Dr. Kolthoff suggests the use of the new indicator instead of brom phenol blue, and proposes the trade name of "tetrabrom phenol blue."

CONTRIBUTION FROM THE LABORATORIES OF HYNSON, WESTCOTT AND DUNNING AND THE UNIVERSITY OF MARYLAND
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NEW BOOKS

Polar Molecules. BY P. DEBYE, Ph.D., Professor of Physics and Director of the Physical Institute, Leipzig, Germany. The Chemical Catalog Company, Inc., 419 Fourth Avenue, New York, 1929. 172 pp. 33 figs. 15 × 23.5 cm. Price, $3.50.

During the past four years most papers dealing with dielectric constants have contained a reference somewhere in their first two or three pages to the chapter written by Professor Debye for one of the great German physical handbooks. Now one may expect to see this replaced by a reference to the present book, which makes available in English and in convenient form the most authoritative work on the theory of dielectrics. By this the reviewer does not mean to imply that the book is a mere translation or even a revision of the massive chapter which contains the foundation of so much recent dielectric investigation. It is, rather, a new work. The theory of dielectrics founded on the classical mechanics is presented and treated in the light of the recent extensive experimental investigations. The methods of calculating electric moments are considered and the relation of the moment of the molecule to its structure is shown by material taken from the recent literature. A chapter devoted to the constitution of simple polar molecules attacks the problem by means of the potential energy of the structure as calculated by Heisenberg and Hund. The chapter on anomalous dispersion for radio frequencies has the advantage over the earlier treatment that there is now available somewhat more experimental material to which the theory may be applied. Under electrical saturation effects, a problem of great interest to the physical chemist, that of the dielectric constant of ionic solutions, is treated with a reserve that is necessitated by the discordancy of the experimental results. The last four of the ten chapters are given over to recent developments in fundamental theory, as may be gathered from a list of the principal sub-headings: the thermodynamic potential and the quantum states, the dielectric constant and the Stark effect, geometrical optics and classical mechanics, wave optics and wave mechanics, the energy levels of a rotating diatomic molecule, the dielectric constant of polar gases, probabilities of transition, the wave function of polar molecules disturbed by a periodic field, infra-red dispersion of a polar gas.

The book is written from the point of view of the physicist but touches upon many questions of interest to the chemist, who, although he may find much of it rather hard reading because of the difficulty inherent in the subject, cannot fail to be impressed by the admirable clarity of thought so characteristic of the author and by the value of this penetrating survey of dielectric behavior by the man who has done so much to develop the field.

CHARLES P. SMYTH

Technische Gase, ihre Herstellung und ihre Verwendung. (Industrial Gases, their Preparation and Uses). DR. FRANZ MUHLERT, Göttingen, and DR. KURT DREWS, Berlin. S. Hirzel, Leipzig, Germany, 1928. viii + 416 pp. 196 figs. 15 × 22.5 cm. Price, unbound, M. 22; bound, M. 24.

The book aims to give a broad survey of the field of industrial gases, showing the relation of the various gas industries to one another and to chemical and metallurgical industries. The authors have been extremely successful in presenting in concise form the fundamental chemical aspects, the engineering developments and the operating features pertaining to the manufacture of a host of industrial gaseous compounds and mixtures of these gases. The technology of the various combustible gases derived from wood, peat, "brown" coal, bituminous coal, anthracite coal, coke and oil is described in considerable detail for many processes. The book is profusely illustrated with flow diagrams of processes and photographs of equipment. Tables correlating the chemical compositions and other characteristics of the various fuels and gases are included. The treatment of the gas prior to its use, to include its purification, transportation and distribution, is described in considerable detail, reflecting the importance of this enterprise in Germany, where coke oven gas is being transported to distant cities. There is also included a compilation of statistics on the present magnitude of the combustible gas industry in Germany and the costs of gas by the various processes.

D. C. BARDWELL

Messungen elektromotorischer Kräfte galvanischer Ketten mit wässerigen Elektrolyten. (Measurements of the Electromotive Forces of Galvanic Cells with Aqueous Electrolytes.) Edited by CARL DRUCKER. Second supplementary volume. No. 10 of the Abhandlungen der Deutschen Bunsen-Gesellschaft. Verlag Chemie, G. m. b. H., Berlin W 10, Germany, 1929. viii + 234 pp. 17 × 24.5 cm. Price, M. 24.

The first supplementary volume of this compilation of electromotive-force measurements appeared in 1915. The present volume covers the literature from 1914 to the end of 1927.

