

NEW BOOKS.

QUALITATIVE ANALYSIS AS A LABORATORY BASIS FOR THE STUDY OF GENERAL INORGANIC CHEMISTRY BY WILLIAM CONGER MORGAN, Ph. D., (Yale), ASS'T PROFESSOR OF CHEMISTRY IN THE UNIVERSITY OF CALIFORNIA. THE MACMILLAN CO., NEW YORK, 1906. Price \$1.90.

This is a volume of 351 pages. It has been prepared for use with the Freshman classes. It is well written and aims "to equip the student with principles rather than facts." The author is of the opinion that students may *learn* much chemistry from "certain of the many books at present on the market," but he "has found it necessary to supply in lecture form the correlating factors and to keep pointing out the application of general principles to cases not less typical than the stereotyped illustration discussed in the text." This present volume aims to minimize the necessity for so much lecture work. "By frequent repetition, therefore, the present text endeavors to *teach* the fundamental principles of chemistry, as they occur from time to time, by the methods of past experience. It endeavors to reduce to a rational basis the multitude of chemical reactions, a knowledge of which oftentimes seems to the student to be a mere matter of tedious memorizing." The scheme followed by the author is pretty certain to be helpful, particularly to the students earnestly interested in the subject. It will be even more valuable if accompanied by demonstrations at the laboratory table by a teacher experienced in analysis. The writer has long been convinced that the "tedious memorizing" and "test-tubing" are not a part and parcel of qualitative analysis, if the subject is taught by one, who, from much experience, develops the principles, makes the comparisons and generalizations—using experiments freely—just as freely and even more freely than is done in teaching general experimental chemistry. It then becomes attractive, arouses thought, and even those who carry the subject as one of many in a prescribed course, recognize its educational value and cease to regard it as drudgery. The text before us is moving in the right direction. It might be more exhaustive, but it represents "the course of instruction given by the author to the Freshman classes at the University of California," and is not intended for those who are devoting all their time to the subject. It is worthy of confidence and success. EDGAR F. SMITH.

PRACTICAL PHYSICAL CHEMISTRY. By ALEX FINDLAY. London: Longmans, Green & Company. 1906. 13x20 cm. pp. XII + 282. Cloth, price \$1.20.

This book is a laboratory manual the fifteen chapters of which are devoted to the following topics: Calculations of results and errors, determination of weight and volume, density of liquids and gases, thermostats, viscosity and surface tension, optical measurements, molar weight of substances in solution, distribution of a substance between two non-miscible solvents, conductivity of electrolytes, transport num-

bers, measurements of electromotive force, velocity of chemical reaction in homogeneous systems, thermochemistry, determination of solubility, determination of transition points. In each chapter the general fundamental principles underlying the experimental work are first given, after which a few typical experiments are described in sufficient detail to enable the student to perform them in the laboratory. The general order and manner of arrangement remind one greatly of the manual of Ostwald and Luther. The latter work is, of course, more complete and comprehensive and contains references to original articles, which are entirely omitted in the present volume. Yet Dr. Findlay's book possesses the decided advantage of presenting detailed descriptions of individual experiments to be performed by the student. It is intended that the order of these experiments as well as their number may be changed, if this should be found desirable. Relatively, an unduly large amount of space is given to the description of physical apparatus and methods of physical measurement, and not enough stress is laid upon a larger variety of well chosen experiments in which these modes of measurement are employed in the practical solution of chemical problems. This criticism, however, applies even somewhat more strongly to all other physico-chemical laboratory manuals hitherto published; they are books describing physico-chemical measurements rather than works on practical physical chemistry.

The book will prove very useful to English speaking students who intend to take a short laboratory course in physico-chemical measurements, while for those who wish to devote more time to the subject it may well serve as an introductory manual. LOUIS KAHLENBERG.

TOXINS AND VENOMS AND THEIR ANTIBODIES. By EM. POZZI-ESCOT. Authorized translation by ALFRED I. COHEN, Phar. D. 12mo, VII + 101 pages. Cloth, \$1.00 net. Published by John Wiley & Sons, New York and London, 1906.

This booklet contains brief, yet clear, accounts of various toxic principles, either secreted through physiological or pathological functions of animal or vegetable cells, or produced during decomposition of these cells. Though concise, it seldom omits any of the important toxins, and under each head the origin, preparation and physiological action are well defined. Neither does it overlook the recent theories and polemics on immunity, nor their practical bearing. One may, however, be struck with one fact, namely, that the work of Anglo-Saxon as well as Teutonic scholars has not been fully credited, in contradistinction to that of their Latin colleagues. It is also to be regretted that the more recent progress made in the domain of snake venom and mushroom poisons was not incorporated in this book. In general, the book is greatly to be congratulated upon the attainment of its primary object, that it should be a companion to those who cannot afford to spend much time in following