

tables list the starting materials, reaction products, reaction conditions, yields and references to the literature.

At the end of the book there is an index prepared in a tabular fashion which covers not only the material contained in volume three, but the contents of the two previous volumes as well.

The concise arrangement of material, the very extensive use of attractively printed formulas throughout the text and the wealth of literature references given both in the text and in the tables should contribute to make this series a source of valuable information in a readily accessible form.

The editor and authors should be thanked for this major undertaking which should prove to be of great value to those needing information concerning synthetic methods.

RESEARCH DIVISION
BRISTOL LABORATORIES INC.
SYRACUSE 1, NEW YORK

YVON G. PERRON

Encyclopedia of Chemical Technology. First Supplement Volume. Edited by the late RAYMOND E. KIRK, Head, Department of Chemistry, Polytechnic Institute of Brooklyn, and DONALD F. OTHMER, Head, Department of Chemical Engineering, Polytechnic Institute of Brooklyn. Assistant Editor, ANTHONY STANBEN. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. xviii + 974 pp. 19.5 × 26.5 cm. Price, \$25.00.

Long before the last volume of the 15-volume "Encyclopedia of Chemical Technology" appeared in print, the editors must have debated the problem of how to keep it up to date. Instead of issuing an annual yearbook or revising the articles volume by volume to the extent that they might need it, the editors chose to prepare a supplement volume, presumably the first of a series, which contains articles on those areas of chemical technology that have undergone major developments during the past decade or so. Consequently, this supplement will be of much greater current interest and value than if it were a revision of "A to Anthrimides."

Some 51 articles are included, ranging in length from nearly one hundred pages devoted to Nuclear Reactors to articles of from four to six pages each on such subjects as Isoleucic Acid, Patents, and Kojic Acid. Approximately half of the articles are on subjects treated in the original Encyclopedia and serve to bring them up to date; the others are on new topics such as Computers, Fluidization and Water Demineralization or on a particular aspect of an earlier subject in which developments have been very rapid, as on Antibiotics—Non-medical Uses, or Boron Hydrides. The method of presentation is similar to that used in the original Encyclopedia. As in the Encyclopedia itself, the articles here range over processes, classes of substances, specific chemicals, unit operations and extend into areas such as Solid State where advances in a science will increasingly affect future technology. Each person will probably have a different preference as to the topics he would like to have seen chosen and the relative space to have given to each, but in general the choice of subjects seems judicious to this reviewer, and the presentations are well balanced and up to date. Judging from the many recent references throughout the book the editors must have had extraordinary success in getting their authors to submit their manuscripts on time.

The contributions come almost exclusively from Americans of whom about three-quarters are in industry. In essentially every case the contributor or the organization with which he is associated is in the forefront of activity in the subject discussed. As might be expected, the styles vary substantially, in a few cases being little more than an annotated bibliography, but usually being a unified and critical presentation. The treatments here will be of particular value to the chemist or chemical engineer who wishes to obtain a perspective on a field outside of his own specialty, but who may then wish to go to one or more review articles for more complete guidance to the literature. As is appropriate in any encyclopedia, the references are selective rather than exhaustive in many cases.

This volume contains its own comprehensive index and the articles have many cross references to the Encyclopedia. Nevertheless, in this method of keeping the Encyclopedia up to date, the problem of retrieval of information will become rapidly more complicated as additional supplement

volumes are published. For the person who wants to know quickly if a subject of interest to him is included in a particular supplement volume, an alphabetical listing of the articles in a prominent place in the front of the volume would be of help; at present, they are distinguished only by bold face type in the index and in conjunction with a listing of authors.

All-in-all, this supplement volume provides a fine means whereby one may acquire an authoritative and up-to-date survey of many topics in chemical technology of current and increasing interest.

DEPARTMENT OF CHEMICAL ENGINEERING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASSACHUSETTS CHARLES N. SATTERFIELD

Physico-Chemical Effects of Pressure. S. D. HAMANN, M.Sc., Ph.D. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1957. ix + 246 pp. 15 × 22 cm. Price, \$8.50.

This book is a discussion of the changes in the properties of matter which are induced by the application of pressure. The book is concerned largely with changes which are brought about by pressures above and about one hundred atmospheres. A good deal of emphasis is placed on the experimental techniques used to obtain high pressures and in measuring the various properties. In some cases a molecular interpretation of the results is discussed.

