

book except once as a material from which dextrin is made and in one formula for a liquid glue, of which starch is to make one-tenth the total solids. The flour pastes and the glues are very good, but any one who expects to learn from this or any other book how to make such a paste, for example, as the "library" and "photographic" pastes now on the market, will be disappointed. Among the cements, I note the conspicuous absence of the old and reliable litharge and glycerin mixture, and all the asphaltum compounds. On the whole, it may be said that the book is very good, what there is of it, but as to its being the work of an expert there may be some doubt. A good book on glue alone, by a real expert, would be "mighty interesting reading" and it would be new.

A. H. SABIN.

**THE UTILIZATION OF WASTE PRODUCTS. A TREATISE ON THE RATIONAL UTILIZATION, RECOVERY AND TREATMENT OF WASTE PRODUCTS OF ALL KINDS.** BY THEODOR KOLLER. Translated from the German Second Revised Edition by a Technical Chemist. London: Scott, Greenwood & Co. New York: D. Van Nostrand Company. Svo. viii + 279 pp. Price, \$3.50 net.

This book is in many respects opportune. Notwithstanding the fact that modern practice in manufacturing requires that everything which may find useful application shall be recovered and utilized, it is nevertheless true that many products are still allowed to waste while preventive methods are being eagerly sought. Experience in this country as well as abroad has shown that frequently utilization of waste, forced by legislative enactment by states and municipalities, has protected important industries from ruin, and that substances considered nuisances not only by producers but by their neighbors have become important sources of profit. We need only refer to the practice forced upon the meat-packing industries of this country to find apt illustration of this fact. The book before us calls attention to many of the wastes available and describes methods whereby they may be recovered. These descriptions are professedly for the greater part comparatively brief abstracts of papers published in various works and periodicals but few being the outcome of the experience of the author and many of them scarcely up to the standard of every-day practice. The source of information in each case is carefully given so that further details may readily be found, if desired. The book will prove useful in many hands and serve as a source

of suggestion and as a guide in the side lines of the various industries, particularly to those of limited practical experience.

WM. MCMURTRIE.

THE UTILIZATION OF WOOD-WASTE. BY ERNST HUBBARD. Translated from the German by M. J. SALTER. London: Scott, Greenwood & Co. 1902. 12mo. 192 pp. Price, \$2.50.

This little book is a translation of the second revised edition of one of the well-known Hartleben Library of technical manuals and deals with the various methods and proposed methods for utilizing sawdust and similar waste for the production of chemical products. It was one of three which have appeared in this library, the others being "Das Holz und Seine Distillationsproducte," by Dr. George Thenius and "Die Verwerthung des Holzes auf chemischen Wege," by Dr. Jos. Bersch.

This work takes up first the employment of sawdust as fuel either with or without the simultaneous recovery of charcoal and the products of distillation. This is a very important subject and one to which practical chemists have given some considerable attention, as in lumber districts where sawmills abound a profitable utilization of the sawdust would be desirable. Many of the older forms of retorts for the continuous carbonization of sawdust by means of endless screws, etc., have, however, been given up in practice because of the difficulties caused by the moisture in the sawdust. This has been overcome in some cases by briquetting and previous drying of the briquettes or by the use of a preparatory drying chamber through which the moist sawdust passes on a sheet-metal conveyor or before it goes into the distillation chamber proper. The earlier briquetting procedure of Bergmann is described but we find no mention of the later, more successful, Heidenstam Swedish method.

The manufacture of oxalic acid from sawdust is very fully described and the means of purifying the product given.

The manufacture of ethyl alcohol and organic dyes from waste wood is also referred to but these proposed methods are as yet of little practical value.

The manufacture of artificial wood and plastic compositions for moldings is a much more important matter and is very satisfactorily described.

The employment of sawdust as an ingredient of blasting-powders and explosive mixtures is similarly very fairly dealt with.