
NEW BOOKS

Differential Equations in Applied Chemistry. By FRANK LAUREN HITCHCOCK, Ph.D., Professor of Mathematics, and CLARK SHOVE ROBINSON, S.M., Associate Professor of Chemical Engineering, Massachusetts Institute of Technology. Second edition, revised and enlarged. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, New York, 1936. viii + 120 pp. 12.5 × 19 cm. Price, \$1.50.

A review of the first edition was given in *THIS JOURNAL*, 46, 1066 (1924). As stated there "The present volume, although frankly limited in its scope, is a splendid introduction to the application of differential equations to chemistry and chemical engineering." The book has been revised, many new examples have been added, and Chapter VI, dealing with "Numerical Solution of Differential Equations," is entirely new. The examples illustrate excellently the value of higher mathematics in the solution of the technical problems, and the reviewer is convinced that even those who have had only an elementary training in calculus will derive considerable stimulation from a study of these examples.

SAUL DUSHMAN

Annual Review of Biochemistry. Vol. V. Edited by JAMES MURRAY LUCK, Stanford University. Annual Review of Biochemistry, Ltd., Stanford University P. O., California, 1936. ix + 640 pp. Illustrated. 16 × 23 cm. Price, \$5.00.

This volume contains four new sections as follows: X-ray studies on the structure of compounds of biochemical interest, by O. L. Sponser and W. H. Dore; Clinical applications of biochemistry, by J. P. Peters, C. L. Robbins and P. H. Lavietes; The role of special elements (boron, copper, zinc, manganese, etc.) in plant nutrition, by P. Maze; and Soil microbiology, by S. A. Waksman.

A considerable number of new authors also appear, and in particular a group of eminent English biochemists, including D. E. Green and D. Keilin on oxidations and reductions; J. H. Quastel who wrote the section on enzymes; W. N. Haworth and E. L. Hirst on carbohydrates and glucosides; T. P. Hilditch on acyclic constituents of natural fats and oils; R. Robison on chemistry and metabolism of compounds of carbon; H. A. Krebs on metabolism of amino acids. In addition, other new contributors include C. Rimington on chemistry of proteins and amino acids; V. du Vigneaud and H. M. Dyer on chemistry and metabolism of compounds of sulfur; I. L. Chaikoff on carbohydrate metabolism; E. F. Terroine on fat metabolism; E. A. Doisy and D. W. MacCorquodale on the hormones; H. von Euler on the water-soluble vitamins; E. V. McCollum on the fat-soluble vitamins; A. J. Kluyver on bacterial metabolism; Hart and Elvehjem on mineral metabolism; A. C. Ivy and L. A. Crandall, Jr., on liver and bile; J. Roche on animal pigments; G. T. Nightingale on the biochemistry of the nitrogenous constituents of the green plants.

Several of the former contributors again prepared four sections. As heretofore, certain phases covered in earlier volumes are not included in volume V. On pages vii and viii appear the errata for volume I to IV, inclusive, the small number of which are a tribute to the careful work of the editorial staff.

The new sections are very appropriate and come from responsible sources. All the contributors have been carefully selected, in fact, and each is qualified to discuss the subject to which he is assigned. While the resulting reviews inevitably, and doubtless properly, reflect the individual interests of the reviewer somewhat, the changes in the staff of authors that are made from year to year militate against any overemphasis on particular aspects of the several subjects.

C. H. BAILEY

Handbuch der biologischen Arbeitsmethoden. (Handbook of Biological Procedures.) Edited by Prof. Dr. EMIL ABDERHALDEN. Abt. IV, Angewandte chemische und physikalische Methoden, Teil 1/2, Heft 10 (Schluss). Fermentforschung. Urban & Schwarzenberg, Friedrichstrasse 105B, Berlin, N 24, Germany, 1936. 205 pp. 17.5 × 25.5 cm. Price, RM. 13.

This volume includes a comprehensive review on pectinases, the isolation of crystalline trypsinogen and its change to crystalline trypsin, demonstration of protective enzymes, and amylases. The treatment of pectinases by Felix Ehrlich is very thorough and complete. The author gives a good discussion of the nature, occurrence, and properties of protopectinase, pectase, pectolase, and arabanase. Methods of preparing the various enzyme infusions and the qualitative and quantitative analyses of these infusions are presented.

M. Kunitz and J. H. Northrop describe an improved method for the preparation of crystalline trypsin from crystalline trypsinogen. Complete details of the methods used are given.

The literature on amylases has been reviewed by T. Sabalitschka. This review consisting of 85 pages covers the degradation of starch by amylase, the influence of various factors such as temperature, pH and enzyme activity.

The various methods of determining amylase activity are discussed and methods of obtaining and purifying amylases and the properties of the various amylases are described. While the review is thorough and comprehensive in most respects, one is surprised to find that there is no reference to the literature or any discussion on the phenomenon of the action of diastase on raw starch. This is a subject of increasing importance in the malting, baking and brewing industries. Many of the analytical methods described in the review are open to serious criticism. The reviewers believe that this work would be of greater value if presented in a more critical manner.

Emil Abderhalden discusses the simplification of the

methodology of demonstrating protective protease activity. The role of these enzymes in connection with the problems of immunity is discussed. He also discusses the demonstration of protective proteases without employing dialysis or using the usual ninhydrine technique. Several other improvements in methods are also given.

