

±0.4% of the theoretical values.

(R)- and (S)-N-[1-(5-Fluoro-2-methoxyphenyl)ethyl]-4-acetylphenylacetamide [(R)- and (S)-9]. A suspension of 4-acetylphenylacetic acid (**7**)⁸ (3.56 g, 20 mmol) and PCl₅ (4.2 g, 20 mmol) in 30 mL of CCl₄ was stirred for 30 min at 20 °C and for a further 10 min at 50 °C. After evaporation of volatile materials from the suspension, the oily residue (4.4 g) was dissolved in 20 mL of THF. This solution was added at 10 °C to a solution of (*R*)-1-(5-fluoro-2-methoxyphenyl)ethylamine⁹ [(*R*)-**8**; 3.72 g, 22 mmol] and NEt₃ (4.404 g, 40 mmol) in 20 mL of THF. After stirring the solution for 18 h at 20 °C, the solvent was removed in vacuo. Addition of ice-2 N HCl, filtration of the precipitate, and crystallization from *i*-PrOH with some drops of concentrated HCl yielded 4.05 g (61%) of (*R*)-**9**: mp 129 °C; [α]_D²⁰ +44° (c 1.0, MeOH). The (*S*) isomer of **9** [from (*S*)-**8**³] had: mp 128 °C; [α]_D²⁰ -42° (c 1.0, MeOH). Anal. (C₁₉H₂₁FNO₃) C, H, F, N.

(R)- and (S)-4-N-[1-(5-Fluoro-2-methoxyphenyl)ethyl]-carbamoylmethylbenzoic acid [(R)- and (S)-6]. Bromine (7.2 g, 45 mmol) was dissolved in 60 mL of 2.25 N NaOH, and (*R*)-N-[1-(5-fluoro-2-methoxyphenyl)ethyl]-4-acetylphenylacetamide [(*R*)-**9**; 3.2 g, 9.7 mmol] in 20 mL of dioxane was added to the solution. After stirring the solution for 3 h at 90 °C, the precipitated salt was sucked off and dissolved in water. Addition of 2 N HCl yielded the crystalline product: 1.11 g (35%) of (*R*)-**6**; mp 200 °C; [α]_D²⁰ +43° (c 1.0, MeOH). The (*S*) isomer of **6** [from (*S*)-**9**] had mp 198 °C; [α]_D²⁰ -44° (c 1.0, MeOH). Anal. (C₁₈H₁₈FNO₄) C, H, F, N.

Acknowledgment. The authors thank Mr. F. Bahlmann for his skillful experimental work.

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Book Reviews

Enzyme Structure and Mechanism. By Alan Fersht. W. H. Freeman, San Francisco, Calif. 1977. xvii + 371 pp. 15.5 × 24 cm. \$20.00 (cloth) and \$9.95 (paperback).

This book describes the general principles and concepts which are currently used to define the relationship between enzyme structure and mechanism of catalysis. In addition, the book describes some of the experimental approaches which are used to determine the physical and chemical characteristics of an enzyme-substrate complex and the ensuing catalytic reaction. These general considerations are highlighted with specific examples of enzymes whose tertiary structures have been resolved by X-ray crystallography and for which sufficient information is available concerning their mechanisms of catalysis.

In the first two chapters of the book, the subjects of protein structure and chemical catalysis are described in fairly simple and general terms. Chapters 3-8 deal with various aspects of enzyme kinetics, including both theoretical and practical considerations. The chapters on "Measurement and Magnitude of Enzyme Rate Constants" (chapter 4) and "Practical Kinetics" (chapter 6) would be particularly informative for individuals who have limited laboratory experience in this area. Chapters 9-11, which deal with the specificity and forces involved in the formation of an enzyme-substrate complex, are quite informative. These chapters describe the general concept of enzyme-substrate complementarity and how this concept relates to the theories of enzyme catalysis. In the final chapter, the author shows how kinetic and structural work have been used to produce satisfactory descriptions of the reactions mechanisms for a selected few enzymes, whose crystal structures have been resolved at high resolution.

This book is directed toward senior undergraduate and graduate students who have had the appropriate introductory courses in organic chemistry, physical chemistry, and biochemistry. However, the book might also be recommended as a general review for chemists who are interested in updating their knowledge about the relationship of enzyme structure and mechanism. The references cited in the book are sufficiently pertinent and up-to-date to permit easy and rapid access to the more detailed

literature, if so desired.

