

On p. 253, "It has been found that a couple made of bismuth and antimony, heated at the point of union, corresponds very closely in electromotive force to a couple consisting of zinc and copper immersed in sulphuric acid." In fact, this thermo-potential cannot be over a few hundredths of that of the zinc-copper-acid combination.

The problem of electricity from carbon is given a short chapter, in which all the energy thus far derived from carbon cells is attributed to thermo-electric operations. The manufactures of ozone and nitric acid from the atmosphere are given quite extensive treatment.

Chapter XVI is devoted to the primary cell. No attempts are made to introduce the usual mathematical formulas expressing relationship between ionic concentrations, migration rates and electromotive forces. The familiar and incorrect system of calculating electromotive force corresponding to a given reaction, from heats of formation alone, is given in this chapter and is also previously used to determine the minimum electromotive force necessary to produce a current through an electrolyte.

W. R. WHITNEY.

A SYNOPSIS OF A COURSE OF LECTURES IN GENERAL CHEMISTRY PUT IN THE FORM OF QUESTIONS. By S. L. BIGELOW. Ann Arbor: George Wahr. 1905. 104 pp. Price, 50 cents.

The author's attempt to furnish a series of questions, that shall help a student assimilate the facts acquired in the lecture room and direct his study of some text-book to the best advantage, is very successful. The questions are well chosen, clearly put, and broad enough in their scope to satisfy the demands of most elementary courses. A few tables of constants, and some hints regarding problems concerning gases and solutions are placed in an appendix.

L. B. HALL.

RECENT PUBLICATIONS.

THE MODERN PACKING HOUSE: A COMPLETE TREATISE ON THE DESIGNING, CONSTRUCTION, EQUIPMENT AND OPERATION OF A MODERN ABATTOIR AND PACKING HOUSE, ACCORDING TO PRESENT AMERICAN PRACTICE, INCLUDING FORMULAS FOR THE MANUFACTURE OF LARD AND SAUSAGE, THE CURING OF MEATS, ETC., AND METHODS OF CONVERTING ALL BY-PRODUCTS INTO COMMERCIAL ARTICLES. By F. W. Wilder. Chicago: Nickerson & Collins Co. 1905. 581 pp. Cloth, \$10.00. Mor., \$12.00.

L'OXYGENE INDUSTRIEL ET SES APPLICATIONS. By R. Pictet. Paris: Fischbacher. 64 pp. 2 fr.

INTRODUCTION À ÉTUDE DE LA CHIMIE. By M. de Thierry. Paris: Masson et Cie. 14+456 pp. 10 fr.

DIE ÄRZNEIMITTEL-SYNTHESE AUF GRUNDLAGE DER BEZIEHUNGEN ZWISCHEN CHEMISCHEN AUFBAU UND WIRKUNG. FÜR ÄRZTE UND CHEMIKER. By Sigmund Fränkel. Second edition. Berlin: J. Springer. 1906. 20+761 pp. Marks 16.

LEITFADEN FÜR DIE QUALITATIVE CHEMISCHE ANALYSE. By Städeler-Kolbe. Neu-bearb. von Prof. Dr. H. Abeljanz. Edition 13. Zürich: Art. Institut Orelli Füssli. 1906. 13+128 pp. Marks 3.

STUDIEN-BEHELFE FÜR DEN UNTERRICHT IN DER ALLGEMEINEN UND TECHNISCHEN CHEMIE. By Nicolas Teclu. Wien: (Leipzig: J. A. Barth). 1905. 5+270 pp. Marks 4.20.

ÉTUDE COMPARATIVE DES METHODES D'ANALYSE DES ENGRAIS DANS LES DIVERS PAYS. By L. Sicard. Montpellier: Coulet et fils. 2 fr. 50.

DE L'EMPLOI DES ALCALOIDES EN SOLUTION HUILEUSE. By Dr. Scrinii. Paris: Vingt freres. 2 fr. 50.

