Book Reviews

Medicinal Research Series. Volume 1. Drugs Affecting the Peripheral Nervous System. Edited by ALFRED BURGER. Marcel Dekker, Inc., New York, N. Y. 1967. xxiii + 620 pp. $27.50.

This series of monographs was conceived by the late Fred W. Schueler and the volume under consideration reflects his interest in the development of the means for explaining the relationships between the structures of molecules and their biological activities in physical–chemical terms.

The book comprises ten chapters dealing with the following topics: molecular aspects of cholinergic mechanisms by S. Ehrenpreis, postganglionic parasympathetic stimulants (muscarinic drugs) by H. L. Friedman, postganglionic parasympathetic depressants (cholinolytic or atropinelike agents) by J. G. Cannon and J. P. Long, ganglionic stimulant and depressant agents by L. Gyermek, drugs acting at nerve–skeletal muscle junctions by J. J. Lewis and T. C. Muir, reversible inhibitors of cholinesterase by J. P. Long and C. J. Evans, acid-transferring inhibitors of acetylcholinesterase by I. B. Wilson, sympathomimetic (adrenergic) stimulants by A. M. Lands and T. G. Brown, Jr., synthetic postganglionic sympathetic depressants by N. B. Chapman and J. D. P. Graham, and effects of drugs on the afferent nervous systems by C. M. Smith.

The editor wisely gave the authors of the various chapters the freedom to present their subjects in the ways which seemed most appropriate and effective. This variety of approaches to related subjects by a group of experts has resulted in an excellent book, which is stimulating and authoritative. It is a pleasure to read and to use this book. The subject matter is well documented.

The group of drugs treated in this volume has been the subject of much study from a number of points of view for many years. The approaches made to the achievement of an understanding of the structural requirements for biological activity and of the modes of action at the molecular level are some of the most highly sophisticated which have been made so far. This fact, combined with the rich, diversified, and up-to-date information and the critical presentation of various views and lines of evidence on this group of drugs, makes this book one which should be of substantial value to anyone who is interested in medicinal chemistry or pharmacology in general and particularly to those who have a special interest in the drugs which act on the peripheral nervous system.

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Neuroendocrinology. Volume I. Edited by L. MARTINI and W. F. GANONG. Academic Press Inc., New York and London. 1966. xx + 774 pp. $32.00.

"Neuroendocrinology" is a late comer in the field of biological disciplines, but its burgeoning growth is indicated by the two volumes to be issued under this title. To be sure, this growth is not *de novo*, but a merging of two traditional fields. What is new is the unity of approach and concentration on the operational linkage of the endocrine and nervous systems: Ganong says in his Introduction, "Because their functions are similar, it is not surprising that they are related, but the closeness and intricacy of this relation have only come to be appreciated in recent years."

It is also not surprising that this first volume of the series should focus upon mammalian pituitary–hypothalamic interactions, since this has been a rich and medically promising field of study for three decades. The probable direction of blood flow from the hypothalamus to the pituitary through a minute portal system was well established in the 1930's by Wislocki, Houssay, and others. This suggested the transport of neurohumors to the "master gland," and hence a route for the adaptation of the hormonally controlled internal *milieu* to the events of the external environment as interpreted by the central nervous system. Quite logically, then, the Introduction of the book is followed by two basically morphological papers describing The Anatomy of the Hypothalamus and Pituitary Gland (by P. W. Daniel) and Limbic and Other Neural Pathways that Regulate Endocrine Function (by J. DeGroot). These and the next article (Stereotaxic Techniques and the Production of Lesions by V. Rowland) are essential background to the prospective investigator in the field, since intercession by surgery and drugs has provided the crucial means of studying and analyzing interaction between brain and pituitary. These orientating chapters are rounded out by one in which H. A. Bern and F. G. W. Knowles discuss the concept of Neurosecretion, as evidenced in vertebrates and invertebrates by ordinary histology, electron microscopy, cytochemistry, and various physiological techniques. These chapters are lucidly written and well illustrated.