The author is to be commended for putting together a general but comprehensive review of enzyme structure and mechanism.

University of Kansas

Ronald T. Borchardt

Cancer—The Outlaw Cell. Edited by Richard E. La Fond. American Chemical Society, Washington, D.C. 1978. xv + 192 pp. 18 × 25.5 cm. \$15.00.

This publication is based upon articles appearing in *Chemistry* during 1977. It covers basic cell biology with special emphasis on tumor cell biology.

The Forward and Introduction describe the magnitude of the cancer problem and give a very brief review of basic cell chemistry defining the roles of DNA, the various RNAs, proteins, and energy sources. The book is divided into 14 chapters which carry the reader from a definition and history of the disease through causes and modes of treatment. "Cancer—An Overview" defines the disease and introduces the medical nomenclature associated with cancer. "Tumor Growth and Spread" discusses the cellular processes involved and the factors which influence tumor cell growth, invasion, and metastasis. The cell cycle is defined in "Control of Cell Growth in Cancer". Also presented are the factors which influence and regulate normal cell growth and the manner in which normal and tumor cells differ in growth characteristics. "Cancer as a Problem in Development" discusses plant and animal tumors in terms of gene expression and alteration. Membrane structure, receptors, and the chemistry of intercell communication and its breakdown in tumor cells are outlined in the "Puzzling Role of Cell Surfaces". Known chemical carcinogens are discussed in "Cancer Causing Chemicals" relative to their molecular role in initiating cancer. In a similar vein, ionizing radiation, its interaction with genetic material, and what is known about the ways it may induce cancer is treated in "Cancer Causing Radiation". The next three chapters deal with the viral aspects of the cancer problem. "Cancer and Viruses" describes the physical appearance of various viruses and how they replicate themselves after cell invasion. "RNA Tumor Viruses" outlines

how this type of virus invades cells and directs the synthesis of DNA with the assistance of the enzyme reverse transcriptase. The provirus and oncogene viral carcinogenesis theories are also presented. "Herpes Viruses—A Link in the Cancer Chain" discusses the possibility that this virus may play a role in cancer of the cervix and describes the finding that antibodies to tumor-associated antigens have been found in cervical cancer patients. "Cancer and the Immune Response" describes the body's natural defense mechanism defining T and B cells, the macrophage, antigen-antibody interactions, and tumor antigens.

The last three chapters are reserved for three of the four methods (surgery if not included) currently used in the treatment of cancer. In the "Immunotherapy of Human Cancer", treatment with bacillus Calmette-Guerin (BCG) and *C. parvum* are discussed as examples of nonspecific immunotherapy. The use of thymosin, immune RNA, transfer factor, and interferon are described as approaches to a more specific form of adoptive immunotherapy. "Radiation Therapy" outlines radiation mechanisms of antitumor action, the importance of oxygen in these mechanisms, and the difficulties encountered with hypoxic cells. The role of radiation therapy in combined modalities is also discussed. The final chapter, "Chemotherapy of Cancer", describes the general concept of chemotherapy, various standard anticancer drugs in use today, and the classes (antimetabolite, antibiotic, etc.) into which these drugs fall.

The quality of the chapters is uniform and quite good. The many illustrations greatly enhance the understanding of the text. All but two chapters list additional references for further reading. There are few obvious errors. The major one found was typographical on page 89 where RNA is described as the storehouse of genetic information.

This book should appeal to chemists working in the cancer area and all scientists whose cell biology could use some up-dating. The book is well worth its relatively modest price.

National Institutes of Health

John S. Driscoll

Analysis of Drugs and Metabolites by Gas Chromatography-Mass Spectrometry. Volume 5. Analgesics, Local Anesthetics and Antibiotics. By B. J. Gudzinowicz and M. J. Gudzinowicz. Marcel Dekker, New York, N.Y. 1978. x + 541 pp. 15 × 22.5 cm. \$55.00.

