

agents, but there is no mention of the important precautions in applying the paint, etc., whose neglect so often results in unsatisfactory or contradictory deductions.

The following section deals with the inorganic pigments. Some eighteen pages are devoted to white lead and its manufacture. The authors adopt the theory of a chemical combination between white lead and linseed oil, a point that has been disputed by several investigators. The iron oxides, lead, chrome and copper compounds, and the carbon pigments are described in turn. Under the head of organic pigments are Prussian blue and the lakes of carmine, Brazilwood, and other animal and vegetable colors, and a number of the coal-tar dyes. An account of indigo and some minor organic pigments closes the volume.

The work can be commended for what it essays, to both the general reader and the chemist whose work is mainly in other departments. The space allotted to the description of the various pigments appears, on the whole, to be fairly well distributed, though the paragraphs on the vermillionettes, red lead and asphalt could have been amplified with advantage: on the other hand, the methods of chemical analysis of certain pigments might well have been omitted, since one competent to make such analyses always has access to detailed descriptions of the most recent and approved methods.

The book has a good index, and the print and binding are satisfactory.

FRANK JULIAN.

THE PRINCIPLES OF LEATHER MANUFACTURE. BY H. R. PROCTER, F.I.C., F.C.S. London: E. and F. N. Spon, Limited. New York: Spon and Chamberlain, 1903. xvi + 512 pp. Price, \$7.50.

The well known "Text-Book of Tanning," by the same author, having been long out of print, it was desirable to issue a revised edition which, however, takes the form of two books. The present volume contains a very satisfactory discussion of the principles on which the manufacture of leather is based, details of working processes being in the main excluded. Analytical processes and operations of chemical control for the tannery are found in the volume already published as the "Leather Industries Laboratory Book," a work now well known to chemists. To complete the series, a third volume, dealing with manufacturing processes, is desired.

In view of our very limited knowledge of the nature of the changes involved in leather-making, the author specifically points out the value, to the tanner, of practical experience and acquaintance with his material. There is a large amount of very useful information to the practical tanner in these pages: The effect on the leather, of the early treatment of the hide, such as drying, salting, etc.; the causes of injury to hides; the action of hard water in washing and soaking hides, and extracting tannin; the causes of swelling by dilute acids or alkalies, and the shrinking action of strong solutions; the nature of the changes produced in bating, puering and drenching, and the properties of the various materials used, are some of the points which are fully discussed.

Chrome tannage receives about eighteen pages of largely theoretical discussion, but the intelligent tanner, who has a little chemical knowledge, can pick out of this brief summary many bits of valuable information. The importance of this branch of the industry would seem to justify a somewhat more extended consideration.

The occurrence and properties of the vegetable tanning materials are fully described. The chapters on the grinding and extracting of tanning materials, and their analysis, and the chemistry of their action, contain many valuable hints. The chapter on dyes and dyeing is very satisfactory, while that on the construction of tanneries will furnish useful data to architects and builders who may be called on for this kind of work. The oil tannages and the properties of fats, soaps, waxes, etc., are all well considered; also the important items of evaporation, heating and drying; the disposal of wastes closes the text proper. Official methods of tanning analysis, both European and American, and a list of coal-tar colors suitable for use on leather, constitute the three appendices. Frequent foot-note references to original papers throughout the text add greatly to the convenience and value of the book.

Numerous illustrations are scattered throughout the book and the plates are noticeably clear and sharp, but some of the half-tone pictures from photographs are unsatisfactory; a comparison between Figs. 28, 29 and 42*a*, with Figs. 31 and 32, *e.g.*, leaves much to be desired in the former cases. The reference to Fig.

29 on page 223 is evidently a misprint, and the paragraph is somewhat obscure. The typography and general make-up of the book is good. The literature of tanning has long needed such a work as this.

The importance of technical education for tanners is now generally recognized, and the appearance of this work by one who is an acknowledged authority and leader in this educational movement, will doubtless further elevate the technical school in the estimation of successful tanners.

F. H. THORP.

THE PRAXIS OF URINARY ANALYSIS. A GUIDE TO THE CHEMICAL ANALYSIS OF URINE. BY DR. LASSAR-COHN. Authorized English translation by DR. H. W. F. LORENZ. New York: John Wiley and Sons. 1903. 58 pp. Price, \$1.00.

This little book is printed on very heavy paper, almost cardboard thickness, and heavily leaded to increase apparent size. It contains a few of the simplest qualitative reactions employed by physicians in the analysis of urine and directions for three quantitative determinations. These are so meager, however, that they are of no practical use. In addition to the urine tests, a few pages are devoted to the analysis of stomach contents. The amount of practical information contained in the book is so small that it can not be recommended to students or practitioners of medicine. The English of the translation is not always good.

J. H. LONG.

A TEXT-BOOK OF VOLUMETRIC ANALYSIS. With special reference to the volumetric processes of the pharmacopoeia of the United States. Designed for the use of pharmacists and pharmaceutical students. BY HENRY W. SCHIMPF, PH.G., M.D. New York: John Wiley and Sons. 1893. Fourth edition. 60 figures. 12mo. xxiii + 553 pp. Cloth. Price, \$2.50.

As the title suggests, this work is intended exclusively for the use of pharmacists, and its appearance in a fourth edition gives evidence that it meets a need of those for whom it is written to a greater degree, in some respects, at least, than any other available book. Its merit lies chiefly in the variety of methods offered, a direction in which most texts on the subject are deficient.

It is a collection of receipts for volumetric analysis and is almost wholly lacking in explanatory matter or in any exposition of the