

limiting one-semester courses to cation analysis, but surely the development of relatively rapid semi-micro techniques has invalidated this argument. Also the fact that anion analysis is somewhat less systematized and generally presents chemically more complex situations than cation analysis cannot be denied, but these attributes are actually more advantageous than disadvantageous from a didactic viewpoint. A student cannot be expected to acquire even a modicum of critical chemical sense, or a true perspective toward analytical chemistry, unless he is given an opportunity to wrestle with a few difficulties. It is hoped that in future editions of this otherwise sound text anion analysis will receive the attention it deserves.

JAMES J. LINGANE

Manometric Methods as Applied to the Measurement of Cell Respiration and Other Processes. By MALCOLM DIXON, Ph.D., Sc.D., F.R.S., University Lecturer in Biochemistry in the University of Cambridge. Second edition. The Macmillan Company, 60 Fifth Avenue, New York, N. Y., 1943. xiv + 155 pp. Illustrated. 13 × 19.5 cm. Price, \$1.75.

This useful and standard manual gives an up-to-date account of all the most common methods in use in biochemical laboratories for following the time course of oxygen uptake and carbon dioxide output by cell and tissue enzyme systems. The author writes "It has of course not been possible to include every modification of manometer which has been described in the literature: my aim has been to select those forms which are already in fairly general use or likely to become so." In this aim he has been extremely successful. The book contains full instructions for, and precautions in, the use of the chief biochemical manometers, *i. e.*, the Barcroft and the Warburg apparatus and their various adjuncts and accessories. It also describes in detail the various methods of calibration, including an original theoretical treatment of the author not published elsewhere.

In the edition just published the main new features consist of short descriptions of (i) the beautiful, but rather special, ultra-micro-methods introduced since 1933, (ii) the recently developed modifications of the standard types, (iii) further applications of the methods. The older features have been thoroughly revised and brought up-to-date, and the list of references expanded. The book can be confidently recommended to all biochemists and might also be of occasional service in "pure" chemical departments.

F. J. W. ROUGHTON

Organic Chemistry. By C. W. PORTER AND T. D. STEWART, Members of the Faculty of the College of Chemistry in the University of California. Ginn and Company, Statler Office Building, Park Square, Boston, Mass., 1943. v + 577 pp. 15.5 × 23 cm. Price, \$4.00.

All text-books for a year's instruction in elementary organic chemistry will necessarily present certain essential facts in the subject. The chief interest is in how the facts are presented. The beginning of this text is a preview of the whole subject in the first chapter. The student is hurriedly introduced to hydrocarbons of all kinds, alcohols, aldehydes, ketones, acids, esters, amines, amino acids, halogen-containing compounds and ten varieties of sulfur compounds. The tetrahedral atom, atomic dimensions, optical isomers, physical properties, solubility, chemical reactivity, atomic structure, isotopes, radioactive and heavy atoms, and the electronic valence pass rapidly in these first twenty-six pages. The object of this generalized survey is, to some extent, to overcome "the practical difficulty of learning an enormous number of new names and facts in a short time" by presenting the more commonly used new ideas "in anticipation of more detailed treatments."

There may be many, including the reviewer, who will question whether such an aerial photograph will mean much to a student who is unacquainted with any part of the detailed view; or doubt whether reference to the fact that sulfur is present in thiamine or vitamin B, or that Nylon is an amino acid, will have any real significance to a student when these subjects are not mentioned again until the latter half of the text. For those who favor such a method of instruction, however, the authors have given a very good preview.

The remainder of the text follows the more conventional order of hydrocarbons, alcohols, ethers, halides, aldehydes and ketones, acids, etc. The current interest in hydrocarbons as sources of organic compounds is stressed. The trend toward compounds of biological interest receives due attention by a considerable amount of space allotted to pyrimidines, purines, sulfa drugs, alkaloids, sterols, vitamins and enzymes.

