

Lunge<sup>1</sup> states that "1 cc. of concentrated vitriol dissolves 0.000593 gram = 0.035 cc. NO." If this 4.02 cc. of nitric oxide per gram, or 2.01 per half gram of potassium nitrate is due to the difference of solubility of nitric oxide in the first and last acids used, then 32 cc. of 98.03 per cent. sulphuric acid absorbs 2.01 cc. nitric oxide and 1 cc. absorbs 0.0628 cc. nitric oxide. For nitrometer work acid of about 95 per cent. H<sub>2</sub>SO<sub>4</sub> appears to be the best. Weaker acid attacks the mercury more readily and decomposes nitric acid more slowly. There is no objection to stronger acid except the difficulty of obtaining it. The chemically pure acid made by a well-known company has been found to vary from 95.0 to 98.0 per cent. H<sub>2</sub>SO<sub>4</sub>.

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### NEW BOOKS.

A TEXT-BOOK OF IMPORTANT MINERALS AND ROCKS WITH TABLES FOR THE DETERMINATION OF MINERALS. BY S. E. TILLMAN. New York: John Wiley & Sons. 1900. viii + 196 pp. Price, \$2.00.

The preface states that the author has designed this book especially for the course in mineralogy at the West Point Military Academy.

The subjects are presented in the order usual in most text-books. Crystallography is treated very briefly: The six systems are defined and illustrated by a few examples. Crystallographic symmetry is defined and contrasted with geometric symmetry. The chemical and physical properties of minerals are reviewed in a short chapter.

Chapter III devotes sixty-four pages to well written descriptions of about seventy-five species, including some well-known gems, ores of the metals, and the common rock-forming minerals.

With the descriptions brief but well selected notes are given as to the occurrence and economic value of many species.

The tables for the determination of minerals are based upon the more obvious physical characteristics and seem well adapted to aid a class in the study of a collection. The book closes with a classification of the common rocks.

The book would seem well adapted for a short practical course in mineralogy if in the hands of a good teacher, otherwise its

<sup>1</sup> *J. Soc. Chem. Ind.*, (1885), p. 447.

abundance of definitions would be out of proportion to its brevity of explanation.

N. W. LORD.

ENGINEERING CHEMISTRY. A MANUAL OF QUANTITATIVE CHEMICAL ANALYSIS, FOR THE USE OF STUDENTS, CHEMISTS, AND ENGINEERS. BY THOMAS B. STILLMAN, M.Sc., Ph.D., Professor of Analytical Chemistry in the Stevens Institute of Technology. Second edition. With 132 illustrations. Easton, Pa.: The Chemical Publishing Company. 1900. xxii + 503 pp. Price, \$4.50.

The first edition of this work was published in 1897, and reviewed in this Journal, in that year (p. 272). In this second edition there has been a transposition of subject-matter so as to bring under one heading, or chapter, the consideration of allied subjects, formerly distributed throughout the volume. The addition of new matter is comparatively small. Some fifteen pages of the first edition have been omitted. One of the valuable characteristics of the work is the number of references to original papers in American, English, German, and French scientific journals. These references have been brought up to date in this edition.

There are some few matters open to criticism. The author only occasionally directs attention to the necessity of repeating separations in gravimetric work, in order to obtain accurate results. In some of his schemes of analysis phosphorus pentoxide is weighed with, and calculated, as alumina. In the analysis of gases by Hempel's apparatus the explosions are made over water, a method Hempel himself has rejected. The table for Baumé's hydrometer for liquids heavier than water, is entirely incorrect.

The work is particularly valuable in that it treats of both the chemical and physical examination of many materials and factory products that are rarely noticed in ordinary laboratory manuals. In comparison with the downpour, we might almost say deluge, of these latter, a manual of this kind is comparatively rare. All that has been said in commendation of the work by the reviewer of the first edition can certainly be endorsed. It is a valuable book.

H. PEMBERTON, JR.

A MANUAL OF ASSAYING. BY ALFRED STANLEY MILLER. First edition. New York: John Wiley & Sons. 1900. 91 pp. Price, \$1.00.

This little book is to be recommended chiefly for its brevity and clear style. The various methods of fire assaying are so arranged and described as to afford in the minimum space a good, general idea of the subject. It is weak, in common with many