

only a short chapter is devoted to them; recent fishes, of course, offer much support to the author's theories, but he also ascribes perigamic function to such features of fossil fishes as the spiral 'nose' of *Helicoprion*. Again, recent reptiles, with their extraordinary crests, folding collars, bright coloration, etc., serve to encourage his search for unusual structure among the fossil members of the group, and the extraordinary crests of some dinosaurs (especially the *Pelicosaurus*) are discussed at length; the views of Romer, Colbert, Yonge and others regarding possible functions of these structures are dismissed and there is no choice left but to postulate their importance for sexual selection. Armoured dinosaurs, stegosaurs, ceratopsids, etc., are treated in the same way and even the enormously thick skulls of Pachycephalosauridae are regarded as perigamic characters, which would be useful during fights between males, if they had this habit.

Coming to birds, the author rejects suggestions of J. Huxley and Boback that bridge plumage of males distracts attention of enemies from sombrely coloured females and is, therefore, favoured by natural selection. Mammals, again more particularly fossil ones, offer a wealth of cases of extraordinary development of horns, tusks, etc., which are all interpreted to favour the author's views, and he criticizes severely those of J. Huxley, Simpson, Schmalhausen and Hersh who regarded such structures as a result of allometric growth and hypermorphosis.

The author's final conclusion is that "the sexual selection is merely a special form of natural selection". The book is well produced, with abundant, though not original, illustrations, and the bibliography of 20 pages includes references to some foreign and Russian papers as recent as 1960.

## PATHOLOGY OF THE BANANA

Banana Diseases, including Plantains and Abaca  
By Prof. C. W. Wardlaw. Pp. vii+648. (London: Longmans Green and Co., Ltd., 1961.) 130s. net.

WARDLAW'S *Diseases of the Banana*, published in 1935, has until now remained unchallenged as the best available text-book on the subject; but inevitably much has happened in a quarter of a century to make it out of date. The banana industry, the plant pathologists who serve it, and all who are scientifically interested in tropical agriculture, must therefore be glad that Prof. Wardlaw has been able and willing to write a new book to replace his earlier one. He has unique qualifications for the job and has done it beautifully, combining his first-hand knowledge of developments in the field with an impressive diligence in the handling of the literature—up from 559 references in 1935 to more than twice as many to-day. Like its predecessor, *Banana Diseases* deals with the pathology of the plant in the field and of the fruit in transit from field to consumer. The post-harvest diseases and the wastage they cause in shipment occupy about one-fifth of the text.

Three chapters set the background for a detailed discussion of the various infectious diseases of the crop in the field by presenting an outline of the botany and cultivation of the banana, followed by an account of the numerous non-infectious disorders caused by unsuitable climatic and cultural conditions

such as soil deterioration, poor drainage, drought and mineral deficiencies.

Of the individual diseases in the field, banana wilt, or Panama disease, still takes the most prominent place. Though controlled in practice in an increasing number of producing countries by change of variety from Gros Michel to various clones of the Cavendish Group, Panama disease continues to challenge the pathologist with baffling scientific problems of considerable economic importance. Consequently, a great deal of research has been done on it since 1935 and investigations continue. The two chapters devoted to Panama disease provide an excellent critical summary of the present state of knowledge on this subject.

Second place is now held by leaf spot, or Sigatoka disease, and the two chapters on this contain some of the most important new material in the book. They include the astonishing story of the critical years in which leaf spot suddenly threatened the survival of the trade in the Western hemisphere, and the heroic measures by which it was brought under control—probably, as the author says, one of the greatest achievements in the history of phytopathology. They also present a thorough account of subsequent improvements in control measures, including the introduction of oil spraying. It is especially in this section that the reader is made aware how far the industry has moved in recent years towards more intensive methods.

Chapters on the virus diseases, and on the lesser, but not unimportant, bacterial and fungal diseases of the plantations, are all equally up to date.

Detailed accounts of the many fruit diseases that become important after harvesting are prefaced by an outline of the processes of harvesting, packing, transport and ripening, and a chapter on the causes and extent of wastage in harvested fruit. The changes in the techniques on the handling side of the industry have been less conspicuous than those on the growing side; but there have been steady improvements, which are well summarized.

There are short but useful appendixes on nematode diseases, the weevil borer, and deterioration of Manila hemp. The book is elegantly produced, as its scientific quality deserves, and well illustrated.

E. E. CHEESMAN

## HORTICULTURE: 1958 VINTAGE

Advances in Horticultural Science and their Applications

Proceedings of the 15th International Horticultural Congress, Nice, 1958. Vol. 1. Edited by Jean Claude Garnard. Pp. lxxxii+546. (London and New York: Pergamon Press, 1961.) £20 net per set of three volumes.

INCREASINGLY, reports of international conferences are coming to be accepted as works of review and reference. In this respect a report on a horticultural congress is at a disadvantage; the subject-matter is varied in character and must cater for the interests of growers and of research workers with widely differing backgrounds. Nevertheless, if the format and price of the three volumes reporting the Horticultural Congress at Nice are to be justified, it is as works of reference that they must be assessed.

The four "general lectures" which are printed in this first volume were presumably intended to give