

materials, etc., are the subjects of the remainder of the papers.

The book suffers from the lack of continuity and the variation in style common to works of its kind, but these minor faults are more than compensated for by the generally high quality of the material. The diversity of topics covered should make it of interest not only to people active in research on gas chromatography, but also to those for whom this technique is chiefly a valuable new analytical method. Most of the articles give sufficient experimental detail to enable the reader who wishes to build his own apparatus to select the features most desirable for his purpose. All readers should benefit from a study of the theoretical papers. The report of the lively and informative discussion at the symposium adds to the value of the book. The recommendations of the committee on nomenclature seem reasonable; they would perhaps carry more weight had the editor, himself a member of the committee, chosen the title of the book in accordance with them. The contributors, the editor and the publishers are to be congratulated for the speed with which they have made this useful work available.

DEPARTMENT OF CHEMISTRY  
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KURT F. WISSBRUN

**Chemie der Zucker und Polysaccharide.** Second Edition.

By FRITZ MICHEEL, Dr. phil., o. Professor der Chemie an der Universität Münster (Westfalen) and ALMUTH KLEMER, Dr. rer. nat., Wissenschaftliche Assistentin am Organisch-chemischen Institut der Universität Münster (Westfalen). Akademische Verlagsgesellschaft, Geest and Portig K.-G., Sternwartenstrasse 8, Leipzig C 1, Germany. 1956. xix + 512 pp. 16 × 23 cm. Price, 36.—DM.

The first edition of Fritz Micheel's "Chemie der Zucker und Polysaccharide" appeared in 1939 and was at the time, easily the best introductory monograph for this field. An English translation, by R. C. Hockett, was published in this country in 1945. There now appears a second revised and augmented edition in the compilation of which Professor Micheel has been assisted by Fräulein Dr. Almuth Klemer. The text is, nevertheless, essentially singly authored and accordingly does not suffer from the repetitions and contradictions characteristic of multiply authored monographs. The book does not profess to be complete but the extent of its coverage is astounding and the essential points in the chemistry and biochemistry of the monosaccharides, oligosaccharides and polysaccharides are well selected and thoroughly covered. Emphasis is placed upon the organic structural chemistry involved. The writing and editing is thorough and is free of those obvious errors, gross omissions, and misinterpretations of published work, which have been so characteristic of most of the carbohydrate monographs appearing in recent years in English. The German language exposition is simple and direct and is highly recommended for students preparing for the American university German reading examinations.

Professor Micheel, a student of Kurt Hess and a former associate of Adolf Windaus, the latter being the one outstanding student of Heinrich Kiliani, writes in the classical German tradition and is no votary of modern mechanistic interpretations of organic reactions. The troublesome problems of ring conformation are never mentioned. What is well grounded in established fact, however, is all there. The nomenclature employed is that of Emil Fischer. The extensive changes and modernizations of this nomenclature which have been developed by the joint efforts of the American and British chemists, has not been translated into the German idiom by the present authors. The one concession is the adoption of the Roman small capital letter for the configurational symbol. While the language barrier is a factor here, some better common ground would be desirable. Professor Micheel favors the Fischer projection formula for the depiction of sugar structures. From this he proceeds occasionally to an "eigentümlich" orientation of the Haworth perspective formula which he is later forced to change to the accepted orientation when he discusses oligosaccharide and polysaccharide structures.

