

chapters have been omitted." This edition retains the many commendable features of the first edition and adds to them, as well as bringing the subject-matter up-to-date.

Among the many points of excellence may be noted the paragraphs on feed water treatment, on the setting of Portland cement and on electrolysis. An extended treatment of types of alloys together with an unusually clear introduction to the use of "freezing point" diagrams precedes a very extensive presentation of non-ferrous alloys and of the metallography of iron and steel. The excellent chapter on hydrometry reappears in nearly its original form. Far too many men highly versed in chemistry have no conception of the significance of the Baumé scales!

A few minor mis-statements and omissions have been noted and these, strangely enough, have persisted from the earlier edition. Rutile (p. 93) is a far more usual mineral than either brookite or anatase, and one wonders why the author writes its formula Ti_2O_4 . The *wet process* is much used for making Portland cement from materials other than marl (p. 313), and no mention is made of titanium whites under white paint pigments (p. 349).

The chapters on primary and secondary cells could be further strengthened by a more consistent treatment of the nature and charge of the electric current. After an excellent treatment of primary cells in terms of electrons (p. 477) and a very lucid presentation of the relationship between the flow of electrons and what has been arbitrarily chosen as the "direction of the current," it seems regrettable that the author should offer an explanation of the action of the lead accumulator in terms of positive electricity (p. 497). The action of the Edison cell is well explained in terms of units of negative electricity (p. 508) instead of in both units as in the first edition. It is certainly better to say that "hydrogen ions will discharge" (p. 479), rather than "hydrogen ions separate out" (p. 486), when discussing the change of hydrogen ions to free hydrogen. The points just cited do not, however, detract appreciably from the general worth of the book.

It should be in the library of every engineer who desires to know something about the materials of his profession. This book cannot be too highly recommended for students of engineering. Teachers of general chemistry will find it a very valuable aid. The reviewer knows no better single source for the sort of information designed to interest boys in chemistry. The book should be on the desk of every high-school teacher of chemistry.

R. E. KIRK

Non-Metallic Minerals, Occurrence-Preparation-Utilization. RAYMOND B. LADOO, General Manager, Southern Minerals Corporation; Technical Director, Eastern Magnesia Talc Co., Inc. McGraw-Hill Book Co., Inc., New York, First Edition (1925). viii + 686 pp. 51 figures. 15.25 × 23.5 cm. \$6.00 net.

In this volume the writer has covered in a general way the technology of the non-metallic minerals. The material is grouped under the usual trade headings and these are arranged alphabetically. A liberal use has been made of cross references. Under each general heading the author discusses minerals and compositions, general description, physical properties, geologic occurrence, geographic distribution, production and consumption, mining and milling, marketing and shipping, specifications and tests, and utilization. Many flow sheets of processes are given and tables of production, consumption, and prices are numerous.

"The non-metallic mineral field, as covered by this book, includes primarily those minerals of industrial importance which are mined industrially for use other than as a source of the metals. Certain minerals, such as bauxite, have both metallic and non-metallic applications and in these cases only the non-metallic mineral phases are covered. The field is also limited by omitting those minerals of organic origin used primarily as fuels. . . . and also the natural bitumens and hydrocarbons. . . ."

Selected bibliographies follow each subject heading. They refer to the best treatises on that subject and include references to complete bibliographies.

This book represents a rather critical survey of a considerable amount of information hitherto available only in diverse and widely separated publications, many of which were difficult of access for the average person interested in the technology of some non-metallic mineral. The author has attempted a very difficult task and has achieved a considerable degree of success therein. The book seems to meet a very definite need in technological literature.

This publication should serve as a ready reference book for the teacher of chemistry who is always being asked, "What is it used for?" From Abrasives to Zirconium Minerals the book is a real storehouse of information and reference.

R. E. KIRK

OTHER PUBLICATIONS RECEIVED

Laboratory Questionnaire; The Laboratory. This is the report of the results of an investigation undertaken by the New England Association of Chemistry Teachers in commemoration of twenty-five years of work during which marked changes in the methods of teaching chemistry have taken place. Published in the Report of the Twenty-fifth Meeting of the N. E. A. C. T., in part, and completed in a Supplementary Report. Price fifty cents.

A questionnaire, sent to over one hundred teachers of chemistry in the secondary schools and colleges of New England, covers the subject of the what and the why of the laboratory teaching of chemistry. The persons to whom this questionnaire was sent were selected very care-

fully so as to get all types of schools and colleges represented in the summing up.

The compilation of the results of this questionnaire was made by Wilhelm Segerblom of Phillips Exeter Academy and is very full. The various opinions expressed by those who filled out the questionnaires are given and discussed in great detail.

Teachers of chemistry should have this report in their libraries. It should be in every college and university library where it can be consulted by students preparing to teach chemistry.

Copies may be obtained by writing Mr. John H. Card, English High School, Boston, Massachusetts.

S. WALTER HOYT

Tropical Scientist Advocates Alcohol Motor Fuel. Making motor alcohol from molasses and the juice of the sugar palm is now only a matter of cost because technical difficulties in the manufacture as well as in the use of the fuel by standard automobile engines have been solved, J. P. Foster, chief chemist of the Maui Agricultural Company's sugar factory in Hawaii, told the 70th annual meeting of the American Chemical Society meeting here this morning. The advantages of this new motor fuel are said to be easy starting, elimination of knocking and freedom from carbon troubles. The alcohol is denatured by the use of ammonia, pyridine or aniline which also neutralize the acidity of the fuel and the substances left over after burning.—*Science Service*

Colleges Blamed for Students' Failure. When a student "flunks from college" or university, whose fault is it? Heretofore the failing student has usually been allowed to drop out of his classes for six months or a year to loaf or work, then return with "his deficiencies remedied." Experiments conducted this spring by Franklin C. Paschal, professor of psychology and dean of men at the University of Arizona, lead Professor Paschal to lay most of the blame on the institutions. He reclaimed 80 per cent of a group of failing students without any loss of class time.

Professor Paschal selected 25 students from 80 who had failed in 50 per cent of their college work. These students were given provisional registration and allowed to register for a maximum of 12½ units. They were required to present themselves three afternoons a week for supervised study. As a result, 20 were saved.

Lack of adequate high-school preparation and lack of knowing how to study were found to be the most frequent causes of failure. Laziness, Dean Paschal said, is only a symptom. Other causes were extracurricular activities, financial difficulties and general inability to carry a university program.—*Science Service*