
NEW BOOKS

Introduction to Organic and Biological Chemistry. By L. EARLE ARNOW, PH.D., M.D., Director of Biochemical Research, Medical Research Division, Sharp and Dohme, Inc., and HENRY C. REITZ, PH.D., Assistant Chemist in the Western Regional Research Laboratory, United States Department of Agriculture, Albany, California. The C. V. Mosby Company, Pine Boulevard, Saint Louis, Missouri, 1943. 736 pp. Illustrated. 14.5 × 22.5 cm. Price, \$4.25.

This textbook envisions a single college course in which organic and biological chemistry are combined. The usefulness of the book to students of premedical, pre dental, home economics, dietetics, agriculture and physical education courses is suggested by the preface. While many would question the desirability of decreasing the preparation in organic chemistry of premedical and pre dental students in order to provide them a preview of biochemistry, the text appears suitable for the other groups mentioned.

The volume is divided into three parts. The introductory part of 31 pages reviews chemical definitions and theories. The succeeding 19 chapters present a descriptive approach to organic chemistry. This section is characterized by the inclusion of descriptions of technical processes and many bits of interesting information. A last section, labelled Biological Chemistry, includes the following topics: enzymes, the chemistry of respiration, carbohydrate metabolism, lipid metabolism, protein metabolism, inorganic metabolism, hormones, vitamins and a summary of nutritional requirements. One wonders whether the authors, by introducing a partition between the sections on organic and biological chemistry, have furthered the purpose implied by the title of fusing the two sciences.

The limited treatment of ionic equilibria in aqueous solutions has led to difficulty in elucidating some topics, including physiological neutrality regulation and blood gas transport. For example (page 555), "HHbO₂ is a stronger acid than HHb. In other words it has a greater affinity for (tendency to form salts with) potassium ions than HHb." Clear distinction has not always been drawn between the electrovalent and the covalent links. Thus, betaines (page 284) are shown as closed cycles, amino acids (page 505) as uncharged molecules. The basic nature of amines (page 267) is indicated as a dissociation of the hydrated bases to release hydroxyl ion.

The 91 illustrations include many photographs of technical products and processes. Each chapter is followed by a list of study questions, and references to textbooks, monographs, and review articles. A table of the composition and caloric values of foods is reprinted in the Appendix, from "Nutritional Charts."

In general, the treatment seems to be complete. The physiological sections appear to be up-to-date. The book is worthy of consideration for a college course whose purpose it is to cover within a restricted period of time the more important aspects of organic and biological chemistry.

HALVOR N. CHRISTENSEN

Your Career in Chemistry. By NORMAN V. CARLISLE, Vocational Guidance Editor, *Scholastic*, the National High School weekly, with a preface by Dr. C. M. A. STINE, Vice-President, E. I. du Pont de Nemours and Company, Inc., Advisor on Research and Development. E. P. Dutton and Co., Inc., 300 Fourth Avenue, New York, N. Y., 1943. 251 pp. Illustrated. 14 × 21 cm. Price, \$2.50.

The purpose of this book is to inspire or persuade the young high school student or college freshman to become a professional chemist. It contains some description of the many varieties of work which a chemist may have an opportunity to do and the rewards he may hope to win. The book is well illustrated by many pictures showing the chemist at work. These pictures emphasize the tools of the laboratory and factory rather than the personality of the chemist. They might advantageously be replaced or at least supplemented by portraits of famous chemists. The advantages of a good and broad education are pointed out. The opportunities and special difficulties of women seeking a career as chemists are discussed.

The flavor of the book may be well illustrated by the following quotation: "Look, for example, at what he has done with a lump of coal. He takes what he calls the light oils from coal, processes them and gets a chemical known as toluene. After nitrating the toluene he has the 'boom' in a bomb—the destructive power of TNT. And it means, 'Enemies of Uncle Sam . . . watch out below!' For practically from the chemist's test tubes comes a 2000 pound terror that can wipe out a city block in one shattering reverberating crash!

"The derivatives that the chemist takes from that ordinary, garden variety, house-heating bituminous lump of coal make our everyday lives safe, simple and more interesting. The chemist takes phenol, one of those derivatives, and finds it useful in making plastics. When he combines it with other chemicals the result may be aspirin, printing ink, soaps, medicines, or dyes, depending on the chemical compound used.

