

## THE MANUFACTURE OF LEATHER.

*The Manufacture of Leather.* By H. Garner Bennett. Pp. xxi+420. (London: Constable and Co., Ltd., 1909.) Price 16s. net.

IN this work the author has attempted to produce a volume which shall be a text-book to meet the needs of candidates for the examination of the City and Guilds of London Institute, and for the degree and diploma examination of the leather students of the Leeds University. The book is also evidently written for the use of the practical tanner who possesses a limited knowledge of chemistry. We do not think that the author has been altogether successful. The proportion dealing with the scientific aspect of leather manufacture (specially noticeable in the chemistry of the tannins), and the chapter on tannage of chrome leathers, stand out in brilliant contrast with the other part of the book, particularly with the somewhat sketchy and superficial chapters dealing with the practical tanning of sole, belting and harness leathers.

The first five chapters deal with the nature of the skins, fermentation, hides and skins, and water; the author then passes to the first practical process of leather manufacture, viz. soaking, describing the various processes employed. He next deals with the various methods of removing hair and wool, together with a full description of the tools and machinery used for the purpose. Chapter viii. deals with the delimiting of hides, a process which has now become universal, owing to the increased technical and scientific knowledge. In chapters ix., x., xi., the author brings together in handy form the chemistry of the tannins, the tanning materials and the methods of analysis. The next chapter deals with the preparation of the tanning liquors and the manufacture of extracts. In this, the author has gracefully glided over a very important subject, and has not dealt with many of the important changes which take place in the leaching nor dealt with some of the most recent plants devised for this purpose. The whole subject of extract manufacture is referred to in two printed pages, whereas on such an important subject as the manufacture of extract, which now forms almost 50 per cent. of the material for modern sole-leather tannage, it might have been expatiated upon at considerable length with advantage to the student.

The next chapters then deal with the tannage of sole, belting and harness leather previously referred to. In the chapters on the tannage of chrome leather but little detail has been given for the practical manufacturing process of this leather. The author then proceeds to the consideration of alum, fat, oil and aldehyde tannages, and to drying of leather, finishing of sole leather, currying and finishing of dressing leather, the dyeing and finishing of light leathers, and the finishing of chrome and other leathers. A special chapter deals with the enamelling and japaning processes and the dressing of wool rugs. This concludes the practical part of the book, at the end of which is a short chapter on the analysis of leather.

The scheme is comprehensive, but the author has

failed to bring out any novel feature which has not been dealt with, at least equally satisfactorily, by other authors. The work cannot be looked upon as a standard text-book for the practical tanner, but may certainly appeal to those who, having a knowledge of practical leather manufacture, desire to study further the scientific principles.

The book is well illustrated by photographs of machinery taken from the well-known illustrated catalogues of leather trades' engineers. These do not show the essential features of the machines, but are simply photographic blocks; in no case are the essential principles of the machines described.

## MEMOIRS ON MARINE ZOOLOGY.

*Liverpool Marine Biological Committee's Memoirs.* XVIII., Eledone. By Annie Isgrove. Pp. viii+105; 10 plates. Price 4s. 6d. net. XIX., Polychæt Larvæ. By F. H. Gravely. Pp. viii+79; 4 plates. Price 2s. 6d. net. (London: Williams and Norgate, 1909.)

THE editor—Prof. Herdman—is to be congratulated on adding these two useful memoirs to his well-known series. Miss Isgrove has given a clearly written account of a common cephalopod, for which she prefers to retain the well-known Lamarckian name rather than to adopt the name *Moschites*, which is its correct designation, according to the strict rules of nomenclature. In the first part of the volume interesting observations are recorded on the habits and food of this octopod, and on the conditions under which it has been found in the neighbourhood of Plymouth and Port Erin. Attention is directed to the great preponderance in number of the females, the relative proportion of the sexes of captured specimens being about fifty females to one male. In the following sections of the book the author gives an account of the external features and internal structure of the animal, considering each system of organs in turn. The morphology of the funnel, which is one of the most characteristic organs of the Cephalopoda, is worthy of more extended reference; the sections which deal with the foot and funnel contain no allusion to the homology of the latter with the epipodium of gastropods; this homology is merely parenthetically mentioned, fifty pages later, under the description of the pedal ganglia. The alimentary canal, the circulatory and excretory systems, the nervous and reproductive organs, and the spawning are carefully described, the account of the structure of the gills and the anatomy of the nervous system being worthy of special mention. In the section on the structure of the retina, the author speaks of a *nerve fibre* instead of a neurofibril, running along the axis of each retinal cell. The memoir is well illustrated by means of ten lithographic plates containing above eighty carefully drawn figures.

Mr. Gravely has essayed a difficult task, namely, to give an account of the polychæt larvæ which may be captured in the tow-net at Port Erin during the month of July. The complete identification of many of the larvæ so obtained is impossible, since their characters