The fifth volume of this reference series is presented in a format which is similar to that of previous volumes. Chapter 1 is divided into four sections: natural opium alkaloids and related compounds; synthetic derivatives of opiates; synthetic opiate-like drugs (methadone, meperidine, propoxyphene, etc.); and narcotic antagonists. These subjects are supported by 285 literature references through 1976. Chapter 2 contains three sections: antipyretic, antiinflammatory and antihyperuricemic agents; local anesthetics; and antibiotics. There are 329 references, and the two chapters are succeeded by both author and subject indices. The specific information presented includes methods of isolating compounds from biological media, derivatives employed for chromatographic analyses, and alternative GC techniques. Tables of data include GC retention values, detector-response factors, and prominent mass-spectral fragment ions. In several sections, drugs have been organized into tables with appropriate references for convenient retrieval. The structures of each group of drugs are included, and the metabolites of a few selected drugs are shown. A significant portion of the discussion concerns methods of quantitation by GC and GC/MS. This involves the selection of internal standards and appropriate ions for MS monitoring. The results of several clinical studies utilizing these techniques have also been included.

There has been a substantial improvement in style and organization with successive volumes in this series. A major criticism, however, is that too much obsolete information is included, information that is of historical interest only. For example, 30% of the references in chapter 1 are pre-1970 publications. The inclusion of this information contributes to the high cost of books in this series and complicates retrieval of the most useful data. Another problem is inconsistency. In some cases, a fairly complete scheme of metabolites is presented and, in other cases, metabolites aren't even mentioned. For some drugs

complete mass spectra are shown, and for others only GC data are presented. Although several collections of spectra exist, it seems appropriate for a series of books devoted to GC/MS analysis of drugs to include complete mass spectra of important drugs, derivatized drugs and major metabolites. The inclusion of such data in a highly organized manner would have substantially added to the value of this series.

Volume 5 is a comprehensive review of the literature through 1976. The value of this and other volumes in the series is principally as a convenient source of GC data and literature references to quantitative methods of GC and GC/MS analyses. As such, access to these volumes should be important to both research- and service-oriented laboratories. The high cost, however, will prohibit most individuals from acquiring them for their personal libraries.

University of Colorado

John A. Thompson

Principles of Psychopharmacology. Second Edition. Edited by William G. Clark and Joseph Del Giudice. Academic Press, New York, N.Y. 1978. xxviii + 976 pp. 17 × 24.5 cm. \$27.50.

The revised and expanded second edition of this standard text, which first appeared in 1970, provides a comprehensive fund of knowledge about drugs and their use in psychopharmacology. Seventy four world authorities cover the basic and clinical principles of psychopharmacology, as well as the practical uses of psychotropic drugs in 43 chapters and 7 appendices. As in the first edition, the editors have attempted to classify psychotropic drugs in keeping with current international agreement. Thus, in this edition, the psychotropic drugs are classified as neuroleptics (previously antipsychotics), antidepressants, anxiolytics (previously antianxiety drugs), stimulants, and psychotomimetics (hallucinogens). A few new topics have been added in the second edition by authors which did not contribute to the first edition, whereas other subjects appearing in the first edition were deleted. The second edition reflects the steady evolution which has been made in psychopharmacology from a medical art to science. In the intervening years, the psychotropic drugs have been used as chemical probes to study specific aspects of brain metabolism and the relationships between these effects and behavior. From the study of the mode of action in animals and humans, there has emerged new insights into the operations of the normal brain and hypotheses about the pathogenesis of schizophrenia and of depression. The second edition continues its tradition of bringing to its readers much of the breadth and depth of knowledge that has been developed in a rapidly changing and expanding field of science.

If one has to direct criticism to this edition, which applies also to the first edition, it lies in a generally ineffective subject index and a complicated system of appendices which list references to subject matter in the text. As a case in point, tetrahydrocannabinol is cited in the subject index to four pages in the text (on one of the pages, no mention of THC could be located), yet excludes reference to THC in chapter 18 ["Psychotomimetics (Hallucinogens) and Cannabis"]. References to specific chemical, biochemical, or clinical data to this interesting class of psychotomimetics is almost impossible to locate in the several appendices.

In spite of these shortcomings, the editors have again provided a splendid synopsis of current information for the researcher, physician, medical and graduate student of the behavioral sciences, psychologists, pharmacologists, and medicinal chemists at a reasonable price.

Staff Review

Biomolecular Information Theory. Studies in Physical and Theoretical Chemistry. Volume 4. By Serafin Fraga, K. M. S. Saxena, and Manuel Torres. Elsevier Scientific, Amsterdam and New York. 1978. x + 271 pp. 16 × 24 cm. \$48.75.