"An unusual derivation of coal is ammonium thiocyanate. By combining it with other chemicals the chemist gives us fly sprays, explosives, resins and adhesives. Pyridine, another chemical from coal, is needed for making the newer drugs, waterproofing agents and rubber accelerators. Naphthoquinone is essential for making Vitamin K.

"The creative chemist can make literally hundreds of products from a lump of coal-tar to make anti-skid roads, wood preservative for railroad ties, chemicals for fertilizer, benzene for high-test gasoline, sulfur for fruit tree spray, naphthalene for plastics and dyes, carboric acid for disinfectants and resins, creosote for wood preservation, sulfanilamide for medicinal purposes."

In this hop, skip and jump fashion the achievements of "the chemist" are high-lighted in many fields including food, plastics, glass, rubber, textiles, petroleum, explosives and others.

With very few exceptions, "the chemist" who has made these marvelous inventions is a very shadowy figure—lacking a name, sex, nationality, birthday, or any academic or industrial background or connections. The record might well be more inspiring if the name and some personal details of the inventor were given more often. Moreover, there is little indication that "the chemist" ever has any failures or disappointment. The inexperienced reader might infer from this book that his experiments are invariably successful and all of his ideas brilliant.

The book also includes three fine speeches: "The Chemist, Molder of a Better Destiny," by C. M. A. Stine; "The Composition of the Chemist," by H. G. Knight; and "Chemistry as a Career," by Francis J. Curtis. The attention of the chemical neophyte should be focused on one paragraph from the latter.

"To the man choosing a career the most important question is 'Will I like it?' If he does like it he still may be no good in it, but if he does not like it he is sure to be. The right man in the right place will find the career of chemistry a lot of fun—there is no higher praise."

GRINNELL JONES

The First Air Voyage in America, January 9, 1793. By JEAN PIERRE BLANCHARD. Published by The Penn Mutual Life Insurance Company, Independence Square, Philadelphia, 1943. 87 pp. Illustrated. 13.5 × 20 cm.

This small volume reprints Jean Pierre Blanchard's lively account of the balloon ascension he made from Philadelphia on January 9, 1793. This ascension was Blanchard's 45th and was the first balloon ascension made in America. Public interest had been greatly aroused, Montgolfier's first successful ascent in 1783 and the first crossing of the English Channel by Blanchard some years afterward, with Dr. John Jeffries of Boston as passenger, had attracted world-wide attention. Moreover, Blanchard appears to have been a successful publicist as well as "bold Aeronaut," for he had furnished the Philadelphia newspapers with plenty of advance "copy" describing his proposed exhibition.

The ascension appears to have been a great success, at least from the point of view of the inhabitants of Philadelphia, all of whom, including President Washington and the members of the Government which was then established in Philadelphia, apparently watched it. Mr. Blanchard, however, seems not to have been entirely satisfied, as the subscriptions were deemed inadequate to defray his expenses.

There is an introduction of some 60 pages by Carroll Frey recounting the attendant circumstances and painting a picture of the Philadelphia of that time, listing its churches, its charitable, learned and scientific societies, its banks, and enumerating the important persons then resident there.

From a chemical point of view one would like to know a little more as to the circumstances of the inflation. About all that one can glean is the information in one of Blanchard's preliminary articles in the newspapers designed to justify the need for generous subscriptions (tickets to the Prison Yard where the start was made, \$2 and \$5 each). He states: "I brought with me from Europe only 4200 weight of vitriolic acid, the quantity necessary to effect my own ascension, once. . ."; and that this amount

"could not be found in this city and that if it could be procured it would cost at least 100 guineas."

Blanchard, in spite of his underlying commercial motives, appears to have been a real enthusiast and eager to promote the science of "*Aerostatiques*." On his trip he made a large number of meteorological and magnetic observations, and collected samples of the air at his maximum elevation (over a mile). Best of all, three days after the ascent, he published this spirited and convincing account of his adventure.

The Penn Mutual Life Insurance Company, who have issued this volume on the 150th anniversary of this flight which took off from the spot now occupied by their Home Office, are certainly to be congratulated on making this interesting account available to the public.

ARTHUR B. LAMB

Cellulose Chemistry. By MARK PLUNGUAN, Ph.D., Chemist, Homasote Company, Trenton, New Jersey. Chemical Publishing Company, Inc., 234 King Street, Brooklyn, New York, 1943. vii + 96 pp. 13 figs. 14.5 × 22 cm. Price, \$2.25.

