

of rapid orientation, without entering into minute details. The ground covered is not restricted to zoology in the narrow sense, but includes cytology, anatomy, genetics, and theoretical biology in general.

As regards systematic zoology, the higher subdivisions down to orders and the most typical families are well represented. Brief diagnoses of these are given, together with references to some of the genera and species. The value of these diagnoses and other definitions is enhanced by numerous cross-references. Some of the systematic groups are provided with index-numbers of the "Bibliotheca Zoologica," to which the reader is referred for further information. The geographical distribution of separate forms is indicated in a similar manner, the respective regions being arranged at the end of the book in tabular form. The classification adopted is also given at the end, side by side with that of the "Bibliotheca Zoologica." A useful feature of the dictionary is the accentuation of Latin and latinised words and the etymology of these and other foreign words, given in brackets.

In a book of this type it is perhaps inevitable that certain inaccuracies will occur. Thus the *Aggregataria* (or *Aggregatidæ*) are referred to the *Gregarinida* instead of to the *Coccidia*; the causative organism of tropical malaria is referred to as *Plasmodium præcox*, without mention of the name *P. falciparum*. The retention of Hartmann's artificial group *Binucleata* does not accord with the view of most protozoologists. The various members of the family *Filaridæ*, which actually belong to different genera, are all placed in one genus, *Filaria*. These minor defects do not detract from the general merit of the book, which may be recommended as a useful short guide to zoological nomenclature.

C. A. HOARE.

Animal Classification and Distribution, a Précis Reference Book: for Students of Elementary Zoology at Secondary Schools, Colleges, and the Universities; being a Time-saving Synopsis with Provision for a Digest of Lecture Notes and Sketches. By Douglas M. Reid. (Griffin's Scientific Text-books.) Pp. xv + 51 (every other page blank). (London: Charles Griffin and Co., Ltd., 1925.) 6s. net.

THE purpose of this volume is expressed in the opening lines of the preface: "Experience in teaching students of zoology has shown that many who are unfamiliar with the laws and principles of classification lose much time in searching various books to determine the position of some organism, . . . and to meet this need the present synopsis is provided." It must be said at once that the volume will require many emendations and additions if it is to enable the student to determine the position of the animals he sees or collects. A number of the small subdivisions containing relatively rare forms might well have been omitted and the space so obtained devoted to a fuller definition of the main groups. Many of the definitions contain loose statements which will lead to misunderstanding; e.g. "epithelium absent" is given as one of the characters of *Nematoda* (no doubt cœlomic epithelium was intended), and *Gordius* is said to be free living—a statement which takes little account of the life-history; the *Zoantharia* are defined as having a calcareous skeleton, but the example of the order correctly cited is *Actinia*, which has no skeleton. The author would do

well to study page 9 and ask himself how the reader will know by inspection whether certain worms "have possessed chaetae," if in all *Polychæta* the "head end is fitted with tentacles"; if the posterior sucker of a leech is on the posterior segment, why the leeches alone among annelids are cited as exhibiting embryonic development; if *Gephyrea* are hermaphrodite (see *Bonellia*) and the mouth and anus are at the opposite ends of the body (see *Sipunculus*), and why the presence of a vascular system and nephridia are noted in *Gephyrea* but left unnoticed in *Oligochæta* and *Polychæta*, where they (especially the vascular system) are much more typical.

We do not feel able to recommend this volume as tending to a solution of the student's difficulties in classification.

Plant Morphology.

Monocotyledons: a Morphological Study. By Dr. Agnes Arber. (Cambridge Botanical Handbooks.) Pp. xv + 258. (Cambridge: At the University Press, 1925.) 21s. net.

DR. ARBER has produced a very clear, learned, and admirably illustrated treatise on the monocotyledons. To be properly appreciated it must be studied in detail, since it is a carefully reasoned morphological study dealing with the study of plant organs from the point of view of their internal structural features as well as of their external. Thus the root, the axis, the foliage leaf in its various forms as represented in the monocotyledons, and the prophyll, including phylloclades, are fully treated. The seedling and its interpretation is also discussed at length. In the chapter on the reproductive phase the floral peculiarities exhibited are described and details of the structure of the embryo sac and ovule are given.

This is followed by a discussion on taxonomy and a very interesting chapter on parallelism in evolution. The book concludes with a full bibliography and carefully prepared index.

Dr. Arber, though a disciple and fellow-worker of the late Miss Ethel Sargent, has largely followed her own ideas in writing this book and the result is a work full of fresh light on a fascinating problem—the meaning and interpretation, especially as regards their vegetative features, of the very diverse organisms which are grouped together in the phylum monocotyledons.

Many theories have been put forward to explain the relation of the monocotyledons to the dicotyledons, the most generally accepted being that the former have arisen from the latter. Dr. Arber, however, considers that the evidence, both from the living plants and the scanty fossil records, is not sufficient to warrant acceptance of such views. She would rather maintain that the great groups of flowering plants came independently into existence, and that their immense variety of form and structure at the present day is due to reduction, fusion and degeneration. Adaptation, she holds very strongly, affords no explanation of the characters which distinguish groups.

Both text and figures deserve the careful attention of botanists and students of evolution. The book is not only one for which the author deserves very high praise, but is also a production which reflects great credit on the Cambridge University Press.