

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

similar works, in sometimes offering impracticable or not strictly correct directions on essential points and in describing methods not equal to those in actual use to-day. In other words, an operator with this book as a basis, would at the outset make but a slow and indifferent workman in an up-to-date assay office. This is, however, to a large extent, simply illustrative of the difference between school instruction and actual competitive practice, and the writer knows of no similar work that presents the subject in a general way more clearly and concisely.

The book is well printed in clear, large type and contains numerous illustrations.

ALBERT H. LOW.

A SCHOOL CHEMISTRY, INTENDED FOR USE IN HIGH SCHOOLS AND IN ELEMENTARY CLASSES IN COLLEGES. BY JOHN WADDELL. New York : The Macmillan Company. 1900. viii + 278 pp. Price, 90 cents.

The author assumes very properly, that most students fail to obtain clear notions of chemistry from their first course of lectures, or their early struggles with text-book and teacher, but he thinks that the users of this book will fare better than their predecessors. He hopes that the pupil will be able "to discover new facts, to see their connections, \* \* \* to observe the important phenomena, and to understand their full significance." If his hopes should be realized, only partially, what a welcome would be accorded this recent addition to the crowded ranks of elementary text-books!

Five-sixths of the text is allotted to the non-metals, and of the metals only the most common are mentioned. Numerical data are less prominent than in most text-books, even of this class, and only with difficulty can a few problems be discovered. Perhaps the most noticeable features of the book are the clear statement of facts, and the efforts of the author to lead the pupil to observe closely and understandingly. His experience as a teacher and as an examiner, has enabled him to present the subject in a simple and interesting way, and a student who will read this book, make its experiments, and answer conscientiously its interrogations, should acquire a clear, and not insignificant, knowledge of the science and art of chemistry.

L. B. HALL.

ELEMENTARY ORGANIC ANALYSIS. FRANCIS GANO BENEDICT. Easton, Pa.: The Chemical Publishing Company. 1900. vi + 86 pp. Price, \$1.00.

This manual gives clear and accurate directions for the determination of carbon and hydrogen in organic compounds by com-