NEW BOOKS

Collateral Readings in Organic Chemistry. By L. A. GOLDBLATT, University of Pittsburgh. Edwards Brothers, Inc., Ann Arbor, Michigan, 1936. iii + 128 pp. 21.5 × 27.5 cm. Price, $1.00.

This book is an attempt, on the part of the author, to place at the disposal of students in Elementary Organic Chemistry, at a nominal expense, articles in the current literature. The articles have been taken from the journals sponsored by the American Chemical Society.

The author states in the preface that he desires to bring to the attention of the student of Elementary Organic Chemistry the existence of a literature in Organic Chemistry. The articles have been carefully chosen. The experiment is an interesting one and the book seems worth while.

SAMUEL T. ARNOLD

An Elementary Chemistry. By A. H. B. Bishop, Headmaster of Warwick School, and G. H. LOCKET, Assistant Master at Harrow School. Oxford University Press. 114 Fifth Ave., New York, N. Y., 1936. 398 pp. 133 figs. 13 × 19 cm. Price, $1.75.

This textbook of elementary chemistry, following the usual English method, presents more material than the ordinary American secondary school book, and rather less than most regular college texts. The topics and presentation in general are well adapted for a course emphasizing either general knowledge or college preparation. The authors have tried to avoid what they believe to be a fault of many texts, by offering more than the customary amount of information on the metallic elements and their metallurgy, and stressing the everyday and industrial uses of the elements and compounds described. The amount of chemical theory in the book has been minimized by careful presentation and judicious elimination, the latter perhaps having been carried too far for the best interests of college preparatory classes. Questions and problems are introduced frequently, many of them taken from various examination papers. One useful feature of the book is the directions for experiments which are inserted in the text at the proper places; many of them being suitable for desk demonstration. The book may well be chosen by instructors giving a thorough high school or brief college course.

ALLEN D. BLISS

Das Ausblühen der Salze. (The Efflorescence of Salts.) By Dr. PHIL. KARL SCHULTZE, Hygienisches Staatsinstitut zu Hamburg. Separate printing, from *Kolloid-Beihefte*n, edited by Prof. Dr. Wo. Ostwald, Leipzig. Verlag von Theodor Steinkopff, Residenzstrasse 32, Dresden-Blasewitz, Germany, 1936. 99 pp. 36 figs. 15.5 × 23.3 cm. Price, RM. 4.

The German word *ausblühen* refers usually to the shedding of blossoms; its intent is probably broader than that of the English, creeping of salts, and corresponds more nearly to that of efflorescence by which we are accustomed to designate both the loss of water from hydrated crystals with the consequent formation of powder and the deposition of dissolved salts in masses which resemble vegetation, as when we speak of the efflorescence upon a piece of masonry or the walls of a cellar. The phenomena in question are of interest to the colloid chemist, the geologist, the mineralogist, and others; they play an important part in the economy of nature and are of practical significance to the artist, the architect and the engineer.

The author of the present brochure has published extensively on the subject, and now presents an interesting, well-illustrated, and well-documented survey of the whole field. The seven sections of the monograph deal respectively with (1) the multiplicity of the names (for the phenomenon of efflorescence) and the first descriptions, (2) *Bodenausblühen* (creeping within deep masses of crystals), (3) climate and local conditions, (4) efflorescence of structural materials, (5) experiments toward an explanation of the mechanism of efflorescence, (6) capillary theory of efflorescence, and (7) influence of dispersion. The early work of Lemery on chemical vegetation, published with three handsome engravings in *Mem. Acad. Roy. des Sciences*, 1706, pp. 411–418; 1707, pp. 299–328, is not mentioned in the list of references.

TENNEY L. DAVIS

Grundriss der chemischen Technik. (An Outline of Chemical Technology.) By Dr. F. A. HENGLEIN, Professor and Director of the Institute of Chemical Technology, Technical College of Karlsruhe. Verlag Chemie, G. m. b. H., Corneliusstrasse 3, Berlin W 35, Germany, 1936. viii + 470 pp. 435 figs. 19.5 × 27.5 cm. Price, RM. 16.80.

This book is the outgrowth of a series of lectures given at two well-known German universities and is based on the author's long practical experience in chemical industry. It is divided into two main parts, the first dealing with the general technology common to all branches of the industry and the second with the more specialized techniques of particular industries.

Part I opens with a brief review of some of the more important physicochemical laws governing chemical reaction, and some general observations on the economics of chemical processes and on the analysis of processes into unit operations. This is followed by a long section describing typical equipment for carrying out the more common unit operations—a purely descriptive and non-quantitative treatment, very well illustrated by diagrams and photographs.

