

tures. The few species known to Pasteur have become many and distinct in the hands of modern students. The diseases peculiar to fermented products, attributed by Pasteur to bacteria, have been found to be frequently due to yeasts which are present as impurities, and the whole method of conducting fermentations in the great breweries has been modified in consequence. All these facts are brought out in more or less detail in this work of Jorgensen, who shows on every page of his writing a knowledge of the facts at first hand.

The whole work is not confined to the fermentations produced by yeasts. The growing knowledge of the significance of bacteria in fermentations has demanded attention, and the more important species of moulds are not overlooked. The treatment of this side of the subject is much less satisfactory than the study of yeasts. In his discussion of the butyric fermentation, the lactic fermentation and other strictly bacteriological phenomena Professor Jorgensen is evidently not so much at home as when he is writing of yeasts.

The most valuable part of the work is, therefore, the review of our present knowledge of yeasts. He describes the methods of studying air and water; the most recent methods of obtaining absolutely pure cultures of yeasts, the methods of cultivating them and experimenting with them. A considerable part of the work is taken up by a description and by figures of the many species of yeasts which have been differentiated from each other by modern study. Their methods of forming spores, of germinating, of forming films, and, in short, all of the characters of yeasts which are used today by the specialists in describing yeasts are carefully and fully discussed. As a morphological and physiological study of this extremely important group of plants the present work is complete and unequalled. Certainly there is no work in English that contains such a comprehensive account of the modern knowledge of yeasts and their relation to fermentation.

The name of The Macmillan Company on the title page is a sufficient guarantee of the excellence of the press work, as the name of the author is a guarantee for its scientific accuracy. It seems strange, however, that the author, the

translators and the publishers should have allowed such a book to be published without an index. A book of this sort may perhaps be designed for consecutive reading, but it will be much more commonly used as a book of reference. As a book of reference its value would be doubled by the presence of a good index. No excuse can be given in these days of many books for omitting such an indispensable part as an index. The lack of the index is in part made up by a magnificent bibliography containing references to all the important works bearing directly or indirectly upon the problems of fermentation. This will be to the student perhaps the most useful part of the whole work.

H. W. C.

BOOKS RECEIVED.

Air, Water and Food from a Sanitary Standpoint. ELLEN H. RICHARDS and ALPHEUS G. WOODMAN. New York, John Wiley & Sons; London, Chapman and Hall, Limited. 1900. Pp. iv + 226. \$2.00.

Prehistoric Implements. WARREN K. MOOREHEAD. Cincinnati, The Robert Clarke Co. 1900. Pp. xv + 429.

Die Chemie in täglichen Leben. LASSAR-COHN. Fourth edition. Hamburg and Leipzig, Leopold Voss. 1900. Pp. viii + 320. 4 Mark.

A Brief Course in General Physics, Experimental and Applied. GEORGE A. HOADLEY. New York, The American Book Company. 1900. Pp. 463. \$1.20.

SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of Physical Chemistry, April. 'A Preliminary Investigation of the Conditions which determine the Stability of Irreversible Hydrosols,' by W. B. Hardy; 'On the Mechanism of Gelation in Irreversible Systems,' by W. B. Hardy; 'Isohydric Solutions,' by W. D. Bancroft; 'Vapor-pressure Relations in Mixtures of Two Liquids,' by A. E. Taylor; 'In Reply to a Statement made by Dr. R. Cohen in a Paper on the Theory of the Transition Cell of the Third Kind,' by H. T. Barnes.

May. 'On the Weston Cell as a Transition Cell and as a Standard of Electromotive Force, with a Determination of the Ratio to the Clark Cell,' by H. T. Barnes; 'On the Electrolytic Deposition of Metals from Non-Aqueous Solu-