This revision was effected under great difficulties. The institute of Professor Micheel was demolished by the aerial bombing of World War II and although he now has a newly

built institute, he still lacks a complete library. In the revision he was forced to depend largely upon reprints sent by authors and upon *Chemical Abstracts*. In spite of these formidable obstacles, the text has been thoroughly modernized and augmented by approximately 120 pages. Eighty-three pages of well documented tables of sugars and sugar derivatives have been collected at the end of the book. The indexes have been about doubled in size from the first edition. The section on the biochemistry of the sugars has been revised completely and new sections on chromatographic separations, isotopic labeling and antibiotics have been added. Cross references are frequent and are well selected. Coverage in the rapidly expanding field of oligosaccharide and polysaccharide structure lags, in part, a little behind the true research front. That of the starches is well delineated. The sections on the seaweed polysaccharides, stachyose and the tissue polysaccharides, stand in need of attention. This undoubtedly reflects in part the "behindness" of *Chemical Abstracts* in the period following the end of World War II. Strange omissions in the reference book listing are the American monographs on cellulose and starch: those of Ott (two editions), of Kerr (two editions), and of Wise. In spite of these few shortcomings, not unexpected in view of the difficulties presented to the authors in their revisionary efforts, this text stands as the best introductory monograph in its field and probably will maintain this position for some time to come.

DEPARTMENT OF CHEMISTRY  
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M. L. WOLFROM

**Electrochemistry. Principles and Applications.** By EDMUND C. POTTER, B.Sc., Ph.D., F.R.I.C., D.I.C., Research Branch, Central Electricity Authority for England and Wales. The Macmillan Company, 60 Fifth Avenue, New York 11, New York. 1957. xii + 418 pp. 16 × 25.5 cm. Price \$10.00.

In recent years relatively few texts on electrochemistry have been published. Potter's new book represents one of the first to present both basic and applied aspects of electrochemistry in a concise, well integrated fashion in a single volume.

Primary emphasis is placed on electrode processes in the early chapters which discuss the theoretical aspects of electrochemistry. Reversible electrode systems are treated on a thermodynamic basis as well as in terms of experimental aspects. A description of the factors contributing to the irreversibility of various electrode processes is presented with particular attention on hydrogen overvoltage as is traditional among electrochemists. A separate chapter is used for the discussion of the electrical double layer and electrokinetic phenomena. The treatment of electrolytes is brief and hardly more detailed than is standard undergraduate texts on physical chemistry. Newcomers to the field of electrochemistry as well as chemical analysts will find the concise chapters on electrochemical measurements particularly useful. The applied phases of electrochemistry which are considered by Potter include corrosion mechanisms and prevention, electrodeposition, batteries, and industrial electrolysis.

Throughout this book, the sign conventions for electrode potentials advocated by the International Union of Pure and Applied Chemistry are employed in contrast to the system generally in use in most American texts and publications of the American Chemical Society. The author discusses the problem of sign conventions, however, in a simple but effective fashion; hence, the student who is accustomed to the so-called American system is not likely to be confused.

This text is conspicuous for its excellent organization and concise presentation. The many illustrations and tables are very effective. The text contains a number of problems which are completely worked and integrated within the chapters. The bibliography at the end of the book lists other texts and publications for collateral reading. No specific references are given for the work or data presented in this book.

Many of the contemporary explanations for various electrochemical phenomena are far from well established and in a state of flux. As a result, authors of textbooks on electrochemistry must exercise more than the usual care to indicate fully the status of the various proposed explanations. Un-

fortunately, in the case of the present text this reviewer has found several instances where many electrochemists will take issue with the explanations and where the author has failed to point out alternate explanations.

The author assumes that the reader has an understanding of thermodynamics to the extent that this subject is generally covered in undergraduate courses in physical chemistry in the United States. Mathematical requirements appear to extend only through the elements of calculus.

This text is recommended for the beginning student in electrochemistry as well as workers in various phases of chemistry, physics and biology who wish to become familiar with electrochemical methods.

WESTERN RESERVE UNIVERSITY  
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ERNEST YEAGER

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## BOOKS RECEIVED

August 10, 1957–September 10, 1957

WERNER BRÜGEL. "Einführung in die Ultrarotspektroskopie." 2. neubearbeitete Auflage. Verlag Dr. Dietrich Steinkopff, Holzhofallee 35, Darmstadt, Germany. 1957. 404 pp. Brosch. DM 49,—; geb. DM 52,—.

