

the field which it covers. For pharmacologists and other students of the subject who are already initiated, the subject matter will not be new since much of the material, in particular that found in Section I, can be found in enumerable existing books and journals.

In Chapter 2, Figs. 2, 3, and 4 are multicolored schematic drawings depicting enterohepatic circulation and parts of the liver. This adds color and probably cost to the book but in this reviewer's opinion it is doubtful whether it serves any great purpose.

Section I deals with absorption, excretion and tissue distribution, and the various metabolic transformations of foreign compounds. This is followed in Section II by illustrative examples garnered from classes of compounds used as food additives, drugs, pesticides, and industrial chemicals.

The usefulness of this monograph is in its conciseness. Initiates to the subject will find the book useful and the bibliography will lead them to a more detailed study. Particularly useful for the student is the alphabetical listing by authors and titles of 351 references employed in collating the materials for the book.

The book jacket indicates that the monograph should serve as a valuable introduction to the subject. The book highly succeeds in serving this purpose.

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The Wiswesser Line-Formula Chemical Notation. By ELBERT G. SMITH. McGraw-Hill Book Co., 330 West 42nd Street, New York, NY 10036, 1968. 15 × 22.5 cm. xv + 302 pp. Price \$15.00.

This book represents a comprehensive treatment of the revised Wiswesser notation, which is one of three systems developed to represent the structure of chemical compounds by unique and unambiguous linear sequences of letters and numbers. This sort of notation is an efficient means for chemical structure input into both manual and computer-based retrieval systems. This book provides a detailed explanation with rules, examples, and problems for self-teaching of the notation system. An advantage of the Wiswesser notation is that the notations are intelligible at sight to a chemist who has given the symbols and basic rules a small amount of study, making it possible for him to make generic structure searches without always using the computer. One feature of the revision is that only the capital letters, 10 digits, and three punctuation marks are used all of which have a 2-hole punching pattern on IBM cards and appear on the simplest of punched card and computer equipment. The Wiswesser notation encodes a structural formula from one end to the other, orients the symbols based on their position in the alphabet, and uses a blank space as a symbol which breaks up the notation into smaller group characteristics which make it easier to read and to encode.

Staff review ■

Membrane Models and the Formation of Biological Membranes.

The Proceedings of the 1967 meeting of the International Conference on Biological Membranes. Edited by LIANA BOLIS and B. A. PETHICA. North-Holland Publishing Company, Amsterdam, Holland. U. S. distributor: John Wiley & Sons, Inc., New York, NY 10016, 1968. xv + 337 pp. 15.5 × 23 cm. Price \$14.75.

As the book is a collection of papers on a wide variety of topics, it makes an interesting review of a subject which is receiving a lot of study at present. The proceedings are divided into eight parts, each containing papers pertaining to specific aspects of biological membranes. The sections are arranged in a logical sequence starting with the physical state of membrane constituents and proceeding through properties of lipid bilayers, biosynthesis,

interactions of proteins and lipids, formation, problems and perspectives of membranology, to end with structural and thermodynamic properties. Some parts consist of four to seven papers while others, such as those on the physical and electrical properties of lipid bilayers and on the formation of the endoplasmic reticulum, contain one contribution. There are two papers in the case of the section entitled, "Formation of Other Membranes," where specific aspects including permeability and genetics are discussed.

Within each section the papers are chiefly discussions of published results. Each of the longer sections contains reviews of a general and specific nature, together with some presentations of experimental work performed by the authors. To illustrate this statement in the first part, on the physical state of membrane constituents, Pethica gives a short generalized review; Chapman discusses physical studies of biological membranes and their constituents reviewing mesomorphs, monolayer studies, and the use of IR and NMR techniques; Clifford, Pethica, and Smith contributed a paper on NMR investigations containing some of their own results; and other authors discussed the structure of water, wide-angle X-ray techniques, and effect of cations, proteins, and lipids. The composition of mitochondrial and bacterial membranes are covered in the fourth part. To indicate further the topics covered, mention need only be made of the papers on electrical and permeability properties of lipid bilayers by Haydon, on synthesis by Van Deenen, thermodynamic properties by Katchalsky, and structural studies by Paresgian, Wallack, and Mauro. It is difficult to give more than a guide to the contents of this book, but it would provide a useful introduction to the study of biological membranes particularly of recent advances, since besides material published in 1968, many of the references cited were printed since 1960.

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Selected Pharmacological Testing Methods. Vol. 3. Edited by ALFRED BURGER. Marcel Dekker, Inc., 95 Madison Avenue, New York, NY 10016, 1968. xiv + 515 pp. 16 × 23.5 cm. Price \$23.75.

This unusual book of pharmacological methodology stresses not only the procedure of testing methods but the principles on which the testing methods are based. The anatomical, biochemical, and physiological backgrounds of the testing methods described are detailed enough to give readers a good understanding of the basic concepts of experimental designs. The critical appraisals of the advantages and disadvantages of each method give the readers a guide for selecting desirable testing systems. The experimental procedures described are not detailed enough for the readers to follow directly. However, pertinent references to the literature are given and accordingly the readers will have no difficulty in finding the testing procedures described in the original literature.

The concise presentation of medical statistics gives big help to those who are not familiar with biostatistics which is so important in designing the experiments and in analyzing the results. The testing methods discussed in this book are "selected" as stated in the title of this book. It would be nice to have another volume in "Medicinal Research Series" to discuss other important pharmacological testing methods which could not be included in this volume.

This book is valuable not only to pharmacologists, but to biologists, physiologists, psychologists, and clinical researchers as well. Graduate students working with biological systems will find this book enjoyable reading and rewarding.

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