It is the purpose of this brief (90 pages) treatise to give chemists and other interested scientists an up-to-date presentation of the fundamentals of cellulose chemistry.

The first chapter gives an idea of the great economic importance of cellulose chemistry and enumerates the main different constituents of cellulose-containing tissues. The second describes, with the aid of 11 well selected photographs, the microstructure of cotton and wood fiber. Next comes a very condensed chapter on the isolation and purification of cellulose, which is followed by one on its general physical properties. Chapter 5 discusses the different ways to disperse cellulose and lists the main technical procedures to spin filaments and to cast films. Here, also, mercerization is dealt with. There follows a chapter on the various derivatives, such as cellulose esters and ethers, and another on modified celluloses, such as hydro- and oxycellulose.

These seven chapters communicate mainly experimental facts and methods, while the last two give a brief and clear report on the ideas which, at present, rule our attempts to visualize the molecular and micellar structure of cellulose samples (7 figures).

The attractiveness and value of such comprehensive treatises with a certain amount of popularizing tendency seem to be mainly influenced by three factors: clear and fluid presentation, impressive illustrations and good judgment in respect to what one has to leave out in order not to overload the text with too many details and to maintain clearly the principal lines of thought.

The author has, in the reviewer's opinion, been very successful in all these respects. The booklet is extremely pleasant to read, the formulas and illustrations are attractive and the reader never becomes aware over how many gaps and crevices he is smoothly led by the cautious skill of his guide. Hence it can be said that the presentation fulfills its purpose in an excellent way.

The booklet can be highly recommended to anybody who wants to learn the present state of cellulose chemistry in facts and ideas.

H. MARK

Explosives. By JOHN READ. Penguin Books Limited, Harmondsworth, Middlesex, England (41 East 28th Street, New York, N. Y., U. S. A.), 1942. 159 pp. Illustrated. 11 × 17 cm. Price, 9d.

English scientific authors have a peculiar talent in presenting technical subjects in an attractively popular manner. Professor Read is no exception, and he has succeeded admirably in writing an interesting and informative account of the chemistry of explosives for the lay reader. This book should be welcomed by the serious reader who desires to understand something about the explosives which today are changing the course of world history.

Inasmuch as the author has attempted to bring the technical aspects of explosives to the understanding of non-technical readers, three early chapters of the book are devoted to principles of elementary chemistry and thermodynamics which are presented in a clear and concise manner. The author has been successful in making this presentation simple and, in general, the discussions are accurate enough for the purpose in mind. However, the reviewer has noted a few instances of inaccurate statements which are unfortunate: *i. e.*, "When a substance undergoes a chemical change a new substance of different *composition* is *invariably* formed," "Each atom has its characteristic weight. As this weight is excessively minute, it is customary to assign unit weight to the lightest of all atoms—that of hydrogen—and to refer all other atoms to this standard." The three chapters answer the questions "What is Chemistry?" "What are explosives?" and "How explosives get their energy?" These accounts will be read with interest not only by laymen but also by persons with training in chemistry and other sciences.

The remaining sections of the book describe the history, properties, and uses both in war and in peace of explosives. An especially pleasant and useful feature of the presentation is the skill with which the author directs the attention of the reader to the relationships which exist among explosives and other useful products of the chemical industries, *viz.*, foods, dyes, textiles, pharmaceuticals, etc. The story leads from gunpowder to cyclonite. The distinctions among propellants, detonators, boosters, and high explosives are clearly described. Considerable attention is given to the historical development of the subject and allusions to such chemists as Scheele, Kekulé, Abel, Boulangier, Perkin, and particularly Nobel are made frequently. The astounding contribution of Alfred Bernard Nobel to the field of explosives is emphasized, and in connection with the establishment and awards of the Nobel Prizes it is remarked that "of all these Nobel Prizes, the Peace Prize has been reserved the most frequently."

The literary style is excellent and the presentation is lightened by frequent whimsical analogies which are very cleverly selected and phrased. Classical structural organic formulas are freely used, although the use of the cyclic formula for the azide, N_3 , group offends the modern nitrogen chemist. In spite of its unpretentiousness and small size, the book is worthy of careful reading by both chemists and laymen. The poor quality of paper and binding brings home to Americans that a desperate struggle is in progress which is affecting life in England to a much greater extent than it is in this country up to the present time.