Against this background the remainder of the volume deals with specific patterns of neurosecretory control. The response of the mammalian organism to water deprivation, hemorrhage, and certain internal stimuli involves the secretion, by the neurohypophysis, of an antidiuretic hormone (W. H. Sawyer and E. Wills, Control of Vasopressin Secretion). Another hormone from the same structure facilitates the efficient transfer of milk from mother to young who have begun to suckle, and possibly has a role in parturition and other reproductive phenomena (B. A. Cross, Neural Control of Oxytocin Secretion). The next chapter, Hypothalamic Releasing Factors and the Neurovascular Link Between the Brain and the Anterior Pituitary (S. M. McCann and A. P. S. Dhariwal) serves as transition to papers on a series of neuroendocrine control mechanisms with certain relationships in common, in particular, the use of the portal vessels to transport substances, originating in the hypothalamus, to the anterior pituitary, which responds with altered secretory rates. Thus, the anterior pituitary produces corticotropin when it receives corticotropin-releasing factor, gonadotropin when it receives gonadotropin-releasing factor, growth hormone and thyrotropin when it receives their respective releasing factors, and prolactin when it ceases to receive prolactin-inhibiting factor. Chapters 9–16 for the most part provide more detailed analyses of the brain–pituitary–target organ feedback systems falling into this general mold. It will suffice here to list their subjects: Control of Adrenocorticotropic Hormone Secretions (G. Mangili, M. Motta, and L. Martini), Adrenocorticotropic Hormone Secretion in the Fetus and Infant (K. Milkovic and S. Milkovic), Neural and Other Mechanisms Regulating Aldosterone Secretion (P. J. Mulrow), Control of Thyrotropic Hormone Secretion (S. Reichlin), Control of Growth Hormone Secretion (A. Pecile and E. E. Müller), Control of Gonadotropin Secretion in the Male (I. M. Davidson), Control of Gonadotropin Secretion in the Female (B. Flerkó), and Control of Mammary Growth and Lactation, by J. Meites. Space does not permit the examination that many of these papers deserve; they are in general well written and certainly well edited.

Three years ago in reviewing a book of the same title by Ernst and Berta Scharrer I wrote, "It is not a textbook but a superlative introductory monograph on Neuroendocrinology." Editors Martini and Ganong are to be congratulated for having produced a book with the full scope and readability of a good textbook.

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Insect Colonization and Mass Production. Edited by CARROLL N. SMITH. Academic Press Inc. New York and London. 1966. xxi + 618 pp. 23 × 16 cm.

The professional lives of thousands of people and untold sums of money have been spent in efforts to eliminate insect pests or to reduce their populations to tolerable levels. However, the general public is scarcely aware of the painstaking work of entomologists and other scientists who have been involved, particularly in recent years, in an entirely different enterprise: colonization and rearing of some of the worst insect enemies of mankind. The rearing of beneficial insects is an ancient art and a young science but bees and silkworms are hardly mentioned in this

volume. Present-day insect physiology, biochemistry, genetics, and the research on pesticides require experimental colonies of insects and related arthropods, and how to establish and maintain such colonies constitutes a major part of the book. The rearing of more than 50 different species is discussed in detail by scientists who have had often life-long experience in propagation and handling of insects.

Two final sections are devoted to rearing and mass production of insects which at least in one respect can be called beneficial: they either attack other insects (parasites and predators) or they can be used to destroy their own species (sterile insect release method). In distinction to insect colonies for research purposes, parasites, predators, and sterile insects have to be reared in tremendous quantities and formidable obstacles had to be overcome before the first "insect factory" became operational. In the successful campaign of eradication of the screw-worm fly by means of sexually sterile adults of the same species up to 150 million flies had to be reared, sterilized, and liberated every week. Although no other insects have ever been released in such numbers, the success of the sterility control method demonstrated the need for research on large-scale rearing of other insects. Procedures for mass rearing of screw-worm flies, tephritid fruit flies, and yellow fever mosquitoes are included in special chapters but the possibility of extending the scale of laboratory rearing of house flies, codling moths, pink bollworms, boll weevils, and cabbage loopers to mass proportions is mentioned in chapters on colonization of these insects.

Control of insects by artificially induced diseases or with specific toxins derived from insect pathogens requires mass rearing of a different nature. Insect viruses which cannot be cultivated in nonliving media need live insects for their propagation and a special chapter on this problem has been included.

This book is a required reading for all entomologists and biologists engaged in rearing of insects but it also provides a valuable support for the proponents of control and eradication methods involving mass rearing and release of insects.

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Handbook of Non-Prescription Drugs. Edited by GEORGE B. GRIFFENHAGEN. American Pharmaceutical Association, Washington, D. C. 1967. 108 pp. 28.5 × 22 cm. Paperback, $4.00.