The first half of this book discusses biomolecular information theory; the remainder is an uncritical review of calculations of conformational energy surfaces of amino acids and nucleosides and their derivatives plus a discussion of how to calculate the

interaction between polymers. "The main goal is to review, justify, and expand the method appropriate for a computational simulation of the genetic code within the framework of molecular information theory."

The authors assume a knowledge of quantum mechanics and conformational analysis at the theoretical and practical levels and also a strong biochemistry background.

The first part of the book suffers from many flaws. The most notable is the opaque writing style. For example, the critical words "information" and "information theory" are never defined. Additionally, antecedents are often ambiguous, chemical structures are rarely used, and the tables and figures do not aid the text but often are understandable only after reference to the original work. A second flaw is the technical naïveté of many statements; for example: "the [DNA] double helix starts unwinding itself".

The second half of the book contains 26 tables of molecular geometry and effective atomic charges for amino acids, purine and pyrimidine bases, phosphate, and ribose. These data are from three easily accessible papers. The charges on the bases are also presented in structural diagrams in the first half of the book; the numbers often do not agree.

There is little in this book to satisfy a medicinal chemist interested in more insight into receptor recognition of drug molecules. In short, I do not recommend its purchase by anyone.

Abbott Laboratories

Yvonne Martin

Medicines from the Earth. A Guide to Healing Plants.

Edited by William A. R. Thompson. McGraw-Hill, New York. 1978. 20 × 27 cm. 208 pp. \$29.95.

Whether from pure nostalgia or from a conviction that "natural is better" (and cheaper), there is no denying a renewed public interest in the use of natural drugs to treat many real and imagined minor ailments. Of several recent introductions to medical botany and modern herbalism, this book is probably the most attractive. It is beautifully printed, profusely illustrated, and reasonably priced.

A selection of 247 medicinal herbs, some of which, admittedly, have been in use since the time of Dioscorides, are organized in separate sections devoted to botanical description, harvesting and preservation, complaints treated, and recipes for formulation. These are interlaced with brief descriptions of the plant kingdom and the history of folk medicine. While the separate sections allow for a degree of cross-referencing and access to the same information from several points of view, some readers may find the fragmentation a bit cumbersome.

The book was written by a group of contributors and consultants who seem convinced of the effectiveness (as opposed to the claimed effect) of the plants selected for inclusion. This is especially true of the majority used for the "so-called minor ailments of life", though one cannot escape their suggested use in the treatment of liver and gall bladder disease, hypertension, bronchial asthma, influenza, cardiac insufficiency, and amebic dysentery to name a few less than minor complaints supposedly amenable to herbal treatment. To be sure, the usual words of caution regarding self-diagnosis and treatment are included.

The medicinal chemist will be surprised to learn that penicillin "is not a pure compound but a mixture of several fractions" (page 15), that the volatile oil of sassafras is still used in the United States to flavor soft drinks (page 98), and that LSD is one of the active principles of ergot (page 190). Those who propose we go metric will be dismayed to learn that 1 L = 1 qt, 100 g = 3 oz, and 1 cup = 300 mL. Any industrial medicinal chemist who remembers the "natural products era" of the 1960's will be able to offer an answer to the editor's final question on page 194.

Northeastern University

Robert F. Raffauf

Insecticide Biochemistry and Physiology. Edited by C. F. Wilkinson. Plenum Press, New York. 1976. xxii + 768 pp. 16 × 23 cm. \$49.50.

The discovery of the insecticidal properties of DDT by Paul Müller in 1939 can be regarded as the beginning of modern insecticide chemistry which triggered a dramatic surge in the development of synthetic organic chemicals for use in the control of insects. Insecticide chemistry and biochemistry has, in the last

