

and κ has its usual significance in the Debye theory. The equations are valid for aqueous solutions at one atmosphere from 0 to 100°C.

In terms of the quantities given by Dr. Van Rysselberghe the first equation gives

$$2.3026h/\sqrt{\rho_0} = 3l/\sqrt{\rho_0}$$

and the third equation gives $g/\sqrt{\rho_0}$, if ρ_0 is the density of water at the temperature t .

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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NEW BOOKS

New Technical and Commercial Dictionary—Spanish, English—English, Spanish. Compiled by ANTONIO PEROL GUERRERO, Industrial Engineer, Escuela Central de Ingenieros, Madrid; Chief Editor, Editorial Tecnica Unida. The Chemical Publishing Company, Inc., 234 King Street, Brooklyn, New York, N. Y., 1942. ix + 600 pp. 15.5 × 23.5 cm. Price, \$10.00.

Now when at last we are becoming conscious that from south of the Rio Grande to the Antarctic the population of this hemisphere speaks Spanish and that therefore we must learn this language to become better neighbors, the publication of Spanish-English dictionaries is especially welcome. The New Commercial Technical Dictionary of Spanish-English and English-Spanish compiled by Sr. Antonio Perol Guerrero has been written for the use of engineers, business men, and military men. It is undoubtedly a heavy task, that of writing a technical dictionary of so wide a scope. As a consequence, the dictionary is somewhat deficient in words related to industrial trades (metal smith, ship fitter, copper smith, pipe fitter, pattern maker, moulder, etc.). There are in the Spanish-English section some errors of spelling (*azurar* instead of *azucar*, *cretlano* instead of *cretaceo*, *húmico* instead of *húmido*, *reactivo* instead of *reactivo*, *juga* instead of *jugo*, *respiradore* instead of *respiradora*) and repetitions, which may be corrected in the next edition. The third section of the book contains useful conversion tables of weights and measures.

E. S. GUZMAN BARRON

Preparacion de Productos quimicos y quimicofarmacuticos. (Preparation of Chemical and Chemical-Pharmaceutical Products.) Volumes I and II. By Professor C. A. ROJAHN, University of Halle. Translated and considerably amplified by Professor Francisco Giral, Chief of the Departments of Organic Synthesis in the "Laboratorios Hormona," Mexico. Editorial Atlante, S. A., Mexico, D. F. xxxix + 1002 pp. 17.5 × 24 cm. Price, \$11.00.

This book of preparations of chemical and pharmaceutical products was written by Professor Rojahn for the benefit of students of pharmacy; Professor Giral on translating the book from German into Spanish has also had the same aim in view. To make the book of practical use to Latin-American pharmacists, Professor Giral has used the pre-

scriptions of purity given by the U. S. Pharmacopeia. In these two volumes, an imposing array of methods of preparation of inorganic and organic compounds is given, all of them described with simplicity and clarity. The author was well aware of the lack of explanation of the reactions going on in those preparations and has defended in the foreword his method of presentation. Professor Giral has remedied in part this lack by providing excellent notes, added when compounds of biological interest are described. The reader would welcome more of these notes. An interesting feature of the book is that the methods selected are those requiring the least amount of laboratory material. In the section on organic compounds, some preparations of biological importance could be added (*e. g.*, keto acids, phosphorylated carbohydrate derivatives), whereas in the section on inorganic compounds, a number of them could be dispensed with. If in the next edition Professor Giral eliminates those preparations of no practical utility and increases the number of supplementary notes, the quality of the book will be greatly improved.

E. S. GUZMAN BARRON

Quantitative Analysis. A Theoretical Approach. By WILLIAM RIEMAN, III, PH.D., Associate Professor of Chemistry, Rutgers University, JACOB D. NEUSS, PH.D., Research Chemist, Merck and Co., and BARNET NAIMAN, PH.D., Assistant Professor of Chemistry, College of the City of New York. Second edition. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York, N. Y., 1942. xi + 496 pp. 66 figs. 15.5 × 23.5 cm. Price, \$3.50.

According to the Preface, the revision of the first edition (reviewed in THIS JOURNAL, 59, 1410 (1937)) has involved addition of some new procedures, the consistent use of the Brönsted acid-base concept, and development of the solubility product and related ideas using activities instead of concentrations. The theoretical material, explanatory mathematical parts and experimental procedures all are well written and readable; the book is well designed and executed from the mechanical side, being practically free from typographical errors and style faults (other than the omission of periods after some abbreviations and not others).

Although no longer than the average of such texts, it is composed of 29 chapters plus an appendix, and contains a

surprising number of topics and variations, some of them of very recent development, which do not appear in ordinary quantitative analysis books, such as the use of the activity concept, the Kjeldahl procedure, organic precipitants for aluminum, colorimetry and nephelometry, oxidation-reduction indicators, determinations of zinc, chromium, vanadium, molybdenum and tungsten, potentiometric pH measurement with various cells (including the glass electrode), and polarography, but not an adequate coverage of refractometry, spectrum methods, polarimetry work, and some newly developed instrumental analytical methods. Students going into modern analytical laboratories often find to their dismay that they have had no practice with or have never even heard of some of the newer procedures. So it devolves upon analytical instructors to re-appraise and re-plan their courses at intervals to keep up with the times, and this well-revised text would make a very good starting point.