This handbook is to give pharmacists an insight into the composition of over-the-counter drug products, more than 1000 being listed. There are 22 categories according to use, and 2 pages of product index. For many, but not all, materials, generic and trade names and manufacturers are listed. The articles about each category were written, for the most part, by staff members of colleges of pharmacy and include hints concerning uses and recommendations to both pharmacist and patient.

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Mass Spectrometry of Organic Compounds. By HERBERT BUDZIKIEWICZ, Technische Hochschule, Braunschweig, CARL DJERASSI, Stanford University, and DUDLEY H. WILLIAMS, Cambridge University. Holden-Day, Inc., San Francisco, Calif. 1967. vii + 690 pp. 18.5 × 25.5 cm. $17.95.

The importance of mass spectrometry as an analytical tool for the organic chemist practicing his craft in these exciting days cannot be overemphasized. The near future will certainly accentuate this condition to the extent that a working knowledge of the elements of mass spectrometry will be considered an essential skill possessed by all organic chemists regardless of when their formal training was completed.

This book serves an important purpose in presenting a clear, complete, and timely account of what can be expected from mass spectral analysis of a wide variety of organic compounds. The general format is for each chapter (there are twenty-seven) to deal with a certain functional group in respect to modes and rationalizations of the major fragmentation processes. The types of compounds discussed include all of the common functionalities plus oxygen, nitrogen, and sulfur heterocycles and organophosphorus and organometallic compounds. The Introduction (49 pages) is excellent in its presentation of the basics of organic mass spectrometry, what to look for, and the need for caution in interpretation.

An admirable feature of this book, as in others in the Holden-Day series, is the short period of time between completion of the manuscript and publication. In this case, the manuscript was completed in April 1967 and the book published in August 1967. The text, photographed directly from the typescript, is large and easy to read, the diagrams are clear, and the book is free from typographical errors. There are abundant references to the original literature and the copious use of bar-graph representations of the data is effective.

All organic chemists should be familiar with this book. It is a bargain at $17.95 and well worth owning.

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1,4-Cycloaddition Reactions. The Diels–Alder Reaction in Heterocyclic Syntheses. Edited by JAN HAMER, Department of Chemistry, Tulane University, New Orleans, La. Academic Press Inc., New York, N. Y. 1967. xii + 500 pp. 16 × 23.5 cm. $22.00.

This book, representing Volume 8 in the generally excellent series "Organic Chemistry—A Series of Monographs," edited by Alfred T. Blomquist, is not up to the standards of its predecessors. Part of the trouble appears to be faults common to multiauthor works dealing with a narrow field. One of these is for topics to overlap so that one gets a feeling of *déjà vu* in going from one chapter to the next. A second failing is the enormous amount of time required to prod authors to complete their manuscripts (there are thirteen chapters and seventeen authors), collect, edit, and publish the manuscripts as a readable book. In this case there are no references later than 1964; the book was published in March 1967. This is not acceptable for a book at any price, and especially so for one as expensive as this.

Finally, a very subjective criticism: I did not think some of the subject matter either urgent or interesting enough to warrant review at this time.

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Lipids and Lipidoses. Edited by G. SCHETTLER. Springer-Verlag, Inc., New York, N. Y. 1967. xiv + 622 pp. 17 × 25 cm. $30.00.

This volume has its origins in the desire of the editor and a group of distinguished contributors to present an up to date, comprehensive review of the lipidoses, defined as hereditary disorders of lipid metabolism, in conjunction with an account of the current development of lipid chemistry and biochemistry pertinent to understanding these complex disease states. On the whole, the authors have admirably succeeded in presenting a readable and interesting account, which covers the subject in reasonable depth and/or provides ample references to original sources.

Part I, sub-edited by W. Stoffel and designated "Lipids" contains chapters entitled The Chemistry of Mammalian Lipids (W. Stoffel), Biochemistry of Triglycerides (B. Shapiro), Biochemistry of Steroids (D. Kritchevsky), Biochemistry of Phosphatides (R. J. Rossiter), Biochemistry of Sphingosine Containing Lipids (R. M. Burton), Lipoproteins (D. G. Cornwell), and Methods for Separation and Determination of Lipids (H. Wagener). This section, by far of greatest practical interest to the medicinal chemist, comprises less than half the book (210 pp).

The treatment of subject matter in these chapters ranges from what amounts to a cataloging of structures with brief commentary in the Chemistry of Mammalian Lipids chapter (*e.g.*, total of one