CHIAO-MIN CHU, GEORGE C. CLARK AND STUART W. CHURCHILL. "Tables of Angular Distribution Coefficients for Light-Scattering by Spheres." The University of Michigan Press, Ann Arbor, Michigan. 1957. 58 pp. \$3.00.

D. D. ELEY, W. G. FRANKENBURG AND V. I. KOMAREWSKY, Edited by. "Advances in Catalysis and Related Subjects." Volume IX. "Proceedings of the International Congress on Catalysis. Philadelphia, Pennsylvania, 1956." Edited by ADALBERT FARKAS. Academic Press, Inc., 111 Fifth Avenue, New York 3, N. Y. 1957. 847 pp. \$16.00.

VIRGINIA R. JOHNSON, LAWRENCE M. BROWN AND ABRAHAM S. FRIEDMAN. "Bibliography of Research on Deuterium and Tritium Compounds 1953 and 1954." National Bureau of Standards Circular 562, Supplement 1, issued July 15, 1957. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1957. 31 pp. \$0.25.

JOHN H. MARTENS AND F. G. MINUTH, Compiled by. "Selected List of Neutron and Gamma Irradiation Facilities in Operation, Being Built or Planned." Technical Information Division, Argonne National Laboratory, Lemont, Illinois. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1957. 79 pp. \$0.60.

J. L. SYNGE. "The Relativistic Gas." Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. 108 pp. \$4.50.

W. THEILHEIMER. "Synthetic Methods of Organic Chemistry." Volume 11. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. 494 pp. \$20.00.

G. VALENSI (Editor-in-Chief), T. P. HOAR, F. JOLAS AND J. O'M. BOCKRIS. "International Committee of Electrochemical Thermodynamics and Kinetics. Proceedings of the Seventh Meeting. Lindau 1955." Butterworths Scientific Publications, 88 Kingsway, London, W.C. 2, England. 1957. 409 pp. 84 s., by post 1 s. 6 d. extra.

LEON VELLUZ, Editor. "Cahiers de Synthèse Organique. Méthodes et Tableaux d'Application." Volume I. By Jean Mathieu and André Allais. Masson et Cie., Éditeurs, Libraires de l'Académie de Médecine, 120 Boulevard Saint-Germain, Paris VI, France. 1957. 232 pp. Cartonné toile 4.200 Frs., Broché 3.800 Frs.

# new WILEY BOOKS

## THE CHEMISTRY OF ORGANOMETALLIC COMPOUNDS

By EUGENE G. ROCHOW, Harvard University; DALLAS T. HURD, General Electric Co., and RICHARD N. LEWIS, Olin Mathieson Chemical Corp.

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Revised and brought up to date. Offers a rational system of chemical classification for organic medicinal compounds, both natural and synthetic. 1957. 569 pages. \$10.75

## SOLVENT EXTRACTION IN ANALYTICAL CHEMISTRY

By GEORGE H. MORRISON, Ph.D., Sylvania Electric Products, Inc., and HENRY FREISER, Ph.D., University of Pittsburgh.

Offers a generalized theory to show the similarity between the many metal extractions reported. Covers principles of solvent extraction and their classification, practical aspects, a survey of individual extractions, and procedures. 1957. 269 pages. Illus. \$6.75

## A GUIDE TO THE LITERATURE OF CHEMISTRY 2nd Edition

By E. J. CRANE, The Chemical Abstract Service; the late AUSTIN M. PATTERSON, and ELEANOR B. MARR, Hunter College.

Covers all the sources of chemical literature: tells how to find it and how to use it. Analyzes various kinds of sources of chemical information, and gives ways of keeping up to date on them. 1957. 397 pages. \$9.50

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## SCIENTIFIC FRENCH

By WILLIAM N. LOCKE, M.I.T.

1957. 112 pages. \$2.25

## SCIENTIFIC GERMAN

By GEORGE E. CONDOYANNIS, St. Peter's College

1957. 163 pages. \$2.50

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