40 years, become a field of immense agricultural and public health importance, as well as having profound influence and repercussion in areas of physical, biological, and social science. In many instances, studies of the action of insecticides, especially the cholinesterase inhibitors, have provided the basis of understanding of many drugs currently in use in man. What started as a branch of applied entomology, the study of insect control, now reaches such disciplines as physiology, biochemistry, pharmacology, toxicology, organic, and physical chemistry, as well as economic entomology. The last few years has seen an overabundance of books, monographs, symposia proceedings, and committee reports either covering specific groups of insecticides or the chemistry, metabolism, mode of action, formulation and environmental aspects of pesticidal chemicals. Several excellent general texts, now considered classics in the field, are available, e.g., Martin's "Scientific Principles of Crop Protection", 1964; Metcalf's "Organic Insecticides", 1955; O'Brien's, "Insecticides: Action and Metabolism"; and the three-volume series of Wegler's "Chemie der Pflanzenschutz- und Schädlingsbekämpfungsmittel", 1970; but these are now somewhat outdated in this rapidly developing field. It was thus a heroic undertaking by Professor Wilkinson to gather together 20 outstanding authorities and to prepare with them a text concerned with the basic biochemical and physiological events that determine the biological activity of an insecticide once it has reached its target organism.

The first 10 chapters of this volume are organized on a functional basis that emphasizes, in the appropriate order in which they occur, the physiological processes and biochemical events taking place from the time the insecticide is administered to an organism to the time of its arrival and interaction at the target site.

Thus, the first chapter is concerned with the "Penetration and Distribution of Insecticides" (G. T. Brooks), followed by a section consisting of four chapters that discuss the important biochemical events by which organisms metabolize a large variety of insecticides, such as "Microsomal Oxidation and Insecticide Metabolism" (T. Nakatsugawa and M. A. Morelli), "Cytochrome P450 Interactions" (E. Hodgson and L. G. Tate), "Extramicrosomal Metabolism of Insecticides" (W. C. Dauterman), and "Enzymatic Conjugation and Insecticide Metabolism" (R. S. H. Yang).

The third section of the book deals with interactions of insecticides with their target sites. Thus, a chapter on "The Nervous System: Comparative Physiology and Pharmacology" (D. L. Shankland) provides the basis for understanding the subsequent chapters on "Acetylcholinesterase and Its Inhibition" (R. O. O'Brien), "The Acetylcholine Receptor and Its Interactions with Insecticides" (A. T. Eldefrawi), "Effects of Insecticides on Nervous Conduction and Synaptic Transmission" (T. Narahashi), and "Insecticides as Inhibitors of Respiration" (J. Fukami). A chapter on the "Physicochemical Aspects of Insecticidal Action" (T. R. Fukuto) discusses physicochemical parameters and structure-activity correlations as a basis for the design of insecticides.

The fourth section of the book, "Selectivity and Resistance", contains topics of toxicological interest, such as "Teratogenic, Mutagenic and Carcinogenic Effects of Insecticides" (R. M. H. Hallingworth). The various mechanisms by which the toxic effects of insecticides may be modified through combination with other insecticides or drugs are outlined in "Insecticide Interactions" (C. F. Wilkinson). A useful chapter on "Treatment of Insecticide Poisoning" (J. Doull) is also included, reflecting the concern over the occupational exposure of agricultural workers to insecticides. A final chapter on "Environmental Toxicology" (W. W. Kilgore and M. Li) also includes a discussion of occupational exposure and hazards of insecticides, as well as current laws and regulations covering the use of insecticides. A chemical index provides a simple and rapid access to the common name, chemical name, and structures of all chemicals discussed in the text. A general index is also provided.

This provocative and carefully edited book, reviewing in depth the biochemical and physiological factors that enable insecticides to interact with living organisms, will surely impress readers as to the advances that have been made in the last 45 years. It also emphasizes how much remains to be learned while these chemicals are being distributed in the environment in ever increasing amounts.

There is no doubt that this volume will take the place of the aforementioned classics and that "Insecticide Biochemistry and Physiology" will serve not only as a valuable text book for many years to come but will provide chemists, pharmacologists, toxicologists, biochemists, entomologists, and health professionals the basis for understanding this multidisciplinary science. Medicinal chemists will also learn much from the principles applied to the design and synthesis of insecticidal chemicals which similarly form the basis for the design of drugs.

Northeastern University

John L. Neumeyer

The Alkaloids. Volume 8. Specialist Periodical Reports.

By M. F. Grundon, Senior Reporter. The Chemical Society, Burlington House, London. 1978. 14.5 × 22.5 cm. \$52.75.