Two chapters are devoted to the experimental determination of the equation of state and the phase behavior of various pure substances and mixtures at extremely high pressures. Some of the results are interpreted in terms of the principle of corresponding states and in terms of the Lennard-Jones Devonshire equation of state.

Measurements of the effect of pressure on the transport coefficients are also discussed. A brief summary is given of the theories of transport phenomena in dense gases and liquids. Subsequent chapters are devoted to the effect of pressure on the dielectric and optical properties, on electrolytic conduction, and on the rates of chemical reactions.

The book will be of interest to many readers who are unfamiliar with the variety of new effects which appear at high pressures. Others will find the review of recent developments and the extensive bibliography of considerable value.

NAVAL RESEARCH LABORATORY
DEPARTMENT OF CHEMISTRY
UNIVERSITY OF WISCONSIN
MADISON, WISCONSIN

C. F. CURTISS

Inorganic Syntheses. Volume V. Editor-in-Chief, THERALD MOELLER, University of Illinois. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N. Y. 1957. xiv + 265 pp. 16 + 23.5 cm. Price, \$6.00.

Inorganic chemistry has undergone a rapidly accelerated growth during the past 25 years. The Manhattan Project provided a tremendous stimulus in awaking interest in this long neglected field, but the real explanation of the renewed interest is the success of the modern physical theories in interpreting the structure of atoms and the mechanisms of chemical bonding. At last inorganic chemistry has begun to make sense, and it is possible to correlate the physical, mechanical and chemical behavior of materials in terms of fundamental parameters, not merely to catalog these properties. In the United States a nucleus of devoted and competent inorganic chemists provided the energy and drive, and their efforts have at last culminated in the establishment of a Division of Inorganic Chemistry in the American Chemical Society. This is about the same group of chemists who established in 1939 the "Inorganic Syntheses" series, which has now reached Volume V. The present list of editor-in-chief, associate editors, and members of the advisory board, still carries names of several of these pioneers. Volume V is dedicated to the memory of Raymond E. Kirk and Arthur A. Blanchard, who have died since the publication of Volume IV in 1953. The continuance of the same chemists on the editorial board has ensured a continuity of policy, and while Volume V differs from its predecessors in content, it follows the same plan. The syntheses are considered as separate contributions, as in a

periodical, and are abstracted individually in "Chemical Abstracts." Each synthesis has been checked at an independent laboratory to establish the reliability and competence of the instructions. Miss Janet D. Scott, of the G. & C. Merriam Company, has continued as associate editor, responsible for problems of nomenclature and indexing. Besides the Table of Contents of Volume V, arranged by periodic table groups, there are also fifty pages of indices. The Subject Index and Formula Index are cumulative back through Volume I. Because of changes in practice since the appearance of Volume I, extra entries or cross references are made to names that have changed.

Following the practice initiated in Volume II, there are incorporated general summaries of specific fields. Volume V includes the following general discussions: The preparation of sodium dispersions and their use to prepare sodium hydride; use of sodium amalgam to isolate samarium, europium and ytterbium materials from mixed rare earths; preparation of anhydrous lanthanon nitrates; preparation of organo-silazane compounds, that is, compounds that contain silicon-nitrogen bonds; preparation of organo-germanium compounds; preparation of metal derivatives of 1,3-diketones (58 references); preparation of anhydrous metal chlorides, with twenty-three cross references to other sections of Volume V; preparation of chlorine(I) compounds; and preparation of polyhalogen complex salts (18 references).

There may exist superior methods, less complicated methods or methods that are commercially more feasible to accomplish the preparations cited in "Inorganic Syntheses." But for the laboratory preparations of both the simple and the complicated inorganic compounds described, these are *reliable* methods and are promulgated only as such. If better ways to make these substances are found, the editor of "Inorganic Syntheses" will welcome detailed instructions concerning them for future volumes. Volume VI is now in preparation under the editorship of Eugene G. Rochow of Harvard University.

ORDNANCE MATERIALS RESEARCH OFFICE
WATERTOWN ARSENAL LAURENCE S. FOSTER
WATERTOWN 72, MASSACHUSETTS

Dynamic Aspects of Biochemistry. Third Edition. By ERNEST BALDWIN, B. A., Ph.D., Professor of Biochemistry at University College in the University of London, formerly Fellow of St. John's College, Cambridge. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1957. xx + 526 pp. 14.5 × 21.5 cm. Price, \$5.50.

