

in any other part of the world. Nathorst, Sir Albert Seward, Dr. Hamshaw Thomas and Prof. Harris have carried out most of the more detailed scientific investigations of this flora. These two volumes by Prof. Harris will replace Seward's *Catalogue* of 1901. He assembles all the important information and has examined, using modern methods, the evidence that the fossils afford. He has also clarified the nomenclature, which was in a chaotic state. He has been able to define specific differences in some critical genera, for example, *Coniopteris*, and gives clear descriptions of species, including many that are new. This first volume is illustrated with numerous line drawings and silhouettes which are for the most part excellent, but there are a few (for example, Fig. 55B) which are so simplified that they do not resemble an actual specimen. I should have preferred that use had been made of some photographic illustrations to give an idea of the nature and beauty of some of the fossil material and of the cuticle and transfer preparations that may be prepared from it. Such illustrations would assist in substantiating the statements made and would permit overseas workers who have not handled the material to acquire a greater appreciation of Prof. Harris's methods of investigation.

These volumes will be of great value to palaeobotanists and to the curators of the many museums in which there are collections of Jurassic fossil plants.

JOHN WALTON

Advances in Ophthalmology

Vol. 11. Edited by E. B. Streiff. Contributors: G. Ten Doesschate, W. A. Manschot, L. Matiaska, and J. Stepanik. (*Bibliotheca Ophthalmologica*, Fasc. 58.) Pp. vi + 274. (Basel and New York: S. Karger, 1961.) 60 Swiss francs.

THE concept of collagen diseases was introduced about twenty years ago and, in the first paper in this volume, its impact on ophthalmology is examined. Descriptions are given of the essential features of generally accepted collagen diseases and, against this background, the pathological and clinical manifestations of certain disorders of the various tissues of the eye are carefully analysed. The conclusions are presented with an excellent combination of conciseness and clarity.

The second paper deals with the causes of blindness in the neighbourhood of Basle. To those familiar with Sorsby's surveys in England and Wales it will be interesting to find that, in Basle, uveitis is the main disease causing blindness, while primary glaucoma occupies the sixth position, being a less frequent cause of blindness than retinitis pigmentosa.

About half this volume is occupied by a treatise on tonography, dealing thoroughly with the theoretical basis and sources of error of the technique, but far less extensively with its diagnostic value. Adequate accounts are given of ocular rigidity, tonometric calibration, episcleral venous pressure and other factors of fundamental importance in the determination of the facility of aqueous outflow. Nevertheless, one is left with the impression that a somewhat empirical method of evaluating the results achieves the best differentiation of glaucomatous from normal eyes by tonography.

Finally, there is a brief review of the history of ophthalmology which attempts little more than giving a list of the more important references.

J. GLOSTER

Advances in Applied Microbiology

Vol. 3. Edited by Wayne W. Umbreit. Pp. xi + 421. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1961.) 93s.

TEN widely diverse topics are discussed in the third volume in this series. Three are primarily concerned with technique: preservation of cultures by freeze-drying, by R. J. Heckly; the hazards of accidental infection in the microbiological laboratory by M. A. Chatigny; and the application of chromatography to the determination of organic acids likely to be of interest in studies of microbial metabolism, by A. C. Hulme. Microbial metabolism is considered in articles on the cardiac lactones by E. Titus, on the oxidation of aromatic compounds by M. H. Rogoff, and by J. D. Bullock, who contributes a stimulating discussion of the relationships between general and secondary metabolites with particular reference to antibiotic synthesis. Taxonomy is represented by a scheme put forward by E. Baldacci for the classification of the actinomycetes. In the remaining articles F. M. Schabel, jun., and R. F. Pittillo discuss the use of micro-organisms in screening tests in the search for anti-tumour drugs, D. J. Merchant and C. R. Eidam consider the potentialities of the large-scale use of animal cell cultures for biochemical syntheses and interconversions, and N. C. Dondero is concerned with the nature and economic significance of the sheathed, slime-forming bacteria of the genus *Sphaerotilus*.

This volume is less parochial in outlook than its predecessor, and it has benefited from the effort that has been made to restore some international flavour to the series.

J. W. G. PORTER

Microbial Cell Walls

By M. R. J. Salton. (CIBA Lectures in Microbial Biochemistry, Vol. 4.) Pp. ix + 94. (New York and London: John Wiley and Sons, Inc., 1960.) 28s.

THE CIBA Lectures in Microbial Biochemistry were established in 1955 and four of the series have now been published, the latest having been given by Dr. Salton in the spring of 1960. It deals with the isolation, electron microscopy, chemistry, synthesis and degradation of the cell walls of micro-organisms. Although the bulk of the material concerns the walls of Gram-positive bacteria, mention is also made of blue, red and brown, and blue-green algae, fungi and yeasts, as well as Gram-negative bacteria. A wide range of information is collected in an extremely concise form and there are ample references (more than 200) to the relevant literature.

Much space is devoted to the constituents unique to bacterial cell walls—mucopolysaccharides containing D-amino-acids, diaminopimelic acid and muramic acid; and teichoic acids consisting of polymers of ribitol or glycerol phosphates with attached carbohydrate residues and ester-linked D-alanine. The mucopolysaccharides apparently occur in all bacterial cell walls so far examined, and it is the synthesis of this class of compound which is inhibited by such antibiotics as penicillin, bacitracin, oxamycin (D-cycloserine) and novobiocin.

The author was a pioneer in the development of methods for studying bacterial cell walls and has contributed much from a variety of aspects. The CIBA Lectures provide a welcome opportunity for an expert to give a reasoned account of his special field of interest and this volume is fully up to the standard of its predecessors.