

less, in these days of ever increasing specialization within the science of biochemistry, a volume such as this is of considerable value in stimulating the broad viewpoint so absent in modern production line research.

The articles themselves are well written, by authorities in the various fields, although a few might have been deleted to avoid repetition or published more profitably elsewhere. The section on histo- and cytochemistry, for example, is dealt with in great and useful detail by its author elsewhere in book form. The review on enzyme activity in frozen vegetable tissue is extremely specialized and probably of little use to the average reader. In general, however, the subjects have been wisely chosen and this volume will occupy, with its fellows, an important place in any library of general biochemistry.

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Chemical Constitution and Biological Activity. W. A. Sex-ton. London, W.C.2, Engl.: E. & F. N. Spon, 1949. 412 pp. 55s. net.

For countless generations, in attempting to study the essence of nature and natural phenomena, scientists have been drawn to the problems of structure and its functional concomitants. Aristotle, in the *Metaphysics*, stated that if we search for the elements of existing things without distinguishing the many senses in which things exist, we cannot find them. One of these senses in which things exist is that derived from their acting on or being acted upon by other elements, and although Aristotle felt it impossible to discover what "acting" or "being acted on" is made of, in recent years it is this very aspect of scientific inquiry that has advanced considerably—particularly in one of its most complex aspects, that of interaction in the living organism.

The present volume has been designed to provide a glimpse into the many problems involved in the relationship between the chemical constitution of substances and their action upon living cells. It is made up of two sections: the first, a brief consideration of some of the chemical compounds and processes that play a general role in biological activity; the second, short discussions of subjects "chosen as far as possible in order to provide illustrations of the principles outlined in the earlier chapters." The latter include vitamin B₁, various growth factors, choline and its derivatives, cancer problems, and antigens and antibodies.

Of necessity in a book of this nature, there must be many omissions. Perhaps it would be more effective to limit one's dissertation in this field either to a more or less complete discussion of the fundamental principles involved, or to a few of the specific topics now being assiduously investigated. As it is, from either the chemist's or biologist's point of view the book is sketchy and sometimes disturbingly incomplete. Critical examination of some of the discussions reveals certain peculiarities—for example, the complete acceptance of some questionable concepts concerning the role of acetylcholine in nervous system activity. The meagerness of such sections as that on surface-active agents cannot go unnoticed, nor would

one object to mention of other points, such as Pauling's theory of enzyme specificity, changes in electronic configuration, and the biological variables involved in the structure-activity relationship.

Admittedly, integration of our knowledge in this borderline field of biochemistry is essential, and is indeed a monumental task for any one author. Despite its inadequacies, this book should help investigators in many fields of research to broaden their outlook, and to cross some of the imaginary walls erected between so many fields of inquiry. Although the bibliography stops at 1947, the work demonstrates an ever strengthening trend in investigation leading rapidly to the acceptance of physicists, chemists, and biologists in each other's laboratories.

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Metabolism and Function: A Collection of Papers Dedicated to Otto Meyerhof on the Occasion of His 65th Birthday. D. Nachmansohn, Ed. New York: Elsevier Publ., 1950. 348 pp. \$7.00.

Investigators in the fields of biological science are indeed fortunate to have available this collection of 38 papers written by friends, associates, and former students of Prof. Meyerhof, on the occasion of his 65th birthday. Among these distinguished investigators are five who have won the Nobel prize. The various authors bring together and organize research evolving from the important researches of Meyerhof, Warburg, and Hill. The guiding and fundamental work of these masters is reflected and interwoven in each paper.

Building on the foundations of Pasteur, Buchner, and Harden and Young, Meyerhof developed many fundamental principles, such as the extraction of the glycolytic enzyme system from muscle, the discovery that some phosphorylated compounds are rich in energy, and the clarification of the Pasteur reaction. These discoveries have made possible exact measurements and have stimulated biochemistry and physiology for a generation, and will continue to exert their influence as these sciences develop.

The book begins with an excellent tribute to Prof. Meyerhof by his pupil, David Nachmansohn. The papers are then arranged in four groups: Part I, Muscle; Part II, Nerve; Part III, Drug Action; and Part IV, Intermediate Metabolism. Most of the papers have a concise summary in three languages. All but two papers have a selected list of references at the end.

Part I. Muscle. The first paper, by A. V. Hill, "A Challenge to Biochemists," begins with the charming history of his friendship with Meyerhof, and leads gradually into a discussion on the course of events in normal muscular contraction which he and Meyerhof did so much to develop and which he summarizes very concisely.

Through all the papers that follow and in many of the references cited, we see the development of the Meyerhof-Warburg-Hill discoveries. The paper by Hans H. Weber, entitled "Muskelpoteine," reviews information on muscle proteins and presents new facts on L-myosin and actin. M. Dubuisson, in "Modifications dans la structure physico-chimique de l'édifice contractile au cours du cycle