repeats (pp. 89–90) some of the facts discussed by Zeller, but in an incomplete and out-of-date way. Obviously, this reviewer is not expert in the 22 different topics which make up this volume, but was left uneasy by this and similar examples of lack of unity and uniformity.

The reader who expects to learn all about the antimetabolites surveyed in each chapter should realize that a two-volume treatise cannot cover a subject which would require 38 monographs for comprehensive coverage. The metabolic inhibitory aspect of each compound has been stressed, justifiedly, at the expense of a general survey. As long as this is kept in mind, the reader will find a wealth of information suggestive of hundreds of new ideas in all fields from biochemistry to special areas of biology and medicine.

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Absorption and Distribution of Drugs. Edited by T. B. BINNS. Foreword by SIR CHARLES DODDS. The Williams and Wilkins Co., Baltimore, Md. 1964. xi + 270 pp. 14.5 × 22 cm. $7.50.

In 1963, the British Association of Medical Advisors in the Pharmaceutical Industry held a symposium on factors affecting the absorption and distribution of drugs. The papers presented on that occasion are collected in this little volume. They range from two superb surveys of B. B. Brodie (physico-chemical factors in drug absorption, and distribution and fate of drugs: therapeutic implications) to such practical matters as chemical (N. J. Harper) and pharmaceutical (K. E. Lees) manipulation and therapeutic efficacy. There are good discussions on physiological barriers, the blood-brain barrier (M. W. Bradbury), and the placental barrier (J. Ginsburg). Several chapters deal with alimentary absorption (D. H. Smyth; J. A. L. Gorringe and E. M. Sproston; J. M. Payne), and others with the absorption of specific drugs like steroids, spironolactone, hypotensive agents, salicylates, hematinics, and chemotherapeutic (especially spiramycin and isometamidium) and amebicidal agents. Thus, the reader will find chapters on fundamental questions of passage through diverse membranes, specific answers to such problems as the absorption of quaternary salts, and new ideas about formulation procedures which might retard or facilitate absorption as the need arises.

Symposia reflect, naturally enough, the opinions of those experts whom the arrangers have been able to persuade to participate. In the present case, both the program chairman and the editor of the volume have done an unusually good job, as a result of which the whole picture of drug absorption has been presented with clarity and detachment. Any pharmacologist, physician, or chemist concerned with problems of absorption will profit from this compact book.

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Interpretation of Mass Spectra of Organic Compounds. By H. BUDZIKIEWICZ, C. DJERASSI, and D. H. WILLIAMS. Holden-Day, Inc., San Francisco, Calif. 1964. xiii + 271 pp. 26 × 19 cm. $8.75.

In addition to its established use in the determination of stable isotopes, mass spectrometry remained for years an analytical tool of the petroleum chemist until Stenhagen, Ryhage, Beynon, McLafferty, and others realized its potentialities in structure elucidation of organic compounds. More recently, Biemann applied mass spectrometry to the structure determination of complex indole and related alkaloids, demonstrating the fact that physical methods can become extremely useful tools in the practice of organic chemistry when an organic chemist himself becomes acquainted with physical methods and learns to interpret physical data available to him through the use of sophisticated electronic instruments.

This statement particularly applies to Djerassi and his colleagues who have been conducting extensive work in mass spectrometry of various classes of organic compounds and are making their own results as well as those of other workers available in the present book. It represents the first one in the series to be followed by "Structure Determination of National Products by Mass Spectrometry," Vol. I, Alkaloids; and Vol. II, Steroids, Sesquiterpenes, etc., the areas in which the Stanford group has made massive contributions.

The detailed consideration of fragmentation patterns as influenced by the presence of various functional groups is projected very clearly and presented with great confidence. A newcomer in the field, however, should not overlook the fact that some spectra are full of pitfalls. The authors warn and caution against lack of discrimination. They also point out several plausible but as yet unproved mechanisms which could be understood better by proper labeling of compounds with isotopes and re-examination of their mass spectra.

The book is lucidly written and its format is attractive. These considerations coupled with a low price make the book a very important addition to the library of an organic chemistry laboratory.

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ELI LILLY AND COMPANY
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The Chemistry and Therapy of Disorders of Voluntary Muscles. By E. G. MURPHY, University of Toronto, with an introduction by G. R. WILLIAMS. Charles C Thomas, Publisher, Springfield, Ill. 1964. xiv + 123 pp. 16 × 23.5 cm. $6.50.

The sheer fact that a clinician, introduced by a biochemist, will write a book on the chemistry as well as the therapy of muscular diseases shows the impact of modern medicinal and biochemical thought on complicated medical problems. After decades of fruitless trials and errors, using every type of drug, vitamin, hormone, amino acid, sugar, and what-have-you, and every mechanical and electrical treatment, a rational scientific approach holds the best promise of success in devising therapies for these crippling and killing disorders.

The introductory chapter sets forth in simple language the known facts about the biochemistry of muscle fibers, contraction, and relaxation. The remaining chapters are devoted to muscle diseases: muscular dystrophy, the myotonias, periodic paralysis, McArdle's syndrome, acute myoglobinuria, polymyositis, myasthenia gravis, and assorted myopathies. In each of these chapters the pathology and any known chemical abnormalities of the disorder are discussed, followed by the almost pitiful methods of treatment available. The small book is a veritable invitation to research on all facets of muscle diseases and is recommended to all those who wish to try their wits in almost virgin territory.

UNIVERSITY OF VIRGINIA ALFRED BURGER
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Molecular Pharmacology. The Mode of Action of Biologically Active Compounds. Volume I. By E. J. ARIENS, G. A. VAN OS, J. M. VAN ROSSUM, and A. M. SIMONIS. Edited by E. J. ARIENS. Academic Press Inc., New York, N. Y. 1964. xxi + 503 pp. 16 × 23 cm. $17.00.

This book is an ambitious attempt to present almost all the facets of drug action under one cover. Although monographs on selected topics of chemical pharmacology have appeared in the last 20 years, no serious, critical, and well-documented comprehensive treatment of the whole subject has appeared since Clark's "General Pharmacology" in 1937. There are five major sections: Distribution of drugs in the organism; Drug metabolism; Drug-receptor interaction by (a) one or more drugs with one receptor, and (b) with different receptor systems; and the Relation between stimulus and effect. Each section contains several chapters. Among those in the sections on drug-receptor interaction, for example, are discussions on dose-response curves, competitive, noncompetitive, and "uncompetitive" interactions, chemical antagonism, "functional interaction," affinity and intrinsic activity, receptors, effects of pH and stereoisomerism, etc. Notice that quotation marks have been placed around some of these terms by the reviewer: the Dutch authors are well known for new word creations, and this book abounds with unusual terms. The American reader will recognize many of