The remaining sections of Part I deal with a number of matters which are of the utmost importance to the success of any chemical manufacturing enterprise, but which are frequently omitted or only casually mentioned in typical American texts on so-called "Industrial Chemistry." For example, such factors as power, water supply, storage,

transportation, safety, shops and laboratories, organization of personnel, patents, buildings, etc., are treated briefly but with sufficient detail to emphasize their importance.

Part II, dealing with the more specialized procedures, has two main subdivisions, the first of which treats the more strictly chemical industries such as nitrogen fixation, acids, alkalies, dyestuffs, pharmaceuticals and the like, while the second is concerned with those industries producing consumption goods with the aid of chemicals and chemical control, but in which the products are not the direct result of chemical reactions. Examples are the rubber, textile, leather, perfume and photographic film industries. As an Introduction to Part II, there is a good general discussion of the raw materials of chemical industry.

The most outstanding feature of the book is the excellence of the illustrations of which there are more than 500. They contribute very greatly to its value, but even without them the reviewer believes that the book is a distinct contribution to the chemical engineering literature. It seems to him to give an unusually well balanced picture of chemical industry as a whole.

BARNETT F. DODGE

Colloid Symposium Monograph. Papers Presented at the Twelfth Symposium on Colloid Chemistry, Ithaca, New York, June, 1935. Edited by HARRY BOYER WEISER, Professor of Chemistry, The Rice Institute. The Williams and Wilkins Company, Mt. Royal and Guilford Avenues, Baltimore, Maryland, 1936. 156 pp. 18 × 26 cm. Price, $3.00.

This volume contains the papers presented at the Twelfth Symposium on Colloid Chemistry, held in June, 1935, at Ithaca, New York. All but two of these papers, namely, one entitled "The Adsorption of Water Vapor by the Growth Elements of the Sapwood and by the Heartwood of Southern Pine," by C. J. Frosch, and another, "A Hydrate Decomposition Mechanism," by V. R. Damerell and O. F. Tower, have already been published in Volume 40 of *The Journal of Physical Chemistry*. It is, however, a convenience to have them available in a separate volume, particularly for persons who have sets of Colloid Symposium Monographs and Colloid Symposium Annuals.

ARTHUR B. LAMB

The Thermochemistry of the Chemical Substances. By F. RUSSELL BICHOWSKY, Editor for Thermochemistry for the "International Critical Tables," and FREDERICK D. ROSSINI, Scientist in Physical Chemistry at the National Bureau of Standards. Reinhold Publishing Corporation, 330 West 42d Street, New York, N. Y., 1936. 460 pp. 15.5 × 23.5 cm. Price, $7.00.

The sub-title of this book "The Assembly of a Self Consistent Table of "Best" Values for the Heats of Formation of the Chemical Substances (Except Carbon Compounds Containing More Than Two Carbon Atoms), Including Heats of Transition, Fusion, and Vaporization" clearly defines the contents. The authors have retained the order of arrangement of the section of thermochemistry in the "International Critical Tables," of which this is essentially a revision and extension. Accurate descriptions of the electron configurations of many of the substances are added. The return to the calorie (1 defined calorie = 4.1850 absolute joules = 4.1833 International joules = 0.04337 absolute volt-electrons) is welcome.

In determining the best value, the authors first recalculated the experimental data to consistent units, molecular weights, etc., so far as possible. The values are tabulated as the heat evolved when the clearly indicated reaction takes place at a constant temperature of 18° and a constant pressure of 1 atm. Only the selected best value appears in the main table. There follows (pp. 171–405), arranged in the same "I. C. T." order as the main table, a discussion of the source and methods of measurement and sometimes the individual values from which the selection of the best value was made. This section is especially welcome to research workers in thermochemistry. The system of references to the original data is clear, concise, and is a great improvement over that used in the "I. C. T." or other tables of thermochemical data. The abbreviations used are clearly defined, and as the "I. C. T." order of arrangement is used the material is self indexed. But for those unfamiliar with the "I. C. T." standard arrangement, an index showing the locations of the elements in the table and text is given.

The authors are thoroughly familiar with the field and have succeeded in assembling, recalculating and tabulating the extensive data relating to heat of formation in a practical, accurate, and understandable way.

MERLE RANDALL

Experimental Enzyme Chemistry. By HENRY TAUBER, New York Medical College and Flower Hospital, New York City. Burgess Publishing Company, 426 South Sixth Street, Minneapolis, Minnesota, 1936. v + 118 pp. Illustrated. Price $3.50.