G. B. L. SMITH

Advances in Enzymology. Edited by F. F. NORD, Fordham University, New York, N. Y., and C. H. WERKMAN, Iowa State College, Ames, Iowa. Volume III. Interscience Publishers, Inc., 215 Fourth Avenue, New York, N. Y., 1943. viii + 408 pp. 13 figs. 15.5 × 23.5 cm. Price, \$5.50.

The third volume of this valuable series of reviews of topics directly concerned with, or allied with, enzyme chemistry is prefaced by an excellent picture of Richard Willstätter and a short tribute to him by Arthur Stoll.

The book contains, first, an excellent discussion of chromosomes and nucleoproteins by A. E. Mirsky in which present-day views are fully dealt with and the unsatisfactory nature of our knowledge of these fundamentally important but baffling substances is pointed out. Attention is drawn to the suggestive fact that self-duplication, long known to be a function of the cell nucleus and thought to be a reaction in which the nucleoproteins are intimately concerned, is likewise a function of such non-nuclear nucleoproteins as the viruses. The suggestion is made that a comparison of the chemical composition and behavior of the chloroplasts of green plant tissue with viruses might be revealing inasmuch as the plastids are known to contain nucleic acid.

I. W. Sizer contributes a useful essay on the effects of temperature on enzyme kinetics, and W. T. Astbury a long and important paper on X-rays and the stoichiometry of the proteins. This paper shows evidence, from recent analytical studies of a few typical proteins, that the Bergmann and Niemann 2^{m3} rule, held by them to govern the proportions of amino acid residues present, has validity in certain cases and under certain conditions, a conclusion already reached by Chibnall in his Bakerian lecture. Astbury then extends this conception to the consideration of fibrous proteins and shows that the X-ray evidence does not support the view that the residues in silk fibroin follow one another always or exactly in the periods suggested by the purely chemical evidence. He turns, therefore, to the keratin-myosin group of proteins and shows that the stoichiometry is one of groups or types of residues rather than one of individual residues. A model structure is suggested which represents a development of his previous speculations and which coordinates the main properties both X-ray and chemical of the groups. This model is founded upon the assumption that polar and non-polar residues occur alternately throughout the fundamental polypeptide chains, and from it chemical, X-ray, and even certain physical properties of the fibrous proteins may be deduced. With respect to the corpuscular proteins—a term much to be preferred to the earlier term globular proteins—evidence both X-ray and chemical is reviewed which correlates observed deviations from the Bergmann-Niemann rule.

In addition the volume contains a review of the chemistry of glycogen by Kurt H. Meyer, a paper on verdoglycogen oxidase by Kejll Agner, one on mechanisms of carbohydrate metabolism from the point of view of comparative biochemistry by E. S. Guzman Barron and a careful treatment of the intermediary stages in the biological oxidation of carbohydrate by H. A. Krebs. This paper deals not only with experimental observations and the techniques employed but also with the theoretical interpretations. It

discusses chiefly the evidence from muscle tissue but reference is also made to other tissues and to microorganisms.

R. J. Williams contributes a thorough review of the chemistry and biochemistry of pantothenic acid and Klaus Hofmann one on biotin. Both papers are extremely useful, particularly for teaching purposes. J. P. Greenstein reviews recent progress in tumor enzymology and the volume terminates with an article by W. V. Cruess on the role of microorganisms and enzymes in wine making which gives much valuable information on this not generally familiar subject.

The bibliographies are throughout comprehensive, in most cases quoting over one hundred references, and in two cases over two hundred. The volume conforms in style with previous volumes, and is well printed and edited. Very few errors were noted. It is to be hoped that this useful series will be further extended.

H. B. VICKERY

Fundamentals of Immunology. By WILLIAM C. BOYD, Ph.D., Associate Professor of Biochemistry, Boston University, School of Medicine; Associate Member, Evans Memorial, Massachusetts Memorial Hospitals, Boston, Mass. Interscience Publishers, Inc., 215 Fourth Ave., New York, N. Y., 1943. xiv + 446 pp. 45 figs. 15.5 × 23.5 cm. Price, \$5.50.

During the last fifteen to twenty years, immunology has experienced a far-going internal evolution. For the first workers in this field, men like Ehrlich, the new science had been an integral part of physiology and biological chemistry. The practical application of the first discoveries became at once apparent and, since then, immunology developed under the pressure of the urgent needs of human and veterinary medicine. Little leisure was left to consider its connections with the neighboring fields of physiology, pathology and physiological chemistry. Immunological research outran in many respects our knowledge of the chemistry of the materials that were both its tools and its subject. A peculiar nomenclature was developed by immunologists which tended to make access difficult to the "intruder" from neighboring fields. Thus, an undesirable isolation developed at the time when the practical applications proceeded to form one of the great contributions to modern medicine.