The eight volumes of "The Alkaloids", again under the very capable editorship of Professor M. F. Grundon, provides a comprehensive survey of the alkaloid literature published between July 1976 and June 1977. This volume does not include chapters on the tropane alkaloids or on miscellaneous alkaloids, such as muscarine and certain aspects of the chemistry of isoquinoline alkaloids. It is expected that these deficiencies will be remedied by including a 2-year coverage in volume 9. In this volume all steroidal alkaloids are reviewed in one chapter, including the Apocynaceae and Boxaceae, as well as the Salamandra, Solanum, Veratrum, and Fritillaria alkaloids, topics previously covered in several chapters by several contributors. The comprehensive coverage of the alkaloid chemistry in this single volume continues to make such "Periodical Reports" an indispensable source of knowledge to all chemists working in any area of alkaloid chemistry. The contributors and the editor are to be congratulated for bringing this volume to fruition in a little over a year after the period of literature coverage.

Staff Review

Advances in Modern Nutrition. Volume 2. Part 1. Diabetes, Obesity, and Vascular Disease. Part 2. Metabolic and Molecular Interrelationships. By Howard M. Katzen and Richard J. Mahler. Wiley, New York. 1978. 16 × 23.5 cm. Part 1: xii + 372 pp. \$24.50. Part 2: xii + 326 pp. \$24.50.

This volume has been divided into Part 1 (Chapters 1–10) and Part II (Chapters 11–18) and includes the metabolic and hormonal actions under study in obesity and diabetes and their relationship to vascular diseases. The initial chapter in Part 1 reviews the historical aspects of nutrition and disease by Rachmiel Levine. This is followed by a chapter on carbohydrate metabolism (Earl Shrago and Robin B. Lockhart Ewart) and a chapter on lipid metabolism (Joseph J. Volpe). The basic chapters form a solid biochemical background for the rest of the volume. Chapter 4 (Dana E. Wilson and W. Virgil Brown) is a review of the physiological and biochemical aspects of lipids and lipoproteins in normal and diabetic humans. In Chapter 5 (Edwin L. Bierman and John D. Brunzell), the relationship between atherosclerosis and diabetes mellitus is discussed. The association between obesity and diabetes is dealt with in Chapter 6 (M. Berger, W. A. Muller, and A. E. Renold). The next chapter (Gerald M. Reaven and Jerrold M. Olefsky) concentrates on insulin resistance in obesity, nonketonic diabetes, chronic renal failure, and excess glucocorticoids. In Chapter 8 (Lester B. Salans and Samuel W. Cushman), the relationship of diet and degree of lipid tissue on the metabolism of carbohydrates is examined. The development, both size and number, of adipocytes in human and animals and how this is influenced by the environment and hormonal factors is reviewed in Chapter 9 (Judith S. Stern and Patricia R. Johnson). An interesting discussion of the hormones, glucagon, catecholamines, cortisol, and growth hormone on carbohydrate and lipid physiology is presented in the final chapter of Part 1 (R. Philip Eaton and David S. Schade).

Chapter 11 (Richard L. Atkinson, Jr., and George A. Bray) discusses caloric intake vs. energy expenditure. Classifications of obesity and the relationship of obesity to diabetes mellitus is covered. The following chapter (H. Laube and E. F. Pfeiffer) analyzes the effects of nutritional factors on the secretion of

insulin. In Chapter 13 (Theodore B. Van Itallie, Steven K. Gale, and Harry R. Kissileff), mechanisms by which the body controls food intake is described. The mechanism by which the brain acts as a controller of food intake and how various inputs from the periphery affect food intake are described. The following chapter (Lawrence A. Frohman) summarizes the relationship between carbohydrate and lipid metabolism and the central nervous system. Chapter 15 (O. E. Owen, G. A. Reichard, Jr., G. Boden, M. S. Patel, and V. E. Trapp) explores the interrelationship between important tissues and how they utilize different sources of energy. A very informative presentation on the influence of exogenous and endogenous factors affecting food intake is presented in Chapter 16 (Patricia Pliner). Chapter 17 (Richard J. Doisy) covers the relationship between different levels of minerals and trace elements and disease states with an emphasis on diabetes. The etiology of juvenile diabetes mellitus and its management and special problems that arise are highlighted in Chapter 18 (Allan L. Drash and Dorothy Becker). The final chapter (Jay S. Skyler) discusses the management of diabetes mellitus through diet and includes an exchange list of foods for meal planning. Patient compliance with dietary therapy is also examined in the final chapter.

