Press, Baltimore. 1979. ix + 71 pp. 15 × 23.5 cm. $12.50.

The Regulation of Growth Hormone Secretion. Volume 1. Annual Research Reviews. By Pier G. Ghiodini and Antonio Liuzzi. An Eden Press Book distributed in the U.S.A. by Pergamon Press, New York. 1979. 204 pp. 15 × 21 cm. $24.00.

Proteins of Animal Cell Plasma Membranes. Volume 2. Annual Research Reviews. By Donald F. H. Wallach. An Eden Press Book distributed in the U.S.A. by Pergamon Press, New York. 1979. 260 pp. 15 × 21 cm. $28.00.