

## NEW BOOKS

### Yeast Technology

JOHN WHITE, xvi + 432 pages. John Wiley & Sons, New York, N. Y. 1954. \$8.00. Reviewed by A. A. Andreasen, Joseph E. Seagram & Sons, Louisville, Ky.

This book should be interesting reading for those having some knowledge of yeast propagation. The book contains much useful information both of a general and of a specific nature. The author states that the book is based on a series of papers entitled "Principles and Practice of Yeast Production" published in the *American Brewer*, but "contains a great deal of further material necessary to produce a reasonably balanced account of the properties and technical employment of the yeasts." To this end, the volume also contains two chapters written by specialists in brewing and baking.

Specifically, the book is made up of twelve chapters based on papers in the *American Brewer*, seven chapters from papers in the *Journal of the Institute of Brewing* and two chapters from papers in *Wallerstein Laboratories Communications*. Some of these papers were produced in collaboration with D. J. Munns. There are 32 chapters and it is amply illustrated.

The subject matter covers industrial methodology as well as various aspects of yeast physiology, nutrition and the reactions of yeast to changing external conditions.

### Production

Much of the experimental work is, of course, designed to be of practical value. Detailed accounts of production techniques and methods are also presented.

Among the subjects dealt with are: growth of yeast, modern production practice, preparation of media, fermentation and assimilation, nutrition, structure and consistency of yeast, color of yeast, chemical and physical methods for control of yeast growth processes, microbiological control; effect of aeration, temperature and other factors on growth and fermentation, inhibitory substances, genetics, food and fodder yeasts and yeast products, baking and panary fermentations, brewing and waste disposal.

Considerable information is presented on the incremental method of feeding for bakers' yeast production.

The author has undoubtedly accomplished his aim in the writing of this book, that is, "a presentation of some of the important biological factors governing yeast growth and development, to-

gether with an account of modern methods used in the industrial propagation of yeasts," but the book is subject to some criticism.

The organization is such that one finds material of similar subject matter, although treated somewhat differently, recurring in different chapters or sections.

For example, there are two widely separated chapters on substances toxic to yeast growth and also on yeast in baking. A similar situation exists for certain sectional subjects. Also, a rather extensive discussion of caramel is lost to the table of contents reader under the chapter heading "The Colour of Yeast."

There are few references to recent literature but this may be justified by the fact that the book is largely a compilation of publications by the author and his collaborators.

### Yeast Growth

Some qualifying remarks can be made in connection with the authors work on yeast growth "in conditions of complete anaerobiosis." It was stated that pyrogallol was used to free nitrogen from "possible traces of oxygen." This agent

is reportedly much inferior to chromous chloride, which may leave approximately 1 p.p.m. oxygen in the nitrogen. Also, it was stated that "the most significant finding was, probably, that yeast can grow through a limited number of generations in the complete absence of oxygen," and postulated a reservoir of oxygen from some kind of oxidized (pigment) system within the initially aerobic cell.

The authors' results are not unique inasmuch as this phenomenon has been observed by others. The reviewer has found that conventional defined media can be made to support extensive anaerobic growth provided both oleic and ergosterol, or related substances, are added to the medium. Essential lipids, synthesized by the aerobic cells used for inoculation in the authors' work, may have been responsible for the limited growth obtained.

This book is recommended to those interested in yeast growth from a research or industrial standpoint because of its wealth of diversified and detailed information. The reviewer found many portions of the book to be informative.

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