The advance of knowledge in general chemistry and especially in the chemistry of complicated substances of cellular origin was one of the more important influences which led to the evolution of recent years. The need of coordinating the factual knowledge of immunology with the progress in biology, physics and chemistry became more apparent than before, and new tools were offered for the study of basic phenomena.

Today, the Chinese walls are being broken down. Boyd's book is a sign of the change and it is timely in the best sense. Medical science is in need of a book that points out the position of immunology in the total field of biology and medicine. An increasing number of chemists are working on biological problems, and many of them will encounter immunological problems or may like to use the tools offered by immunology. It is significant that *THIS JOURNAL* feels the advisability of acquainting its readers with the appearance of a book of this type.

It is a difficult task to write a textbook designed for the use of "medical students, chemists, biologists and others interested in an understanding of the basic principles of the science." The basic approach to immunology differs greatly for the student of medicine and the student of chemistry. The first one supposedly possesses a knowledge of the basic biological facts. The second one will bring with him a knowledge of biological chemistry and its methods so desirable for immunological work, but will probably need acquaintance with the biological background, without which the phenomena treated by immunology cannot be satisfactorily understood. Accordingly, Boyd was faced by the need of giving a broad background of facts and terms. It might have been a help if the author had assembled the considerations concerning the linkage of immunology with other fields of biological sciences in a broad introductory chapter, where, for instance, fundamentals like the mechanism of inflammation could have been treated in its general aspects. In such a chapter, it could also have been brought out that immunity and supersensitivity are only two different aspects of one basic mechanism of living matter. As it is, the reader will acquire the fundamental viewpoints piecemeal during his progress through the book, and he will have to rearrange his viewpoint repeatedly during the voyage.

Boyd has subdivided his book into ten chapters plus an additional one concerning the purely technical side of the field. The chapters are entitled: (1) Immunity and immunology, (2) Antibodies and antibody specificity, (3) Antigens, (4) Cell antigens, (5) Blood groups, (6) Antibody-antigen reactions, (7) Complement and complement fixation, (8) Anaphylaxis and allergy, (9) Allergy and immunity; bacteria; viruses; parasites, (10) Practical use of artificial immunity, (11) Laboratory and clinical technic. Perusal of this enumeration shows the continuous change from the fundamental to the special and from the theoretical to the purely technical. Thus it appears to the reviewer that the whole might gain by rearrangement, rearrangement not only of the total plan but of many details. A special desideratum in this respect concerns references. On the one hand, references for many small details are given which could be easily found in books, reviews, and other publications referred to anyhow. On the other hand, many important data, for instance those concerning the composition of many microorganisms, are left without references.

The difficult chapter on chemospecificity excels by lucidity. The treatment of the theory of precipitation and agglutination has been for years a field of special interest of the author; it could hardly be avoided that his very personal opinions have come to the foreground in the book.

In several places the reviewer was under the impression that the presentation has been unduly shortened. The ensuing over-simplification must inevitably lead to wrong perspectives on many details. It is felt that this could be eliminated without increasing the size of the book, if the detailed descriptions of methods which are, at the present time, only of interest for experimental purposes, could be replaced by simple references. Data are sometimes erroneous and often incomplete or open to misunderstanding, quite possibly for the reason just discussed. For instance, the author most certainly does not want to say that all

viruses appear in the form of elementary bodies, as could be misconstrued from page 131. To give another example, it will appear strange in these days to see the unqualified statement "since incidence of the disease (tetanus) in the general population is so low, however, it seems doubtful if active immunization will ever become general . . ." or to see, without qualification, the expectancy expressed that chemotherapy will supplant serotherapy. The close connection of immunology with infectious diseases and the importance of microbial chemistry and its relations to specificity make it desirable that the composition of microorganisms should be gone into in greater detail. The fundamental aspects of bacterial variation should not be disregarded. Sometimes, the author contradicts himself as, for instance, by denying the existence of antigenicity in substances of the lipid group in one paragraph (of doubtful correctness) and referring to lipid antigens in various other places. Nor will everybody agree that the nature of the Wassermann antigen has been settled for good. A great many similar smaller and larger incongruities and errors should be eliminated in a future edition.

