

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-

bustion in a tube of glass, porcelain, or platinum. After a full discussion of the reagents and apparatus required for the analysis of compounds containing only these elements, the preparation of the tube and the process of combustion are described in an admirable manner. Directions then follow for the combustion of solids containing, besides carbon and hydrogen, nitrogen, the halogens, sulphur or the alkali metals, and also for the analysis of explosive, or difficultly combustible bodies, and liquids. The suggestions which accompany these directions are most valuable, while the numerous references to journals and text-books will be of the greatest assistance when new compounds are to be analyzed.

We believe this book will be helpful to all chemists who may have occasion to carry out the determinations mentioned above, and of still greater value to the student of little experience.

L. B. HALL.

A HANDBOOK OF INDUSTRIAL ORGANIC CHEMISTRY. BY SAMUEL P. SADTLER, PH.D., F.C.S. Third edition. Philadelphia: J. B. Lippincott Co. 1900. 543 pp. Price, \$5.00.

Chemists who have had an opportunity to use the earlier editions of Dr. Sadtler's excellent work will welcome most heartily this new edition. It represents more thoroughly than any similar publication the practice of the United States in the organic chemical industries and at the same time covers what is best in the European practice. Full justification is found for the statements of the preface to this edition to the effect that "every chapter has been revised and new matter added. * * * It has been sought to incorporate in this book all of this advance in our knowledge that is definitely acknowledged by chemists. The bibliography has in all chapters been brought down to date and the statistics are the most recent obtainable."

So we find, among other things, new mention and description of the forms of artificial silk, formaldehyde, tanning, dégras, Rohrmann's process for 90 to 100 per cent. acetic acid in one operation. S. B. Boulton's diagram, illustrating the process of distillation of coal, the latter curiously omitted, although mentioned, in the second edition is here introduced.

The matter presented is excellently and logically classified as in the former edition. Raw materials, processes of treatment, products, analytical tests and methods, bibliography and statistics follow each other in the order named. Raw materials and pro-