PRINCIPLES AND PRACTICE OF BUTTER-MAKING; A TREATISE ON THE CHEMICAL AND PHYSICAL PROPERTIES OF MILK AND ITS COMPONENTS; THE HANDLING OF MILK AND CREAM AND THE MANUFACTURE OF BUTTER THEREFROM. By G. L. McKay and C. Larsen. New York: J. Wiley & Sons. 1906. 12+329 pp. \$1.50 net.

A SYSTEMATIC COURSE OF QUALITATIVE CHEMICAL ANALYSIS OF INORGANIC AND ORGANIC SUBSTANCES WITH EXPLANATORY NOTES. By H. W. Schimpf. New York: J. Wiley & Sons. 1906. 7+156 pp. \$1.25 net.

THE CONDUCTIVITY OF LIQUIDS: METHODS, RESULTS, CHEMICAL APPLICATIONS AND THEORETICAL CONSIDERATIONS. By Olin Freeman Tower. Easton, Pa.: Chemical Publishing Co. 1905. 4+182 pp. \$1.75.

ELEMENTS OF QUANTITATIVE ANALYSIS. By G. H. Bailey. New York: Macmillan. 1905. 10+246 pp. \$1.00.

PORTLAND CEMENT, ITS MANUFACTURE, TESTING AND USE. By D. B. Butler. Second edition, revised and enlarged. New York: Spon & Chamberlain. 1906. 406 pp. \$5.00 net.

PRACTICAL CEMENT TESTING. By W. Purves Taylor. New York: Myron C. Clark Publishing Co. 1906. 8+320 pp. \$3.00.

EXPERIMENTAL ELECTROCHEMISTRY. By Nevil Monroe Hopkins. New York: D. Van Nostrand Co. 1905. 14+284 pp. \$3.00.

SPECIAL EXPERIMENTS AND DISCUSSIONS IN INTRODUCTORY CHEMISTRY: WITH A PLAN FOR THE ORGANIZATION OF THE SUBJECT-MATTER. By Eugene Paul Schoch. Boston: D. C. Heath & Co. 1905. 7+62 pp. 50 cents.

KALENDER FÜR DIE GUMMI-INDUSTRIE UND VERWANDTE BETRIEBE 1906. Hrsg. von Edg. Herbst. Dresden: Steinkopff & Springer. 7+367 pp. geb. Marks 4.50.

KRITISCHE BETRACHTUNG EINIGER UNTERSUCHUNGSMETHODEN DER KAOLINE UND TONE. By Carl Loeser. Halle: L. Nebert. 1905. 29 pp. Mark 1.

L'APPAREILLAGE MÉCANIQUE DES INDUSTRIES CHIMIQUES. By A. Parnicke. Paris: H. Dunod. 356 pp. 12 fr. 50.

LA DISTILLATION DES RÉSINES ET LES PRODUITS QUI EN DÉRIVENT. By V. Schweizer. Paris: H. Dunod. 242 pp. 7 fr. 50.

DAIRY CHEMISTRY. By Harry Snyder. New York: The Macmillan Co. 1906. 11+190 pp. 90 cents.

CHEMICAL ANALYSIS, QUALITATIVE AND QUANTITATIVE. By W. Briggs and R. W. Stewart. Fifth impr. (Fourth edition.) Rev. and enl. by H. W. Bausor. London: Clive. 1906. 212 pp. 3/6.

MANUAL OF PHARMACOLOGY. By Walter E. Dixon. London: E. Arnold. New York: Longmans, Green & Co. 1906. 12+451 pp. \$4.00.

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URIC ACID: THE CHEMISTRY, PHYSIOLOGY AND PATHOLOGY OF URIC ACID. By Francis H. McCrudden. New York: Paul B. Hoeber. 1906. 11+318 pp. \$2.50.

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SECOND STAGE PRACTICAL INORGANIC CHEMISTRY. By W. Briggs and R. W. Stewart. Second edition. London: Clive. 1906. 172 pp. 2/.

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