When the first edition of the "Dynamic Aspects of Biochemistry" appeared in 1947, it was clearly the best elementary textbook dealing with the chemical basis of metabolic activity of living organisms. In the first place, it emphasized, as few biochemistry texts were doing at the time, the functions of the various molecular constituents of cells in the full complexity of their interactions, and succeeded to a very large extent in indicating the spatio-temporal order of metabolic processes. The book achieved this result through a liberal and judicious discussion of the experimental methods that have been employed in studies of metabolism, of the validity of such methods, and of the interpretation of actual experimental findings. The student reading this book thus gained an appreciation of how progress is made in the understanding of a problem (and problems as complex as those found in biological phenomena), as well as the nature of the biological problems that are amenable to analysis at the chemical level. Professor Baldwin's style was thoroughly engaging, furthermore, and he provided a lucid and fascinating account that was always a pleasure to read.

"Dynamic Aspects" has gone through several reprintings, translations, and appeared in its third, revised edition last year. In doing so, it has lost few of the qualities that recommended it so highly at the outset of its career. Some major re-writing is in evidence, not only for the sake of including results of recent work on cell particulates, on photosynthesis, and on lipid metabolism, for example, but also to improve the exposition of certain portions. The author presupposes little preparation in physical chemistry on the part of the reader. For this reason, his account of the thermodynamic and energetic aspects of biocatalysis has been sketchy, and perhaps too superficial, in the past.

The present version strikes a good balance between the requirements for a sound theoretical treatment and the limitations set by the presumed level of the readers' academic preparation.

It would perhaps be cavilling, with a book as good as this one, to suggest that, in the attempt to reach greater depth in certain areas and to maintain contact with the advancing frontiers of biochemistry, Professor Baldwin has neglected certain fundamental problems of broad biological significance. There is no discussion of the *origin* of protein specificity, for example, although there is a wealth of experimental material upon which to draw in the fields of induced enzyme synthesis and antibody formation. Although the precise nature of the relation between gene structure and biochemical activity is far from understood, the matter is so important and there are such interesting and suggestive findings concerning this relation, that one cannot help being disappointed by its shallow treatment in this book. Probably because of the rapidity of discoveries in the field, the book is already outdated in its discussion of the structure and synthesis of nucleic acids. Finally, because this book is of such interest and value to the practicing biochemist, one would really like to have better references to the literature. Many experiments are cited without any reference to author or journal, which is dismaying for the person who would like to track down a lead and learn more about it.

All in all, "Dynamic Aspects of Biochemistry" remains an excellent buy and a useful text and reference for student and practitioner alike.

DEPARTMENT OF BIOLOGY
THE UNIVERSITY OF ROCHESTER ARNOLD W. RAVIN
ROCHESTER 20, N. Y.

BOOKS RECEIVED

May 10, 1958—June 10, 1958

- FRED BASOLO AND RALPH G. PEARSON. "Mechanisms of Inorganic Reactions. A Study of Metal Complexes in Solution." John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1958. 426 pp. \$11.75.
- FRANK A. BOVEY. "The Effects of Ionizing Radiation on Natural and Synthetic High Polymers." Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1958. 287 pp. \$8.00.
- MALCOLM DIXON AND EDWIN C. WEBB. "Enzymes." Academic Press, Inc., 111 Fifth Avenue, New York 3, N. Y. 1958. 782 pp. \$16.00.
- HENRY E. DUCKWORTH. "Mass Spectroscopy." Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1958. 206 pp. \$6.50.
- JESSE P. GREENSTEIN AND ALEXANDER HADDOW, Edited by. "Advances in Cancer Research." Volume V. Academic Press, Inc., 111 Fifth Avenue, New York 3, N. Y. 1958. 463 pp. \$10.80.
- GUSTAV J. MARTIN. "Clinical Enzymology." Little, Brown and Company, Boston 6, Massachusetts. 1958. 241 pp. \$6.00.
- M. G. MELLON. "Chemical Publications. Their Nature and Use." Third Edition. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N. Y. 327 pp. \$7.00.
- LÉON VELLUZ, Editor. "Cahiers de Synthèse Organique Méthodes et Tableaux D'Application." Volume IV. By JEAN MATHIEU AND ANDRÉ ALLAIS. Masson et Cie., 120 Boulevard Saint-Germain, Paris VI^e, France. 1958. 272 pp. Broché: 5.000 frs.; Cartonne toile: 5.500 frs.