

chemistry that, while the text-book work should be explained and illustrated by lectures, it should also be supplemented by laboratory work on the part of the student. Several excellent text-books on organic chemistry are now to be found in which a considerable number of illustrative experiments are described, but they are arranged to be performed either by the lecturer or by the student or by both, and in the attempt to satisfy two conditions they fail to meet either to the best advantage.

The book under consideration is intended solely for the student and for use in the laboratory, and it is characterized by a marked simplicity, directness and clearness of style, and by the very simple character of the apparatus and the very moderate amounts of materials to be employed, conditions which enable the untrained observer the more readily to observe the phenomena that occur, and to distinguish the essential from the non-essential.

No doubt, with such a fund of experiments to draw upon, as is now at the command of chemists, each person who sets out to arrange a course of experiments would prepare one that differed in some particulars from this, but Professor Appleton has selected fairly typical and instructive examples which can be performed in an easy and rapid manner, and he has arranged them in the order in which the topics are usually treated in text-books on organic chemistry so that the book can be used in connection with any introductory course, and it will be found to be a safe one to put into the hands of a student. A very commendable feature of the book is the "cautions" that are appended to the description of each experiment which is attended with any danger in its performance, for the author has thus relieved the teacher, in these instances, of a very grave duty.

CHARLES E. MUNROE.

A SELECT BIBLIOGRAPHY OF CHEMISTRY, 1492-1897. BY H. CARRINGTON BOLTON. First Supplement. City of Washington: Published by the Smithsonian Institution. 1899. Large 8vo. ix + 489 pp..

This first supplement contains 5,554 titles in addition to the 12,031 contained in the volume issued in 1893. Of these, 2,050 titles were contributed by others. Many of the titles have, of course, been added by the author in bringing the book down to the close of 1897, but a considerable number have probably been

added which he had previously overlooked. To most chemists the task which Dr. Bolton has completed would seem an appalling one. To those who know him personally his success will not seem surprising. It is a wonderful book in every respect. Dr. Bolton's interest in this matter is further evidenced by his recent letter to *Science*, printed also in the *Chemical News*, of July 7.

E. H.

SCHOOL CHEMISTRY. BY CHARLES BASKERVILLE, PH.D., The University of North Carolina. Richmond, Va.: B. F. Johnson Publishing Co. 1899. 159 pp. Price, 60 cents.

This book has been prepared for use in high schools, and academies, and is intended to give the pupil an elementary knowledge of the more important chemical facts and theories, especially those connected with every-day life. The book is divided into thirty-seven lessons, each of which consists of a few pages of descriptive text, followed by several well-described and pertinent experiments. Water is first taken up, then atoms, oxygen, air, oxidation, the other non-metals, five lessons on organic chemistry, metals, salts, the soil, vegetable and animal chemistry. The aim of the book is well carried out by the author, but it may be questioned whether the aim of "school" chemistry should not be primarily to train and discipline the mind by the use of the scientific method, as well as to interest the pupil in the study of natural science, and only secondarily to impart knowledge of chemical facts and theory. This order is reversed by the author.

The make-up of the book is good, the proof-reading unusually thorough, but the book is marred by many carelessly constructed sentences and loose statements. There is a very complete index.

JAS. LEWIS HOWE.

A SHORT HISTORY OF THE PROGRESS OF SCIENTIFIC CHEMISTRY IN OUR OWN TIMES. BY WILLIAM A. TILDEN. Longmans, Green, and Co., 39 Paternoster Row, London, New York, and Bombay. 1899. ix+276 pp. 12mo.

Dr. Tilden, the well-known professor of chemistry in the Royal College of Science, London, in the spring of 1898, gave a course of lectures to working-men on the progress made in the science and practice of chemistry during the preceding sixty years. Only able to sketch in very broad outline the general features of the subject, he felt the need of some book of moderate size to