

It is not to be expected that an author can give within the compass of 300 pages, a complete statement of even the present condition of the gas industry and its collateral branches. The present volume, however, might have been considerably enlarged with great advantage, inasmuch as some subjects are treated inadequately or not at all.

Works of this character are, of necessity, largely made up of matter, which in some form has been published or discussed in the technical journals, and we should be much better equipped with such works of reference if there were fewer of them, but if those published treated the subjects in a more exhaustive manner.

The volume will be found of much value on many points connected with the gas industry. It is well printed and liberally illustrated.

E. G. LOVE.

A TEXT-BOOK OF CHEMISTRY, INTENDED FOR THE USE OF PHARMACEUTICAL AND MEDICAL STUDENTS. BY SAMUEL P. SADTLER, Ph.D., F.C.S., and VIRGIL COBLENTZ, Ph.D., F.C.S. In two vols. Philadelphia: J. B. Lippincott Co. 1900.

This is a revised and enlarged edition of the work brought out some years ago by Sadtler and Trimble. Volume I, which is devoted to physics, general and inorganic chemistry, and organic chemistry represents a third edition, while Volume II, on analytical chemistry, is a second edition.

In the presentation of the subject of chemistry to students of medicine and pharmacy it is extremely difficult to select the proper amount as well as the proper kind of information. In earlier attempts in this direction text-books offered to students in these specialties were characterized by a meagerness in detail and inaccuracy in statement which were discouraging to the teacher in search of a suitable manual for class instruction. Even yet we find books designated as "essentials" of chemistry for students of medicine and pharmacy.

But there is now great danger of going too far in the other direction in the production of text-books for these classes of students. The attempt is made to cover a little of everything in the field of chemistry and we have, as a result, treatises quite beyond the needs or capabilities of the embryo drug clerk or physician. If clearness and conciseness of statement are anywhere in order it certainly is in the chemical text-books for such students who are usually beginners, and who, as a rule, suffer

from the defects of irregular preliminary training. A text-book should not be allowed to grow into a large handbook, valuable for reference rather than for every-day study. It is not right that a school text-book to be placed in the hands of boys, beginning the study of chemistry in a college of medicine or pharmacy, should be filled up with the descriptive matters which properly belong in the pharmacopœia, the dispensaries or in a treatise on materia medica, to the exclusion of a clear discussion of the elementary principles of the science, without a knowledge of which, the medical student's notions of chemistry remain forever hazy and unsatisfactory.

The two large volumes before us contain much that is valuable but it appears to the writer that they err in the direction suggested by the last remarks. It is evident that they are written by practical men and on nearly every page of Volume I facts and figures are given which are well to know. Important data concerning hundreds, perhaps thousands, of compounds are included, making of the work a pretty full reference book for most of the isolated facts which the student of medicine or pharmacy is supposed to need at some time. From this standpoint the work is deserving of commendation. But the theoretical treatment is by no means as satisfactory; the student is introduced to a mass of definitions (including a few not very clear paragraphs about ions) before he has learned anything of the preparation or properties of the simpler inorganic substances and compounds, while in the introduction to the subject of organic chemistry we have in the very first pages a discussion of structural formulas, several kinds of isomerism, positive and negative tetrahedra and the difference between maleic and fumaric acids.

There are also a few mistakes in some of these discussions: what is said on page 598 about the optical properties of organic compounds is quite obscure, while the illustrative formula given near the bottom of the page for the calculation of the amount of sugar in a diabetic urine is incorrect. It should be  $c = \frac{100 \times 1.5}{52.5 \times l}$ . On page 593 "Practical Distillation" is written for what is evidently intended to be "Fractional Distillation."

Volume II contains sections on qualitative analysis, quantitative analysis, pharmaceutical assaying, urine analysis, and the examination of water and milk. This work seems to be fairly

well compiled and will doubtless satisfy the needs of those for whom it is intended. The portion devoted to pharmaceutical assaying would be much improved by including the simple and accurate processes of liquid percolation introduced by Hulsebosch and modified by Schwickerath and others, in which the so-called perforator is used.

J. H. LONG.

LABORATORY INSTRUCTIONS IN GENERAL CHEMISTRY. ARRANGED BY ERNEST A. CONGDON. Philadelphia: P. Blakiston's Son & Co. 1901. 110 pp. 8vo. Illus.

The 262 experiments herein described accurately, yet tersely, range from the simplest demonstrations of physical and chemical changes, through the isolation and study of the non-metals (so far as convenient for beginners) up to those dealing with the law of the conservation of matter, the laws of Lavoisier, of Dalton, of Charles, of Boyle, and of Gay-Lussac, and concluding with methods of determining molecular and atomic weights. Throughout the book, the experiments seem to be well graded, carefully chosen, and adequately described; many are elucidated by illustrations of well arranged apparatus.

The material is largely original, and the author has had ten years' experience in testing his exercises as professor in the Drexel Institute, Philadelphia. The present writer would suggest that the introduction sparingly of stoichiometrical examples might strengthen the educational value of this excellent laboratory guide. The book can be used in connection with any standard text-book. Nearly every experiment is followed by queries intended to make the students think for themselves, and the blank pages with which the book is interleaved furnish opportunities for recording replies, as well as the results obtained.

Students pursuing the course herein outlined, will be well prepared to take up the study of qualitative and quantitative analysis.

HENRY CARRINGTON BOLTON.

AN INTRODUCTION TO MODERN SCIENTIFIC CHEMISTRY, in the form of popular lectures suited for university extension students and general readers. BY LASSAR-COHN. Translated from the second German edition by M. M. PATTISON-MUIR. New York: D. VanNostrand Company. 1901. 348 pp. 12mo. Illus. Price, \$2.00.

The plan of this book is well conceived and the subject is skillfully presented; being in the form of popular lectures the style is rather diffuse, though perhaps not more so than necessary for