

Following these tests, a portion of the acid was subjected to analysis by the Palm method.<sup>1</sup> In this analysis the percentage of PbO obtained by incinerating the precipitate of lead lactate,  $3\text{PbO}_2(\text{C}_3\text{H}_5\text{O}_3)$ , was found to be 78.36 and 78.07 in two separate precipitations. The theoretical percentage is 78.50. Crystals were also obtained by treatment with zinc oxide, which resembled zinc lactate crystals under the microscope but no chemical analysis of these was made to positively identify them as such.

The above tests were considered sufficient to warrant the conclusion that the normal acidity of the sisal plant is due to the presence of lactic acid. While this acid is said to exist normally in many seeds, its presence in plants as a normal product of vegetation has been given little consideration, and to my knowledge sisal is the only plant known to develop this acid as its normal vegetable acid.

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### NEW BOOKS.

*Handbuch der Mineralchemie* Bd. I, 6 (Bogen 51-64 und Titelbogen). By C. DOELTER, et al. Dresden: Theodor Steinkopf. Price, M 9.10

With this issue, Vol. I of *Mineralchemie* is concluded. The final sections are devoted chiefly to the silicates in their relations to industry. About 50 pp. by Dittler and Von Arlit are given up to the consideration of cements, including the newest literature and a bibliography of the subject. Zschimmer, of Jena, in the section on glass, considers the manufacture briefly; the chemical composition and properties of good and bad glass, more fully. He discusses a large body of data on the deterioration of glass under atmospheric influences and its decomposition by water and other reagents which will be of interest to all chemists. There is a section on glazes and enamels by Berdel and another on slags by J. H. L. Vogt. In the latter, the well known author presents some interesting problems regarding the relative composition of slags and metals. The mineral chemist will find in this volume plenty of suggestions for new researches, and the student who has a taste for exact measurement will see in it an abundance of crude data which need to be replaced. An appendix of additions and corrections and an extensive index contribute essentially to the value of the volume.

E. T. ALLEN.

*Introduction to the Study of Minerals.* By AUSTIN FLINT ROGERS, PH.D., Associate Professor of Mineralogy and Petrography, Leland Stanford, Jr., University. New York: The McGraw-Hill Book Co. 522 pp., 5 x 7<sup>1</sup>/<sub>4</sub>. Flexible leather, \$3.50 (15s) net, postpaid.

This admirable book of Prof. Rogers has as its stated purpose to cover "the whole field of mineralogy, so far as practicable," and to give "the

<sup>1</sup> THIS JOURNAL, 9, 16; 31, 1365.

proper emphasis" to each feature and at the same time to keep the work "condensed enough for field work."

The "proper emphasis" is, of course, open to discussion, but no one will doubt that the separate features are well and carefully treated and that in addition some of the departures from older methods are timely. For instance, Prof. Rogers has recognized that the time has come to give the polarizing microscope a more prominent place in elementary work so that it shall "supplement the blowpipe in the determination of minerals." It is no longer a very costly instrument and its use should not be limited to advanced students or to the study of rock sections. He has therefore given more space to the descriptions of optical characters and methods than is usually given in an elementary text-book and has introduced not only his own very interesting table for determination of minerals in crushed fragments, but a series of recrystallization tests of compounds soluble in water, as well as occasional microchemical tests.

Prof. Rogers appears to regard tables of determination as of somewhat minor importance as indicated not only by his statement "tables do not determine a mineral but simply give one a clue," but also by the absolute independence of the six short tables given, in which the minerals are arranged respectively: (1) by crystal form and habit; (2) by cleavage and structure; (3) by color; (4) by specific gravity; (5) by optical tests; and (6) by blowpipe and chemical tests. As the determination of a given mineral will not in most instances safely result from the independent use of any one of these tables, it seems evident that while each is to furnish a separate clue, the main reliance is to be the description of the species and the previously accumulated power of sight recognition.

It is the opinion of the writer that the time usually allotted will not suffice to make this method as successful as the usual type of tables in which the principal tests successively subdivide and eliminate, and the other tests are built into the structure of the tables as confirmation.

An interesting feature is that the paragraph on Occurrence under each species is subdivided by kinds, establishing what the author calls "paragenetic" varieties.