The volume includes a set of references after each chapter and a very useful author and subject index at the end of both parts of the volume. The individual chapters were well written and in most instances are reviews of the respective areas. The editors have done an excellent piece of work in putting the chapters together in a systematic manner, starting with intermediary metabolism and working through to nutritional therapy used in the management of diabetes. Throughout the volume information on research relating to obesity and diabetes is consistently covered. Special emphasis is also made as to relationships between obesity, diabetes and vascular diseases, and the nutritional, hormonal, and metabolic factors that relate these states. Although the emphasis is as it should be on nutrition in the management of diabetes, it would have been of interest to include a chapter or a section on the varieties of drugs used besides insulin.

I can recommend this volume as a convenient reference source for biochemists, physiologists, nutritionists, and biomedical scientists interested in obesity and the interrelationships that exist between these conditions. For the amount and quality of material covered the price for each part seems reasonable for purchase by interested scientists and clinicians. It should definitely be available for use in biomedical libraries.

The Ohio State University

Duane D. Miller

Current Chemotherapy. Proceedings of the 10th International Congress of Chemotherapy, Zurich, Switzerland, September 18–23, 1977. Volumes I and II. Edited by W. Siegenthaler and R. Luthy. American Society for Microbiology, Washington, D.C. 1978. xxiv + 1361 pp. 18 × 26 cm. set \$75.00.

This two-volume set represents the "Proceedings of the 10th International Congress of Chemotherapy", held in September 1977 in Zürich, Switzerland. There are two major parts, one dealing with antimicrobials (80% of the book) and the other with antineoplastic agents. Each part consists of several symposia, as well as a number of free papers arranged to more or less coincide with the symposium topics selected by the organizers of the meeting. For example, a group of five invited papers on the chemotherapy of parasitic diseases is complemented by 16 contributed papers dealing with malaria, schistosomiasis, cholera, Chagas' disease, and leishmaniasis. Other major antimicrobial areas covered in the symposia include viral diseases, tuberculosis, fungal diseases, and anaerobic infections. In addition, there are papers dealing with general pharmacologic topics such as drug screening, pharmacokinetics, synergism, and resistance. Notably absent from the book are agents for the treatment of neurological and endocrine disorders. This may have been a deliberate choice, ostensibly made on the basis that chemotherapeutic intervention in the treatment of infectious disease is somehow different from the use of this approach for the management of "endogenous" biochemical or metabolic disorders (if this was, in fact, the rationale, then perhaps cancer chemotherapeutic agents should have

been omitted as well!). Notwithstanding this minor complaint, and the fact that some of the work reported at this meeting has now appeared in various primary journals, the publication of the proceedings should be welcomed by anyone who was not fortunate enough to be able to attend the meeting in person.

Sidney Farber Cancer Institute

Andre Rosowsky

Monographs in Allergy. Histamine: Its Role in Physiological and Pathological Processes. By Michael A. Beaven, S. Karger, Basel, Munchen, Paris, London, New York, and Sydney. 1978. vi + 113 pp. 15.5 × 22.5 cm. \$25.00.

Volume 13 of this series is a concise paperback review of H₁ and H₂ histamine receptors including a historical overview dealing with histamine and antihistamine discovery, histamine metabolism and stores, the role of histamine in inflammation reactions, microcirculation, tissue growth-wound healing, and scar tissue-keloid formation, and histamine in the nervous system. Discussions concerning the assay of histamine and its metabolizing enzymes (4 pages), histamine receptors (H₁ and H₂ receptor antagonists and agonists; 21 pages), and histamine in gastric secretion (5 pages), disease (10 pages), and immunology (15 pages), with concluding remarks (2 pages) and references (502 with titles), follow the 25-page historical section. Some important chemical structures are included, but figures (2) and tables (5) are minimal. Although expensive, this monograph reads well and summarizes virtually all (into 1977) of the important aspects of histamine-antihistamine research.

This work is particularly recommended for graduate students and individuals first entering this field of research. Pharmacological-biochemical discussions should provide the imaginative chemist with a wealth of ideas for drug development. Subsequently, such individuals may wish to consult the original articles and more extensive works such as "Histamine II and Anti-Histamines. Chemistry, Metabolism and Physiological and Pharmacological Actions", *Handb. Exp. Pharmacol.*, 18 (1978). Seasoned investigators in this area of research will also find the monograph interesting to read, since discussions of theory are placed in perspective with regard to experimental results abstracted from the literature.