The book is divided into 489 pages of discussion, 26 of supplementary notes and appendix, and forty-one pages of very good problems. The chapters are not numbered, but otherwise clearly indicated. The work is relatively free from errors, though the omission of a bond in the formula for quinine is unfortunate. In general the work is a very satisfactory addition to the collection of texts available for elementary organic chemistry.

AVERY A. MORTON

Plants and Vitamins. By W. H. SCHOPFER, Director of the Botanical Institute, University of Bern, authorized translation by NORBERT L. NOECKER. Chronica Botanica Company, Waltham, Mass., and G. E. Stechert and Co., New York, N. Y., 1943. xiv + 293 pp. Illustrated. 18 × 27 cm. Price, \$4.75.

As may be guessed from the title, this book covers a relatively large field including the synthesis of vitamins by plants and the responses of plants including microorganisms to vitamins.

Some of the chapters (24 in number) have to do with specific organisms, *e. g.*, yeasts, lactic acid bacteria, etc.; others have to do with specific vitamins, and others deal with more general topics. The author has not been signally successful in the organization of the material.

It is unfortunate, due primarily no doubt to war conditions, that the literature has been reviewed completely only up until 1941, and that from this point on the review is incomplete. Inasmuch as the field covered by this book has undergone very active investigation in recent years, and many important matters have been clarified during the interval involved in its translation and publication, this book cannot be recommended as a critical and up-to-date summary.

For those whose interests are in plant physiology and to whom the vitamin field is largely unfamiliar, Professor Schopfer's book will be especially valuable.

ROGER J. WILLIAMS

BOOKS RECEIVED

January 10, 1944–February 10, 1944

HAROLD SIMMONS BOOTH and VIVIAN RICHARD DAMERELL. "Quantitative Analysis." Second Edition. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York, N. Y. 303 pp. \$2.50.

PAUL H. DAUS, JOHN M. GLEASON and WILLIAM M. WHYBURN. "Basic Mathematics for War and Industry." The Macmillan Company, 60 Fifth Avenue, New York, N. Y. 277 pp. \$2.00.

H. G. DEMING. "General Chemistry." Fifth Edition. John Wiley and Sons, Inc., 440 Fourth Avenue, New York (16), N. Y. 706 pp. \$3.75.

- HENRY EYRING, JOHN WALTER AND GEORGE E. KIMBALL. "Quantum Chemistry." John Wiley and Sons, Inc., 440 Fourth Avenue, New York (16), N. Y. 394 pp. \$5.00.
- BENJAMIN HARROW. "Laboratory Manual of Biochemistry." Second Edition. W. B. Saunders Company, West Washington Square, Philadelphia, Penna. 132 pp. \$1.50.
- GLENN L. JENKINS AND WALTER H. HARTUNG. "The Chemistry of Organic Medicinal Products." Second Edition. John Wiley and Sons, Inc., 440 Fourth Avenue, New York (16), N. Y. 675 pp. \$6.50.
- W. A. KOEHLER. "Principles and Applications of Electrochemistry." In Two Volumes. Vol. II. "Applications." Second Edition. John Wiley and Sons, Inc., 440 Fourth Avenue, New York (16), N. Y. 573 pp. \$5.00.
- MARTINDALE. "The Extra Pharmacopoeia." Twenty-second Edition in Two Volumes. Published by direction of the Council of the Pharmaceutical Society of Great Britain. The Pharmaceutical Press, 17 Bloomsbury Square, W. C. 1, London, England. 1217 pp. 27/6. Postage 6d. extra.
- CHESTER MERLE SUTER. "The Organic Chemistry of Sulfur." John Wiley and Sons, Inc., 440 Fourth Avenue, New York (16), N. Y. 858 pp. \$10.00.
- "Abridged Scientific Publications from the Kodak Research Laboratories." Vol. XXIV., 1942. Eastman Kodak Company, Rochester, New York. 391 pp.