cesses of treatment are considered fully but in a general way and details often of the utmost importance to the manufacturer are omitted. Yet the information conveyed will be most useful to students and instructors, while the analytical tests and methods and the bibliography and statistics, since they have been brought to date, will be of great value and convenience to the general chemist and in many cases to specialists.

It is to be regretted that some of the later and more widely used forms of machinery have not been included in the illustrations of the book. For instance, in discussion of sugar manufacture the vacuum evaporator of Yaryan is described at some length, while the more widely applicable forms of Wellner-Jelenek and of Swenson are not noticed. The Hepworth centrifugal is figured, but the Weston and the Lafferty forms are not mentioned. In the discussion of recovery coke ovens, the older Appolt and Simon-Carvés' ovens are described and the later Semet-Solvay and Otto-Hoffmann forms, the use of which is so widely extending, both in this country and in Germany, are mentioned only in the table of statistics. Yet it must not be forgotten that in such a volume, devoted to practically the entire field of organic industrial chemistry, space is limited and too much of it cannot be devoted to the various forms of machinery available for the several processes.

Some embarrassing typographical errors, which have carried through the two editions, appear to have escaped the attention of the proof-readers, but they are not such as to be misleading. For instance, only the most inexperienced reader would be misled by the statement that starch "is soluble in cold water, alcohol, ether," etc.

The book is made in the attractive style and finish of the Lippincott Company, is provided with an excellent table of contents, a list of illustrations, and an index, and is to be commended to the favorable consideration of instructors, students, and working chemists. WM. MCMURTRIE.

COMMERCIAL ORGANIC ANALYSIS. BY ALFRED H. ALLEN, F.I.C., F.C.S. VOL. III. PART I. TANNINS, DYES, AND COLORING-MATTERS, WRITING INKS. Third edition. Revised and edited by J. MERRITT MATTHEWS, Ph.D. Philadelphia: P. Blakiston's Son & Co. 1900. 589 pp. Price, $4.50.

Since the first edition of Mr. Allen's valuable work, its horizon has been considerably enlarged, and the value of the work largely

enhanced. Instead of being strictly a treatise on commercial organic analysis, it has taken on something of the character of a technology. It now treats not only of the tests and methods of estimation of organic substances of commercial value, and of methods for detecting adulterations in them, but it gives in many instances their history, chemical structure, and commercial methods of preparation.

Dr. Matthews has certainly proved himself a worthy successor to Mr. Allen's former collaborator, the late Dr. Leffmann, judging by his work in this volume which includes the tannins, dyes, coloring-matters, and writing inks, all of them subjects with which he is thoroughly familiar, practically as well as theoretically.

The aromatic acids which were in Part I, Vol. III of the second edition, have been transferred to Part III, Vol. II of the third edition, which is in preparation.

The old material has been practically rewritten in bringing it up to date for this volume. The new tannin materials are described, and our best knowledge of tannin analysis, which is far from what it should be, is given in detail. The arrangement of the chapter on dyes and coloring-matters is entirely changed, making decided improvement, and the amount of material is largely increased. Eight pages, at the end of the volume, are devoted to the constitution and analysis of writing inks, and to the chemical examination of ink marks. Almost the whole of this matter is devoted to the iron inks with only a passing mention of the aniline writing fluids. WM. L. DUDLEY.

CHEMICAL TECHNOLOGY OR CHEMISTRY IN ITS APPLICATION TO ARTS AND MANUFACTURES. EDITED BY CHAS. E. GROVES AND WM. THORP. VOL. III. GAS LIGHTING, BY CHAS. HUNT. Philadelphia: P. Blakiston's Son & Co. 1900. xviii+312 pp. Illus. Price, $3.50.

It is eleven years since the publication of the first volume of this work which treated of fuels; and it was six years later that the second volume, on "Lighting by Solid and Liquid Illuminants," made its appearance.

The present volume discusses the manufacture, purification, and distribution of illuminating gas, and its application for lighting purposes, much in the same manner as other works of its kind. The processes and methods refer mainly to English practice.