The book concludes with a glossary.

The illustrations are unusually well adapted to explain the text and the selection of type and variety serve well to make the different characters stand out prominently.

A. J. MOSES.

**Festschrift.** W. NERNST, zu seine in fünfundzwanzigjährigen Doktorjubiläum gewidmet von seinen Schülern. Halle: a. d. S. Verlag von Wilhelm Knapp. 1912. Pp. 487. Price, M. 21.60.

This jubilee volume contains the accounts of original investigations recently carried out by 44 men, all former students of Professor Nernst.

E. W. WASHBURN.

**Refraktometrisches Hilfsbuch.** By W. A. ROTH AND F. EISENLOHR. Veit & Co. Leipzig: 1911. 146 pp. Price, 6 marks.

The molecular refraction is used by organic chemists at the present time as one of the standard methods of determining structure. The book under review contains a clear and detailed exposition of the methods and different forms of apparatus in use for measuring refractive indices as well as for obtaining the other necessary data under various conditions, and will prove invaluable not only for workers in the laboratory but also for those who desire to follow intelligently the applications by others of this method. An important feature is the collection of tables which will facilitate the calculation of refractive indices and molecular refractions from the necessary measurements. The new values for the atomic refractions determined by Eisenlohr are given. The table of values of  $\log(n^2 - 1)/(n^2 + 2)$  corresponding to different values of  $n$  will especially appeal to those who are actively engaged in this work.

K. G. FALK.

**Practical Chemistry for Engineering Students.** By ARTHUR J. HALE, B.Sc. (London), Lecturer and Demonstrator in Chemistry at the City and Guilds Technical College, Finsbury; with an introductory note by PROFESSOR R. MELDOLA, D.Sc., LL.D., F.R.S. Longmans, Green and Co., 1912. 13 × 19 cm., pp. xix + 192. Price, \$1.00.

The purpose of this book is indicated by Professor Meldola in his introductory note: "The programme of practical exercises... makes no claim to have introduced any fundamental new principle; its distinctive feature is the teaching of the subject with a bias towards the use of materials familiar in constructive industry.... The fundamental principles of chemical science can be developed as philosophically from the study of what may be called "engineering" materials as from those made familiar through the multitudes of existing text-books.... It can certainly be claimed as a matter of experience that such treatment is much more successful in arousing the interest and fixing the attention of the student." In accordance with this program, the effort is made to give the work an engineering flavor throughout. The author suggests suitable selections from the exercises to occupy one, two or three sessions of 72 hours' laboratory work. Directions for experiments of the type familiar for the last twenty-five years occupy the first 110 pages; then follow 19 pages on simple qualitative analysis, 8 pages on volumetric methods, and 24 pages on quantitative analysis for engineers.

The directions for experiments are in the didactic manner, and make no attempt to train the student's powers of observation. The results to be expected are deliberately stated, although many points of interest are allowed to escape notice because attention is not directed to them even by a query. Experiments illustrating the rationalizing of technical

processes by physical chemistry are lacking. Many of the figures in the text are, fortunately, taken from other manuals, for where original diagrams appear they are usually of poor quality. The reviewer has noticed a very considerable number of mis-directions and errors, but it is unnecessary to characterize these, for it seems unlikely that the book would be used in this country.

ALAN W. C. MENZIES.

**Methods of Organic Analysis.** Second edition revised and enlarged. By HENRY C. SHERMAN, PH.D., Professor of Food Chemistry in Columbia University, author of "Chemistry of Food and Nutrition." New York: The Macmillan Co., 1912. 800, xvi + 407 pp., cloth. Price, \$2.40 net.

Some 162 pages have been added to the book in the second edition; these include a chapter on solid and liquid fuels, sections on industrial alcohol, drying oils, crude petroleum, glycerine analysis, and quantitative methods for the testing of enzymes. The chapters upon aldehydes, sugars, proteins and food preservatives have been much enlarged.

No attempt is made to cover the whole field of organic analysis, but the subjects considered are carefully chosen and thoroughly treated—in such a way as to be intelligible to the third-year student and at the same time valuable to the practising chemist. It can be cordially recommended to the student and the profession.

A. H. GILL.