

The publishers are to be congratulated on the beautiful typography of the volume, its good press-work, and its freedom from printer's errors.

Judging of this work by the first volume it may be said, briefly, that it is the most modern, the most complete and the very best treatise upon the subject of agricultural analysis, and that it meets more largely than any other book on the subject, the needs of the teacher, the student, and the working analyst. It is not, of course, a text-book of agricultural chemical analysis, nor a hand-book of the laboratory, but it should find its place upon the reference tables of all laboratories. Nor is its usefulness confined to the analyst of agricultural products alone, for every general analyst will find in its pages a great mass of material, superbly arranged, to which he could daily refer with direct advantage to his work.

WILLIAM FREAR.

A HAND-BOOK OF INDUSTRIAL ORGANIC CHEMISTRY. BY SAMUEL P. SADTLER, PH.D., F.C.S. Second revised and enlarged edition. 8 vo. pp. 537. Philadelphia: J. B. Lippincott & Co. 1895. Price, cloth \$5.00, sheep \$6.00.

The hundreds of manufacturers of chemical products in this and other countries who are struggling with the puzzling problems of daily practice and the vexatious details so essential to commercial success, eagerly watch for and greedily accept everything which may possibly clear up difficulties or offer suggestions, and such works as this of Dr. Sadtler's find the heartiest of welcomes waiting for them. It is not surprising, therefore, that this work from so excellent authority should soon be out of print and that a second edition should be needed to meet the current demand.

Limited in volume, and, therefore, in detail, works of this class serve two important purposes: First, they furnish teachers in compact and reliable form for presentation to their students, ample description of the principles and processes used in the chemical industries. Second, they furnish manufacturers, working in more or less empirical ways, knowledge of the fundamental principles of the processes they employ, or general principles of methods other than their own but attaining the same end, possibly with greater economy both of time and means.

In the second instance they meet only partially the prevailing

demand. Manufacturers are desirous, it is true, of becoming acquainted with the experience of others even in other branches of industry. but the difficulties they meet are frequently, if not generally, as much mechanical as chemical, and better and more effective forms of apparatus as well as general reactions are needed. Furthermore, profits in manufacture depend in these days largely upon the utilization of the waste products, and the practical operation of many processes are dependent upon the retention or destruction of wastes, noxious or undesirable. Methods and apparatus are wanted for properly caring for these important factors of the industrial problems.

In the work before us Dr. Sadtler has succinctly set forth the progress attained to date in the industries discussed and in a large measure has met the demands described. Perfection is rare, and doubtless many of us might be able to suggest additions to the several chapters dictated by personal experience; yet with the material offered, together with the bibliography, the references to other and larger works and particularly to the periodical literature, it is questionable if one can find a better time saver in all the range of technical-chemical publications than is provided in this work.

In fourteen chapters, covering 492 pages, the industries most common to this country, at least, are discussed under five general heads, *viz*: Raw materials; Processes of manufacture; Products; Analytical tests and methods; Bibliography and statistics; and in this systematic way the essential facts are presented. Descriptions for empirical work are accompanied by analytical methods for rational control. In addition thereto is an appendix giving conversion tables and tables of physical and chemical constants useful wherever the work may go.

One hundred and twenty-seven most excellent cuts representing machinery and apparatus used in the works or laboratories illustrate the text and fourteen diagrams illustrate the various successive steps in processes of manufacture or analysis. A thoroughly complete index makes reference most convenient and will charm those who have suffered the vexation incident to the use of books not similarly provided.

WILLIAM MCMURTRIE.