A future edition, the reviewer feels confident, will come, because there is a real need for a book of this type. Regardless of weaknesses, which the reviewer thought it his duty to point out, the book as a whole provides a vivid and stimulating introduction into the field of immunology and should form the basis for a future standard work on immunology.

A. J. WEIL

The Chemistry of Natural Coloring Matters. The Constitutions, Properties and Biological Relations of the Important Natural Pigments. By FRITZ MAYER, Ph.D., formerly Professor of Chemistry in the University of Frankfurt-on-Main. Translated and Revised by A. H. COOK, Ph.D., Department of Chemistry, Imperial College of Science, London. (A. C. S. Monograph Series.) Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y., 1943. 354 pp. 15.5 × 23.5 cm. Price, \$10.00.

While alkaloids, carbohydrates, fats, and other groups of natural products include similar types of compounds, Natural Pigments as a general class embraces substances of the most diverse chemical character. Indeed, except in the presence of a strong chromophoric group, all structural features may vary without limitation. It is therefore a particularly difficult task to present the whole, intricate field in the form of a well-balanced monograph.

The reviewer believes that Dr. F. Mayer, formerly Professor at the University of Frankfurt-on-Main, whose tragic death in London is to be deeply regretted, was a scientist especially well suited for this task. Besides valuable experimental contributions, *e. g.*, to the chemistry of naturally occurring naphthoquinones, xanthenes, etc., Dr. Mayer had published several excellent surveys. In 1929 he reviewed the carotenoids in V. Meyer and P. Jacobson's classic textbook, and four years later he wrote the chapter "Natural Pigments" in the "Handbuch der Lebensmittelchemie."

The monograph under review was to be a translation of Mayer's "Chemie der organischen Farbstoffe" (Vol. II), published in 1935. However, the author made numerous

additions to the English edition covering the literature to the Fall of 1939. It will be valuable to the reader to know that Dr. A. H. Cook, the eminent British chemist, responsible for the translation, included more recent results up to the Summer of 1941.

A book of this character must meet two very different requirements. On the one hand, for advanced students and young research men, a textbook must be offered which treats separate chapters in a comprehensive, fluent way, and on the other, it must provide a source for rapid and concise information on the most important individual compounds. The reader will find that the volume under review solves both problems without going into a multitude of details. The data characterizing individual pigments are well selected and the general surveys are very satisfactory. These latter could be extended in some places. With skill and tact the most important references in the literature have been collected and are listed in footnotes. Among the great number of structural formulas, misprints are rare (a phenyl group is missing in flavane on p. 162).

According to the reviewer's belief, the Mayer-Cook monograph is a clearly written, stimulating book which can be recommended to organic chemists, biochemists, and students in these fields. The American Chemical Society doubtlessly enriched its Monograph Series by including this volume. It is only to be regretted that the price of the book is unusually high. It would be desirable to provide the young generation especially with a variety of modern books at moderate prices,—not in spite of, but because of, present conditions.

L. ZECHMEISTER

BOOKS RECEIVED

May 10, 1943–June 10, 1943

- H. BENNETT. "Practical Emulsions." Chemical Publishing Company, Inc., 234 King Street, Brooklyn, New York. 462 pp. \$5.00.
- H. BENNETT, Editor-in-Chief. "The Chemical Formulary." Vol. VI. The Chemical Publishing Company, Inc., 234 King Street, Brooklyn, New York. 636 pp. \$6.00.
- JEAN PIERRE BLANCHARD. "The First Air Voyage in America, January 9, 1793." The Penn Mutual Life Insurance Company, Independence Square, Philadelphia, 1943. 87 pp. Illustrated. 13.5 × 20 cm.
- ROBERT S. HARRIS AND KENNETH V. THIMANN, Editors. "Vitamins and Hormones." Volume I. Academic Press, Inc., Publishers, 125 East 23rd Street, New York, N. Y. 452 pp. \$6.50.
- HENRY MARGENAU AND GEORGE MOSELEY MURPHY. "The Mathematics of Physics and Chemistry." D. Van Nostrand Company, 250 Fourth Avenue, New York, N. Y. 581 pp. \$6.50.
- LEE IRVIN SMITH, Editor-in-Chief, *et al.* "Organic Syntheses." Vol. 23, 1943. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y. 124 pp. \$1.75.
- J. WINNING. "Heat Treatment of Metals." Chemical Publishing Company, Inc., 234 King Street, Brooklyn, N. Y. 99 pp. \$1.50.