

## BOOK REVIEWS

### **Enzyme Engineering—Future Directions**

Edited by L. B. Wingard, I. V. Berezin, and A. A. Klyosov, Plenum, New York, N.Y., 1980, 521 pp. \$59.50.

This collection of papers from a 1978 conference entitled, "The Future of Enzyme Engineering Development," held in the USSR, was edited by Wingard, Berezin (conference chairman), and Klyosov. Perhaps the most important contribution made by this volume is that it gives insight into recent Russian enzyme engineering developments. Although there are a few non-Soviet papers included, such as an interesting one on the enzymatic production of L-malic acid from fumaric acid, most of the work came from the Russian academic community.

Among these papers is a treatment of efficiency and optimization problems in enzyme engineering by Kostner and Siimer. Although primarily a theoretical discussion, it gives insight into a somewhat neglected area. The authors do, I believe, overstate the case when they blame lack of attention to optimization for the limited practical applications of immobilized enzymes. Another theoretically oriented article of interest is one by Varfolomeev on the "Theory of Reliability and Kinetics of Inactivation of Biocatalytic Systems."

On the experimental side, attention is given to the stabilization of enzymes, the conversion of cellulose to glucose, immobilized enzymes in nonsilver photography, and several possible biomedical applications.

Although each of the editors was involved in three different papers, a diversity of ideas exists in this collection of papers. This book is probably of more current topicality than lasting value, and if viewed as such, should be of interest to those active in enzyme engineering and related fields.

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## **Applied Biochemistry and Bioengineering, Vol. 2, Enzyme Technology**

Edited by L. B. Wingard, E. Katchalski-Katzir, and L. Goldstein, Academic Press, New York, N.Y., 1979, 306 pp., \$35.50.

This volume, edited by Wingard, Katchalski-Katzir, and Goldstein, is the second in the series devoted to new enzyme-related technology. It is a survey of present and possible future applications of enzymes in industry with an emphasis on immobilized enzymes. Although one might question the advisability of including review articles and loosely related specialized papers in a single volume, the generally high quality of the individual contributions makes the book worthwhile. The inclusion of authors from industry lends credibility to the coverage of existing immobilized enzyme systems and enzyme production processes.

Articles range from comprehensive reviews on glucose isomerase for the production of high fructose corn syrup to a paper on the transformation of steroids by immobilized living organisms. For example, Aunstrup's chapter on extracellular enzyme production covers major commercial enzymes in an interesting manner with some of the subtleties of manufacturing enzymes such as  $\alpha$ -amylase revealed. As might be expected, less information is presented for enzymes of smaller current commercial volume even though their future applications may be potentially significant.

This volume should give academic researchers a fresh perspective on commercial enzyme technology. The review articles should also, in fact, be valuable to those in industry not directly involved in that particular commercial segment. The more specialized articles on two-phase extraction for enzyme purification and on biophotolysis, among others, will perhaps appeal to much narrower groups.

This book is probably best viewed as a collection of well-written articles dealing with enzyme technology from a wide range of viewpoints.

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