

## NEW BOOKS

**Das Leitvermögen der Lösungen.** (The Conductivity of Solutions.) Parts II and III. By PAUL WALDEN, Professor at the University, Rostock. Akademische Verlagsgesellschaft m. b. H., Markgrafenstrasse 4, Leipzig, 1924. vi + 346 and v + 397 pp. 39 figs. 24.5 × 16.5 cm. Price, unbound, 47 Goldmarks; bound, 50 Goldmarks.

The appearance of the second and third volumes of Professor Walden's "Handbuch" on conductance of solutions brings up once more the question as to just what such a treatise should be. This one shows German influence in its "thoroughness," which in this case means the attempt to get into the book at least a reference to every article that has been written in the field covered by the treatise, no matter how obscure the source, or how worthless the subject material. The labor in preparing such a book must be enormous, although the trouble it saves its users, one can hardly call them readers, probably justifies the drudgery of the author in preparing it. A careful, well-balanced treatment of all the material thus assembled is, however, hardly possible. The compiler must in most cases give the data and conclusions of the authors of articles much as he finds them. Contrasted with this is what is apparently coming to be the American tradition, if it is old enough to be called by that term. The American treatise or monograph deals, in general, with material with which the author has had intimate personal contact, and in the comparatively limited field covered it gives a complete consistent treatment, although it is sure to be fully charged with the author's personality and prejudices. It is just as well that both types of treatise are being written, as one would not like to dispense with either of them.

Professor Walden's thoroughness is shown in Volume II by his compilation of nearly all the conductivity data of solutions both for aqueous and non-aqueous solvents. Although the collection is almost entirely uncritical, it should prove invaluable for reference.

Volume III is, in the opinion of the reviewer, far superior to Volume I, which has already been reviewed in THIS JOURNAL. Among the many subjects discussed are the extrapolation of conductance data to infinite dilution, the influence of the dielectric constant on conductance, the use of conductance methods in titrations, in measuring speeds of reactions and degrees of hydrolysis, and in the determination of the solubilities of slightly soluble salts. Although the author is evidently not convinced by the evidence for the modern ideas concerning the total dissociation of strong electrolytes, he gives a very fair account of the origin and development of the theory. Also, there is an excellent and comprehensive chapter on the use of conductance measurements in the determination of the types of molecular complexes studied by Werner.

The three volumes should certainly be available to all research workers who use, or are likely to use, conductance methods in solving their problems.

D. A. MACINNES

**Oxydation und Reduction. (Oxidation and Reduction.)** By RICHARD STOERMER, Rostock. Urban und Schwartzberg, 1925. Pp. 456.

This book is Lieferung 174 of a very comprehensive "Handbuch der biologischen Arbeitsmethoden," which is being published under the editorship of Professor Emil Abderhalden. While the Handbuch seems to be intended primarily for the use of biochemists, this volume will be chiefly of value to those who are working on the synthesis of organic compounds. For such persons it will prove exceedingly useful. The material is arranged systematically in accordance with the groups which are to be oxidized or reduced, for instance, the oxidation of a methyl group to a primary alcohol, aldehyde or acid group and the last in five classes of compounds. Oxidation is discussed under 28 headings and most of these under several subheads. Reduction is treated under 26 heads and many subheads. At the close of the part on oxidation there is a tabular summary arranged according to the oxidizing agent employed, with page references to the researches where this agent is used for a specific purpose. By means of this double system, a chemist will be able to find illustrations of oxidations and reductions of almost any type he may wish to use. Any chemist who has had experience in organic syntheses will understand the great value of such a book.

The labor involved in such a compilation is very great. In general, the work has been well done but it is noticeable that German literature has been scanned much more thoroughly than that of other countries. On p. 10 there is no mention of Remsen's law that *ortho* groups interfere with the oxidation of alkyl groups in aromatic compounds. On p. 308 an old and cumbersome method of preparing platinum black is given and there is no reference to the elegant method of Adams and Voorhees. There seems to be no reference to the oxidation of naphthalene to phthalic anhydride and of anthracene to anthraquinone, by the oxygen of the air, with the aid of a catalyst.

Such a book as the one under consideration brings out clearly, although most organic chemists seem quite unconscious of the fact, how detailed and purely empirical is the knowledge on which we must rely for guidance in organic syntheses. Among the two hundred thousand organic compounds, we have learned much about the conduct of certain groups and certain classes of substances but we have almost no fundamental principles except those of valence, radicals, substitution, configuration and equilibria to guide us. We should recognize this state of our science. That may prove the first step toward something better.

W. A. NOYES

**Logarithmische Rechentafeln für Chemiker, Pharmazeuten, Mediziner und Physiker.** (Logarithmic Computation Tables for Chemists, Pharmacists, Physicians and Physicists.) BY DR. F. W. KÜSTER. Revised by DR. A. THIEL, Professor of Physical Chemistry, Director of the Physicochemical Institute of the University of Marburg. 30th-34th revised and enlarged edition. Walter de Gruyter and Co., Berlin and Leipzig, 1925. 146 pp. 19.5 × 14 cm. Price, unbound, 4.80 Mk.; bound, 6 Mk.

This new edition of Küster's convenient little handbook retains substantially the form and contents of the old edition. Many of the tables of constants have been revised and enlarged. A new table has been added, for correcting the volumes of various normal solutions when used for titration at temperatures other than those at which they were standardized.

This handbook was designed primarily for the use of the analytical chemist in his calculations in the laboratory. Its long-continued and wide popularity is evidence of the success with which it has fulfilled this purpose.

Its tables are based naturally enough on the 1925 German rather than International Atomic Weights.

ARTHUR B. LAMB

**Organic Syntheses, an Annual Publication of Satisfactory Methods for the Preparation of Organic Chemicals.** Editorial Board, CARL SHIPP MARVEL, Editor-in-Chief; ROGER ADAMS, H. T. CLARKE, J. B. CONANT, HENRY GILMAN, OLIVER KAMM, F. C. WHITMORE. Vol. V. John Wiley and Sons, Inc., New York; Chapman and Hall, Limited, London; 1925. vii + 110 pp. 3 figs. 23.5 × 15 cm. Price \$1.50, net.

The general plan and helpfulness of "Organic Syntheses" are too well known for further comment. The fifth volume contains "certified directions" for the preparation of the following substances: *p*-acetaminobenzene sulfinic acid, *p*-acetaminobenzene sulfonyl chloride, acetone dicarboxylic acid, adipic acid, benzalaniline, benzalpinacolone, *p*-bromoacetophenone, *p*-bromotoluene, *n*-butyl *n*-butyrate, *n*-butyl chloride, *o*-chlorocyclohexanol, cyclohexene, cyclohexene oxide, cyclopentanone, 1-cystine, diallyl amine, diallyl cyanamide, 2,3-dibromopropene, ethyl acetone dicarboxylate, ethyl orthoformate, ethyl oxalate, *d*-glutamic acid, glutaric acid, isatin, *dl*-methylethyl acetic acid, 1,4-naphthoquinone, *m*-nitrocinnamic acid, nitro-urea, pinacol hydrate, pinacolone, semicarbazide sulfate, 1,2,3-tribromopropane, trimethylene cyanide.

As will be seen from this list, the scope of the series has been increased by the inclusion of directions for the isolation of two amino acids from natural sources.

E. P. KOHLER