This mimeographed edition is a successful attempt to present certain of the more important advances in enzyme chemistry during the past few years. Experimental results, rather than theoretical considerations, are emphasized and no attempt is made to cover the material given in earlier monographs. At times the text is vague and shows haste in writing, and certain sections are rather sketchy due to the size of the book. However, this is in part offset by a well selected list of over 800 references.

The first chapter deals with the nature of enzymes and their mode of action as influenced by various factors. The protein nature of many enzyme systems, shown largely by American workers, is discussed. Such topics as buffers, "anti-enzyme," activators and inhibitors are either omitted or given too scant treatment. Then come chapters on the following specific systems: esterases, proteolytic enzymes and those acting upon related nitrogen compounds, carbohydrases, catalase, oxidizing enzymes and the flavine system, carbonic anhydrase, zymase and luciferase.

Especially in the cases of the proteases and the carbohydrases certain groupings are attacked by specific enzymes and these relationships are pointed out in this book. During the past ten years theories as to the role of cyto-

chrome and the flavine pigment of Warburg and Christian in oxidizing enzyme systems have been developed; this difficult field is also well summarized.

Dr. Tauber has performed an excellent service in summarizing the latest material in several fields of enzyme chemistry and we can only wish that the manuscript were extended to cover more fully certain sections and to include other topics. An index would greatly increase the usefulness of the book. The monograph will scarcely serve as an introduction to the study of enzyme chemistry but it will be read with profit by those acquainted with the field.

W. M. SANDSTROM

Enzymologia. Vol. I, Nos. 1–2. Edited by CARL OPPENHEIMER. W. Junk Verlag, 74 Scheveningsche Weg, Den Haag, Holland. 160 pp. 20 × 28 cm. Price, per volume, Dutch florins, 15.00.

This journal, first issued in June, 1936, is devoted entirely to enzymes and will cover the whole range of enzyme research. Original articles and brief preliminary reports will be accepted, but summarizing reviews are to be accepted only when asked for by the editor. The manuscripts, which are to be as concise and comprehensive as possible, may be written in German, English, French and Italian. Publication will be prompt. Authors are to receive 120 free copies of their articles as honorarium. The editor, Dr. Oppenheimer, well known as the author of many authoritative volumes dealing with enzymes, will have the assistance of 101 collaborators from various countries who are recognized for their interest in enzyme chemistry and for past contributions in this field.

The first two numbers of the journal, containing seventeen research papers, have already appeared. These papers are of such quality that the reviewer believes that *Enzymologia* can be expected to deserve a place in every biochemical library. In view of the present high cost of German journals one wonders what the price will be per year. Because of the fact that *Enzymologia* will appear at indefinite intervals, it is difficult to make any positive statement, but it is probable that the cost per year will be inconsiderable.

In view of the present broadcast distribution of enzyme articles in so many different scientific publications it will be a distinct advantage to find a considerable number grouped together in one journal. The reviewer is of the opinion that *Enzymologia* deserves the support and interest of chemists and biologists, and that the existence of this new journal will raise the standards of enzyme research.

JAMES B. SUMNER

BOOKS RECEIVED

October 15, 1936–November 15, 1936

HEINRICH BILTZ. "Die neure Harnsaürechemie. Tatsachen und Erklärungen." Verlag Johann Ambrosius Barth, Salomonstrasse 18B, Leipzig C 1, Germany. 164 pp. RM. 5.80.

CHRISTIAN BOMSKOV. "Methodik der Hormonforschung." Vol. I. Georg Thieme Verlag, Rossplatz 12, Leipzig C 1, Germany. 251 pp. RM. 54; bound, RM. 56.

LUCIUS JUNIUS DESHA. "Organic Chemistry. The Chemistry of the Compounds of Carbon." McGraw-Hill Book Company, Inc., 330 West 42d St., New York, N. Y. 750 pp. $3.75.

HERBERT FRÖHLICH. "Elektronentheorie der Metalle." Verlag von Julius Springer, Linkstrasse 23–24, Berlin W 9, Germany. 386 pp. RM. 27; bound, RM. 28.80.

WILHELM KLEMM. "Magnetochemie." Akademische Verlagsgesellschaft m. b. H., Sternwartenstrasse 8, Leipzig C 1, Germany. 262 pp. RM. 16; bound, RM. 18.

J. F. MCCLENDON and C. J. V. PETTIBONE. "Physiological Chemistry." Sixth edition. C. V. Mosby Co., 3523 Pine Boulevard, St. Louis, Mo. 454 pp. $3.50.