

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-