The volume has a complete index and table of contents.

C. N. FREY
W. R. JOHNSTON

Die Photoelemente und ihre Anwendung. 2 Teil. **Technische Anwendung.** (Photo-Cells and their Uses Part 2. Industrial Application.) By Dr. BRUNO LANGE, Berlin. Preface by Dr. Hans Thirring. Verlag Johann Ambrosius Barth, Salomonstrasse 18 B, Leipzig C 1, Germany, 1936. viii + 94 pp. 67 figs. 16 × 23.5 cm. Price, RM. 6.75.

In this second part of Dr. Lange's treatise, numerous practical applications of photo-cells are recorded. Most of the apparatus described and illustrated was designed by the author himself.

Dr. Lange is primarily interested in the cuprous oxide cell, and those of similar type. Very little space is devoted to the cesium cell. Accordingly, applications of the photo-cell to television, the talking moving pictures, etc., are not specifically included in the "technische Anwendungen."

After general discussion of cell construction, sensitivity, effect of temperature, etc., the applications are discussed under the following headings: "Determination of Light Intensity," "Photography," "The Photoelectric Cell in Photometry," "The Photoelectric Cell in Signal Devices," "Applications—in Astronomy, in Meteorology, in Medicine," and, finally, a few lines on the conversion of sun energy into electrical energy. The author closes with the statement, "Perhaps in years to come, when we know more about the inter-relation between light and electricity, this application of the photo-cell will be the most important of all."

The text is very readable and the illustrations very clear and instructive.

Dr. Bruno Lange is visiting the United States this fall.

COLIN G. FINK

A Comprehensive Treatise on Inorganic and Theoretical Chemistry. Vol. XV. Ni, Ru, Rh, Pd, Os, Ir. By J. W. MELLOR, D.Sc., F.R.S. Longmans, Green and Company, 114 Fifth Avenue, New York, N. Y., 1936. viii + 816 pp. 423 figs. 15.5 × 25 cm. Price, \$20.00.

The first 497 pages of this volume are given over to the chemistry of nickel; the remaining 319 pages to the chemistry of the elements of the platinum group, exclusive of platinum itself, and to an Index. The treatment follows that of the preceding volumes of the series and affords a very complete presentation of all the available information in these fields. It is enriched with an unusually large number of excellent diagrams.

This volume is the next to the last of the series. The

final volume will be devoted to the chemistry of platinum and to the General Index of the Treatise. The publishers announce that it is already in the press.

ARTHUR B. LAMB

Die Interferenzen von Röntgen- und Elektronenstrahlen. (The Interference of X-Rays and Cathode Rays.) Five lectures by M. v. LAUE, Professor at the University of Berlin. Verlag von Julius Springer, Linkstrasse 23-24, Berlin W 9, Germany, 1935. 46 pp. 15 figs. 14.5 × 22 cm. Price, RM 3.60.

The book presents a brief outline of the dynamical theory of x-ray diffraction using the author's method of derivation, and making connection with the wave mechanical method of treatment. Kossel's interference of x-rays generated within a single crystal is explained in terms of the theory, and the connection with the Kikuchi lines is discussed. The mathematical development is omitted.

B. E. WARREN

BOOKS RECEIVED

August 15, 1935–September 15, 1936

ARTHUR A. BLANCHARD, JOSEPH W. PHELAN and ARTHUR R. DAVIS. "Synthetic Inorganic Chemistry, A Course of Laboratory and Classroom Study for First Year College Students." Fifth edition. John Wiley and Sons, Inc., 440 Fourth Ave., New York, N. Y. 385 pp. \$3.00.

HERMAN T. BRISCOE, HERSCHEL HUNT and FRANCIS M. WHITACRE. "A Laboratory Manual of General Chemistry." Houghton Mifflin Company, 2 Park St., Boston, Mass. 113 pp. + experiment record sheets. Spiral binding. \$1.75.

HARRY N. HOLMES. "General Chemistry." Third edition. The Macmillan Company, 60 Fifth Ave., New York, N. Y. 700 pp. \$3.50.

VLADIMIR N. IPATIEFF. "Catalytic Reactions at High Pressures and Temperatures." The Macmillan Company, 60 Fifth Ave., New York, N. Y. 876 pp. \$7.50.

ALFRED WOGRINZ. "Analytische Chemie der Edelmetalle." Ferdinand Enke Verlag, Hasenbergsteige 3, Leipzig W, Germany. 141 pp. RM. 13; bound, RM. 14.80.

"Festschrift Herrn Emil Christoph Barell, Doctor Philosophiae, Doctor Medicinae H. C., Generaldirektor der F. Hoffmann-LaRoche and Co., Aktiengesellschaft, am vierzigsten Jahrestage seiner Tätigkeit im Hause 'Roche'." Überreicht von Freunden und Mitarbeitern. Hoffmann-LaRoche, Inc., Scientific Department, Nutley, N. J. 575 pp.

"Minerals Yearbook, 1936." Bureau of Mines, U. S. Department of the Interior. Superintendent of Documents, Government Printing Office, Washington, D. C. 1136 pp. \$2.00.