

BOOK REVIEW

Advances in Enzymic Hydrolysis of Cellulose and Related Materials. Edited by ELWYN T. REESE. 290 pp. Pergamon Press, Oxford 1963. £4.

THIS volume consists of twelve interrelated topics that were presented in March 1962 at a symposium sponsored by the American Chemical Society and the Army Research Office. Whilst symposia are usually beneficial for those who attend them, it is often debatable as to whether or not the proceedings should be published. In this particular case, publication is well merited because of the great scientific and economic importance of the subject and the way in which it is presented. The contributors are all actively engaged in the study of the enzymic hydrolysis of cellulose and related polysaccharides, and their presentation is critical, enthusiastic and authoritative, with emphasis upon current interests and problems.

In his introductory remarks, Pigman draws attention to the industrial and economic importance of cellulase and related enzymes, and to their potential as a means of producing sugars from agricultural wastes. In Japan, this enzyme is prepared by at least four manufacturers for use in the food industry. It was of interest to read that microbial degradation of cellulose returns to the atmosphere an estimated 85 billion tons of carbon each year, which, if it ceased, would stagnate life within 20 years.

Each article is prefaced with a list of contents and an introduction and, in general, there follows much new information. After the concluding remarks there is a record of the discussion. In the concluding article on the "State of the Art", Siu makes the suggestion that the first step in the microbial hydrolysis of the cellulose fibre, which involves separation and hydration of chains in the crystalline regions, might involve a "hydrogen-bondase", a plausible suggestion in view of the existence of mutarotase. A number of significant advances in relation to the activity of cellulase preparations are of general interest in the biochemical field. There is evidence that the cellulytic enzymes of some fungi act some distance away from the hypha. The multiplicity of active components in cellulase preparations, including crystalline material, is apparent. It is also clear that the specificity of cellulase is not determined by the β -1,4-linkage but by the position at which a glucosyl unit is substituted thus raising problems of nomenclature in relation to enzyme specificity. The important lesson to be learnt from this observation of Parrish and Perlin is that it could never have been anticipated from studies on β -glucans containing only one type of linkage.

A bibliography covering the related literature for the years 1950-1961 is included, to which each article makes reference, but there is no author or subject index.

This is a good book which will be an authoritative guide to research in this field for many years. It will be wanted by all those who are interested in the enzymic degradation of polysaccharides.

L. HOUGH