ALLEN D. BLISS

Noxious Gases and the Principles of Respiration Influencing their Action. By YANDELL HENDERSON and HOWARD W. HAGGARD. Second and revised edition. (A. C. S. Monograph.) Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y., 1943. 294 pp. 15.5 × 23.5 cm. Price, \$3.50.

Workers in industrial hygiene should welcome this revised and enlarged second edition of Henderson and Haggard's popular book on the noxious gases that occur in industry. It is written in the same readable style as the original edition and is greatly improved by extensive revisions and additions to include new information that has become available since publication of the first edition in 1928.

An especially useful feature of this book to chemists and engineers is the presentation in simple understandable language of the physiology and physical chemistry involved in the action of noxious gases on the human system. The nature of this information is shown by the titles of Chapters 2 to 6: the elements of respiration; the respiratory functions of the blood and their laws; the practical applications of the laws of gases and vapors; the principles determining absorption, distribution and elimination of volatile substances in the body; and the significance of standards for physiological response to various concentrations of gases and vapors.

Chapter 7 gives a useful reference table listing 182 noxious gases and vapors according to their chemical composition. The table gives their chemical formulas, molecular weights, boiling points, whether liquid or gaseous under ordinary conditions, the nature of their physiological action, and their group classification according to their physiological actions. This classification consists of Group I, Irritants; Group IIA, Simple Asphyxiants; Group IIB, Chemical Asphyxiants; Group III, Volatile Drugs and Drug-like Substances; Group IV, Inorganic and Organometallic Gases. (In the first edition, Asphyxiants were designated Group I, and Irritants, Group II.)

Among the subjects discussed under these headings are the general and specific physiological action of the gases and vapors, their acute and chronic effects, their toxicity

and the physiological response to various concentrations, and treatment for poisoning. Each gas or class of chemical substance usually is introduced by a short description of its chemical and physical properties and its occurrence in industry. Chapters 8 and 9 on Irritants include acid gases, halogens, halogenated organic and inorganic compounds, ozone, alkyl sulfates, hydrogen sulfide and ammonia. Chapter 10 gives an excellent discussion of the nature of asphyxia, its treatment, and the effects of simple asphyxiants, oxygen deficiency and compressed air. Chapter 11 comprises a comprehensive and authoritative discussion of the industrially important chemical asphyxiants carbon monoxide and cyanogen compounds.

The title of Volatile Drugs and Drug-like Substances given to the large number of organic compounds described in Chapters 12 to 16, inclusive, does not indicate the industrial importance of the information given in this section of the book. The name was chosen because all of them exert their major physiological action after they have been absorbed into the blood, and most of them have a marked anesthetic effect when inhaled in sufficient quantities. This group includes volatile petroleum hydrocarbons, coke-oven light oils, alcohols, ethers, ketones, aldehydes, halogenated hydrocarbons, carbon disulfide, alkyl nitrites and nitro substitution products, aromatic nitro substitution products and amido compounds.

Chapter 16 on Inorganic and Organometallic Gases includes mercury, phosphorus, diethylarsine, tetraethyllead, nickel and iron carbonyl, arsine, phosphine, hydrogen sulfide and hydrogen selenide. Methods of Resuscitation and Comparison of Various Treatments are given in Chapter 17 and the Prevention of Poisoning by Noxious Gases is discussed in Chapter 18.

The table of noxious gas, page 103, contains an error in listing $\text{HOCH}_2\text{CH}_2\text{OC}_2\text{H}_5$ as ethylene glycol monomethyl ether. It should be listed as the monoethyl ether, and the molecular weight should be 90.12 instead of 74.12. Also on page 100 of the same table, SbH_3 should be named hydrogen antimonide instead of hydrogen antimoniate.

The volume is printed in easily-readable type and contains enough new information to justify replacement of the first edition. No one interested in the elimination of health hazards due to noxious gases can afford to be without this book.

A. C. FIELDNER

Organic Chemistry, an Advanced Treatise. By HENRY GILMAN, Editor-in-Chief, and twenty-five contributors other than the members of the Board. In two volumes. Second edition. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y., 1943. lxxvii + 1983 pp. 15.5 × 23.5 cm. Price, \$15.00.

Those who are familiar with the first edition of this valuable book need only to be told that the second edition maintains the same high quality with a considerable increase in the number of the subjects that are discussed. The new edition contains twenty-six chapters, eight of which are new, and all of which have been written by recognized authorities in the various fields. The new chapters are The Reactions of Aliphatic Hydrocarbons by Gustav Egloff, Synthetic Polymers by C. S. Marvel and E.

