

BIOLOGY

Keys to the Phyla of Organisms, including Keys to the Orders of the Plant Kingdom

By Fred A. Barkley. Pp. iv + 40. (Missoula, Montana: Associated Student's Store, 1939.) 75 cents.

IN this pamphlet of thirty-nine pages, Dr. Barkley gives a series of dichotomous keys referring chiefly to the orders of the various 'plant' phyla. The keys have been drawn up to meet the needs of the author's class in plant morphology and have been so constructed as to reflect in large part the views of outstanding authors regarding certain groups. They are intended to give also a more or less comparative treatment of the ordinal category under the various phyla.

Students who have a general knowledge of systematic botany and zoology will find it useful first to get a bird's-eye view of the classification employed by referring to the outline given on pp. 26-27. In this outline the sequence of phyla, classes and orders follows that of the keys, and only in broad outline, therefore, can the classification be regarded as an expression of relationships. Organisms as a whole are divided into four kingdoms: Monera, Protista, Phyta and Zooea. Cohn's old group 'Schizophyta' is retained as a division of the Monera and serves to include Cyanophyceæ, Spirochaetæ and Schizomycetes. An unusually wide interpretation is given to the Protista, since this kingdom is made to include not only Protozoa and Parazoa but also all the organisms commonly classed as Algæ and Fungi. Bryophytes head the list of the phyla placed in the kingdom Phyta and are followed in turn by Pteridophytes and Spermatophytes, the last phylum of which—the Anthophyta—includes the large number of orders into which Dicotyledons and Monocotyledons are divided. Apart from an occasional change of name and a different sequence, the orders of flowering plants are the same as those proposed by Hutchinson in "The Families of Flowering Plants". In the keys to the orders a great deal of detailed observation is compressed, much of which will not prove easy reading to the elementary student, but the inclusion of a useful glossary (pp. 29-38) will help to get over the difficulty.

J. R. M.

Bibliography of the Larvæ of Decapod Crustacea

By Dr. Robert Gurney. (Ray Society, Vol. 125, for the Year 1937.) Pp. vii + 123. (London: Bernard Quaritch, Ltd., 1939.) 12s. 6d.

THE preparation of bibliographies is often a thankless task, although few would deny their importance. The present example covers the literature of the larvæ of Decapod Crustacea (excluding the Euphausiacea) up to May 1939. It comprises three sections—an alphabetical list of authors, a classified catalogue in which the literature is arranged zoologically, and an index to genera. Some eight hundred titles are recorded.

We have tested the work here and there both as regards completeness and accuracy, and have little criticism to offer. Every bibliographer knows that

completeness is unattainable and even accuracy is curiously difficult to achieve. Nevertheless, we have noted only the following errors and omissions: the paper by Audouin and M. Edwards, 1828, on the nervous system of *Phyllosoma*, Dalyell's "Powers of the Creator", vol. 1, 1851, containing observations on Decapod larvæ, Leach's earlier article on *Megalopa* of 1814, and Leeuwenhoek's letters of 1686 and 1700 on the development of Crangon are omitted. Crawford and Smidt's paper on *Panulirus* should be dated 1922 and for "Larvæ, p. 9" read "Larva, p. 309"; Milne Edwards is not a hyphenated name and should be catalogued under Edwards; Hornell's papers on *Squilla* and *Scyllarus* were reprinted in a volume of "Microscopical Studies" in 1901; the reference to Linnaeus should be to the twelfth edition, *Holmiæ*, 1767; and Slabber's figure of the zoea larva should be dated 1769.

Dr. Gurney is to be congratulated on the completion of a valuable piece of bibliographical research and the Ray Society for having undertaken its publication.

F. J. C.

Basic Methods for Experiments on Eggs of Marine Animals

By Ernest Everett Just. Pp. x + 89. (London: The Technical Press, Ltd., 1939.) 6s. net.

THE methods used in experimental investigations of the eggs and spermatozoa of marine invertebrates depend very strongly on the adherence to some general rules. Some of these are set out in this little volume, which should be useful for beginners in the field of experimental embryology, and for the specialist whose work demands individual extension of methods. Whilst the techniques described apply to the gametes of American marine species, they are sufficiently general to be applicable also to the gametes of the same species, and to those of closely related species, in European waters. Dr. Just has developed his methods over a period of twenty-five years, so that the issue of this book was to be expected as a necessary supplement to his recently issued "Biology of the Cell Surface". In no wise can it be claimed to be a catalogue of all methods in use, but, nevertheless, the methods described, and especially those relating to preparations of fixed tissues, should be of value to cytologists.

Notes on the Genus *Dioscorea* in the Belgian Congo

By I. H. Burkill. (Extrait du *Bulletin du Jardin botanique de l'Etat*, Vol. 15.) Pp. 48. (Bruxelles: Jardin botanique de l'Etat, 1939.)

THIS important study is by one of the authors of the revision of the Eastern *Dioscoreas*. It will prove invaluable in compiling any general account of the genus in Africa. Twenty-three species are recorded with several varieties for some of them; two of the species are here described for the first time. These species of the Congo are attributed to six sections of which four twist to the left. A definition of each section is given, and a key to the species is provided for each plurispesific section. A full history and synonymy of every species will be found, together