The Ohio State University

Donald T. Witiak

Topics in Hormone Chemistry. Volume I. Edited by W. R. Butt. Wiley, New York. 1978. 291 pp. 15.5 × 23.5 cm. \$42.50.

This is the first volume of a new series whose aim is "to present up-to-date surveys on selected aspects of hormone chemistry". As with all multiauthored works of this kind, the extent to which this aim has been satisfied varies quite markedly from topic to topic.

It must be stated immediately that the title of the volume is very misleading. It would have been far better to have called the series "Topics in Biochemistry, Biology, and Metabolism of the Hormones" because the bulk of the material discussed is not chemistry in the sense understood by the organic chemist. This is not to say that the chemist will not find topics of interest or that portions of the book are not well written.

This volume is divided into six chapters. In Chapter 1, "The Hormonal Peptides of the Hypothalamus", by S. L. Jeffcoate, the difficulties associated with isolation and structure elucidation are stressed. There is a disappointingly small section devoted to structure elucidation and a very sketchy account of synthesis (2

pages). The chapter is very fragmented, and hence difficult to read, and is devoted almost entirely to biological activities.

Chapter 2, "Gastrointestinal Hormones", by H. Gregory and P. Scholes, has a good general introduction and is written in an interesting style. There is a detailed discussion of structure-activity relationships and a clear, summarized form of chemical synthesis. The balance of the article is devoted to biological activity. Insulin is not discussed because of space limitations.

"Ectopic Hormones", hormones secreted by tumors of non-endocrine origin, are discussed by L. H. Rees in Chapter 3. Since most of these hormones are known, it is not surprising that this account deals almost entirely with biological and clinical aspects of these compounds.

Chapter 4 on "Prostaglandins and Uterine Function", by W. P. Collins and E. A. Willman, continues in the vein of Chapter 3, stressing the biological and biochemical properties of prostaglandins. There is virtually no chemistry with the exception of a small section on nomenclature, a table of structures, and a short description of biosynthesis and metabolism.

Chapter 5 by K. C. Highnam deals with "Insect Hormones". It begins with a discussion of the insect endocrine system and a comparison of the insect and vertebrate neurosecretory systems. This is followed by a survey of the neurosecretory hormones, only one of which, locust adipokinetic hormone, has been fully characterized. A large part of the chapter is devoted to the well-known moulting and juvenile hormones. The chemistry of these compounds has been reviewed elsewhere but the author gives a concise summary of structure-activity relationships, biosynthesis, and biological functions.

"Sex Hormones of the Fungi", by B. A. Knights, is the title of Chapter 6. This field is still in its infancy and the author gives a good account of the fascinating sexual reproductive behavior of these microorganisms. The compounds discussed are sirenin, from the genus *Allomyces*, trisporic acid from *Mucorales*, the interesting steroids antheridiol and oogoniol from the water mold *Achlya*, and the peptides of the α -factor of *Saccharomyces*. The chapter concludes with a description of the efforts to isolate the steroids responsible for sexual reproduction in the fungal genera *Phytophthora* and *Pythium*. In all cases, structure-activity features are stressed and metabolism and biosynthesis are discussed in detail.

The literature is covered in most cases through 1976 and into 1977. There is more than the average number of typographical errors, some of which are trivial but others more serious, e.g., dicyclohexylcarbodiimide on page 64. Another disturbing practice to a chemist is the designation of chemical structures as figures.

The price of the volume is high (\$42.50) but may be worth it for those interested in the biochemistry and biology of these hormones and for chemists interested in taking on the challenge of isolating, identifying, and synthesizing some of these important but elusive trace compounds.

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Books of Interest

Adverse Response to Intravenous Drugs. By J. Watkins and A. Milford Ward. Grune & Stratton, New York. 1978. ix + 188 pp. 16 × 23.5 cm. \$17.00.

Physiological and Pathological Aspects of Prolactin Secretion. Volume 1. 1977. Annual Research Reviews. By Steven W. J. Lamberts and Robert M. MacLeod. Eden Medical Research, St. Albans, Vt. 149 pp. 14.5 × 21.5 cm. \$16.00.