The method of presentation of the earlier volumes is followed here. The book is divided into three parts. In Part I, under each element is

given a chronological bibliography of the literature dealing with the electromotive force of galvanic cells containing this element. In Part II, under each element is given in chronological order a list of the electromotive-force data obtained with each cell measured. In Part III, the normal potentials calculated from these measurements are given, taking the potential of the hydrogen electrode as zero. These are listed first under the head of the various elements and second according to increasing (positive) potentials. Then follows an index according to authors of the articles cited. Finally a convenient summary of the most important normal potentials is provided on a separate card.

This careful and concise collection of electromotive-force data is a valuable one indeed, particularly in conjunction with the earlier volumes of the series.

It is of interest that the contributions from THIS JOURNAL listed in this volume far exceed in number those from any other journal.

ARTHUR B. LAMB

A Textbook of Organic Chemistry. By JOSEPH SCUDDER CHAMBERLAIN, Ph.D., Professor of Organic Chemistry, Massachusetts Agricultural College. Second edition, revised. P. Blakiston's Son and Co., 1012 Walnut Street, Philadelphia, 1928. xxx + 901 pp. 15 × 22 cm. Price, $4.00.

In this second edition of his organic chemistry textbook, Professor Chamberlain has made some additions to the descriptive matter of the earlier publication, and has introduced two new and rather useful features, first, the placing of appropriate study questions at the end of each chapter and, second, an emphasis on the importance of literature study by introducing throughout the book numerous references to standard methods of preparation for the more common types of organic compounds. A number appearing beside a compound in the text refers the reader to the appendix, in which is given usually more than one reference to well-known laboratory guides and handbooks.

It is suitable for a first course in organic chemistry, although it covers rather more ground than is usually considered appropriate for a beginner. On the other hand, the number (901) of pages is somewhat misleading in that considerable space is devoted to thorough discussion of many of the simpler reactions. In fact this is one of the few criticisms that might be directed at the text. The subject matter is clearly and simply stated; numerous formulations—possibly too numerous in places—make for ease of reading and understanding on the part of the student.

The book as a whole appears to the reviewer to possess real merit; it should find a deserved place among the better American organic chemistry texts.

A. J. HILL

Enzyme Actions and Properties. By ERNST WALDSCHMIDT-LEITZ, Institute of Biochemistry, Prague. Translated and extended by Robert P. Walton. John Wiley and Sons, Inc., New York, 1929. xviii + 255 pp. 12 figs. 15.5 × 23.5 cm. Price, $4.00.

So voluminous is the literature of enzyme research published during the past decade by the Willstätter school that it is a convenience to have its main results concisely collected. This Waldschmidt-Leitz has done, giving his summary the form of a general treatise on enzymes. The book is divided (using the terminology which it employs) into a General Section including development of the ferment concept, enzymes as colloids, and as electrolytes, enzymic kinetics, enzymic reaction systems, specificity, and procedures in preparative work; and a Special Section dealing with esterases, proteases and peptidases, aminoacylases, carbohydrases, catalases, peroxidases, oxidases, and fermentation enzymes. Since all this is covered in 241 pages of text, it is plain that detailed treatments of these numerous and comprehensive topics are not to be expected. Doubtless also any detailed attempt at comparative evaluation of the several chapters would be subject to large personal equation according to the individual viewpoint of the critic. In the judgment of the present reviewer, the treatment is reasonably well balanced as between topics, but on most topics is not well balanced in the selection of material. The author's predilection for the work and views of his own school has been permitted seriously to bias what is offered as a general view of the subject, and, while according to the title page the translator has extended the original text, this seems to have been done rather unevenly, so that many if not most of the chapters show an extremely partial presentation of the topics which they profess to cover. Thus, the admirable work of T. B. Osborne upon malt amylase is not even mentioned, nor do we find any reference to the very extensive work of Falk upon the lipases and esterases, nor to any of the recent American work upon the purification and chemical nature of pepsin. It seems especially unfortunate that the long preface, while plausibly written, is as badly biased as the body of the text, and its claims (as often happens) have already been reflected in more than one review. Those who read the book expecting the oriented view which the preface promised will (depending upon their background of acquaintance with enzymes) either be misled or disillusioned. The experienced and critical reader may conveniently make use of this handy little volume as a summary of the views and findings of the recent Munich school. The importance of certain of their findings will be gladly and gratefully acknowledged by all investigators of enzyme problems.

H. C. SHERMAN