

examples of a very wide range of pathological disorders are described. Such descriptions are often brief, and the differences between symptoms of various disorders are sometimes not clarified. More and better quality photographs would have aided written descriptions of symptoms. In contrast, the diagrams are clear and straightforward.

In a book which relies on selected examples to give an introduction to tree pathology it is clearly important that such examples should be accurately described and referenced. Unfortunately this is not always the case. It is now more than ten years since Ridé showed that bacterial canker of poplar is caused by *Aplanobacter populi* and not *Pseudomonas syringae* f. *populea*. The original work on the biology of *Fomes annosus* by Rishbeth is not acknowledged, and the commercial use of *Peniophora gigantea* for the biological control of this pathogen in Britain is not mentioned.

The author discusses a number of pathological principles such as epidemiology, inoculum potential and the interaction of climate and disease, but space is limited and such discussion is often inadequate. Garrett's thesis on soil and root inhabiting fungi is dismissed in half a page.

In spite of these limitations, this book provides a fair introduction to tree pathology for those unfamiliar with the subject.

D. A. BURDEKIN

NITROGEN METABOLISM COMPARED

Comparative Biochemistry of Nitrogen Metabolism

Vol. 1: The Invertebrates. Edited by J. W. Campbell. Pp. xiii + 493. (Academic: London and New York, September 1970.) 150s.

THIS volume, the first of two, is a most useful summary of present knowledge. Each invertebrate phylum or group of phyla is reviewed, with separate chapters on insects and arthropods other than insects, and with echinoderms and protochordates treated together. This presentation leads to a certain overlap but it is particularly useful to the comparative biochemist or zoologist who wants to have up to date information about each particular group. The unevenness of treatment, however, leads to some minor frustrations, for although there is a separate systematic index, there is no reference to some groups of animals such as the Acanthocephala, the nemertines, rotifers or ctenophores. The echiurids and sipunculids are treated within the chapter on annelids.

The chapters are of very different length though this partly reflects how much we know about one group and how little about another. The chapter on Aschelminthes extends to ten pages and refers only to nematodes; echinoderms are reviewed on one page, protochordates on two pages, yet molluscs and annelids are both extensively reviewed and each occupies 80–90 pages. In spite of this unevenness—invariably in compendia of this kind—Dr Campbell must be congratulated on a particularly difficult editorial task. Although an introductory chapter would have helped undergraduates, these two volumes will undoubtedly prove most useful and will provide a basis for further work. Inevitably they duplicate information provided elsewhere in other reviews and even published by the same press. The annelids come off well in this regard in that there is now Dr A. E. Needham's excellent chapter, in addition to those of Florkin and of van Thoi and Robin, in that curious multivolume conception *Chemical Zoology* (Vol. 4). *Chemical Zoology*, while having chapters on nitrogen metabolism of some groups and in having a similar systematic arrangement, omits this topic for some phyla, so that the present more coherent volume is most welcome. It maintains the high standard of such reviews from Academic Press.

R. P. DALES

SESSILE ORGANISMS

Bryozoans

By J. S. Ryland. (Hutchinson University Library: Biological Sciences.) Pp. 175. (Hutchinson: London, October 1970.) 35s boards; 14s paper.

DURING the past decade, growing interest in Bryozoa has resulted in a rapid increase in the number of papers dealing with fundamental problems of structure, function, ecology and relationships. Bryozoans have a very wide aquatic distribution and a long fossil history, but past studies have been carried on by a few, often isolated, workers. Dr Ryland, who has wide experience of Recent forms, particularly their taxonomy and ecology, has written a review which successfully achieves a two-fold purpose, and which will be welcomed by all bryozoologists.

First, the book summarizes the current state of knowledge of the phylum, giving source references to the most recent Palaeozoic and post-Palaeozoic research. Second, students with no previous knowledge of the group will find a comprehensive, non-technical introduction not only to morphology, physiology and ecology, but also to fossil structure, history and relationships. For the first time, the phylum is treated as a whole, and one of the many stimulating approaches in this book is the synthesis it contains of current ideas on the relationships of fossil and Recent forms and the methods of studying them. The concept of the bryozoan colony as a whole animal comprising inter-related units is also emphasized. This view has sometimes been neglected in the past, but is important in understanding new ideas of structure, growth and polymorphism.

Bryozoans illustrates the numerous fields for fundamental research which are open to investigation, and indicates the large scope of the work necessary in these fields. For example, the function of many polymorphs is at present unknown; fertilization has been observed in a few species only; the process of calcification and its relationship to methods of tentacle extrusion requires much more work before its taxonomic significance can be assessed; and predator and commensal associations are largely unstudied.

This book will help all bryozoologists who wish to assess their own studies on the phylum and relate them to those of others. Of equal importance is its potential in attracting new workers who will wish to discover more about these truly "fascinating aquatic animals".

PATRICIA L. COOK

FIBRINOLYSIS

Chemical Control of Fibrinolysis—Thrombolysis

Theory and Clinical Applications. Edited by Joseph M. Schor. Pp. xvi + 328. (Wiley (Interscience): New York and London, August 1970.) 170s.

It is very unfortunate that the editor of this book has seen fit to present the chapters as a series of contributions to a journal, rather than as a critical discussion of the current views and practices in the field of fibrinolysis. For instance, at least half the book is devoted to the separate studies of three classes of drugs. These studies are described with too many experimental details, which are, no doubt, of great value to the experimentalist in the laboratory, but are only tedious and confusing to the less interested reader.

The editor has made no attempt to draw together the individual contributions into any sort of discussion, with the result that somebody hoping to get an overall view of the field of fibrinolysis will be disappointed.

M. P. ESNOUF