C. Horning, Catalytic Hydrogenation and Hydrogenolysis by Homer Adkins and Ralph L. Shriner, Organic Sulfur Compounds by Ralph Connor, Aliphatic Fluorides by Albert L. Henne, The Chemistry of the Porphyrins by Alsoph H. Corwin, Chlorophyll by Catherine C. Steele, and The Redistribution Reaction by George Calingaert and Harold A. Beatty.

The following eighteen chapters are carried over from the first edition: Alicyclic Compounds and the Theory of Strain, Theory of the Structure and Reactions of Aromatic Compounds, Stereoisomerism, Organometallic Compounds, Free Radicals, Unsaturation and Conjugation, Molecular Rearrangements, Comparison of Chemical Reactivity, Natural Amino Acids, Alkaloids, The Anthocyanins and the Flavones, The Steroids, Carbohydrates I, II and III, Constitution and Physical Properties of Organic Compounds, Modern Electronic Concepts of Valence and The Significance of Resonance to the Nature of the Chemical Bond and the Structure of Molecules. All of these chapters have been brought up to date and, to varying extents, revised. Some of the revisions are fairly extensive while others consist only of the addition of a few paragraphs and some new section headings to the material of the first edition.

The subject matter of each of the chapters is, on the whole, well chosen and clearly presented and varies from 15–20 page surveys of such restricted fields as the aliphatic fluorides and the redistribution reaction to a comprehensive treatise on the whole field of stereoisomerism that covers 275 of the book's 1983 pages. This diversity of subject matter makes the book both a valuable reference source for organic chemists and a practical textbook for the advanced student. There are, however, a few subjects which the reviewer feels are not adequately discussed. One of these is the substitution of aromatic nuclei by anionoid reagents. The electronic theory of aromatic substitution is discussed in Chapters 3 and 26—strangely enough, this important application of the electronic theory is not discussed at all in Chapter 25 that deals with this subject—and both discussions, with the exception of a single sentence in Chapter 3, are confined to substitution by cationoid reagents. It is true that substitutions in aromatic nuclei by this latter type of reagent are more common than those by anionoid reagents, but when industrial processes, such as the preparation of alizarin and α -aminopyridine, and procedures in Organic Syntheses involve anionoid substitution, it would seem that the subject is of sufficient importance to merit serious consideration in an advanced treatise. Another subject that might well be expanded is the chemistry of the quinones. The discussion of this important class of compounds is limited in Chapter 7 to the addition of the halogen acids and hydrocyanic acid to benzoquinone. These are, of course, but minor details when the excellence and value of the book as a whole are considered.

Dr. Henry Gilman is to be congratulated on the high quality of his work as Editor-in-Chief. He certainly deserves the gratitude of all who are interested in the learning, teaching and practice of organic chemistry for undertaking and completing so successfully the prodigious amount of work that must have been necessary to make this book available.

Anyone who inspects these volumes cannot fail to be impressed by the publishers' unusually fine job of book-making. The printing is clear and legible, the structural formulas are exceptionally well constructed and organized, and typographical errors are surprisingly few.

S. M. McELVAIN

BOOKS RECEIVED

April 10, 1943–May 10, 1943

- A. H. BLATT, *Editor, et al.* "Organic Syntheses. Collective Volume 2. A Revised Edition of Annual Volumes X-XIX." John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y. 654 pp. \$6.50.
- TENNEY L. DAVIS. "The Chemistry of Powder and Explosives." Vol. II. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y. 489 pp. \$3.00.
- CARL J. ENGELDER. "Elementary Quantitative Analysis." Third Edition. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y. 283 pp. \$2.75.
- WILLIAM MARIAS MALISOFF. "Dictionary of Biochemistry." Philosophical Library, Inc., 15 East 40th Street, New York, N. Y. 579 pp. \$7.50.
- MAXIM NEWMARK. "Dictionary of Science and Technology in English-French-German-Spanish." Philosophical Library, Inc., 15 East 40th Street, New York, N. Y. 386 pp. \$6.00.
- WILLIAM H. PETERSON, JOHN T. SKINNER AND FRANK M. STRONG. "Elements of Food Biochemistry." Prentice-Hall, Inc., 70 Fifth Avenue, New York, N. Y. 291 pp. \$3.00.
- JAMES B. SUMNER AND G. FRED SOMERS. "Chemistry and Methods of Enzymes." Academic Press, Inc., 125 East 23rd Street, New York, N. Y. 365 pp. \$5.00.
- J. W. TURRENTINE. "Potash in North America." (A. C. S. Monograph Series.) Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y. 186 pp. \$3.50.
- CHARLES MORROW WILSON. "Trees and Test Tubes. The Story of Rubber." Henry Holt and Company, Inc., 257 Fourth Avenue, New York, N. Y. 352 pp. \$3.50.