

being quoted under their vernacular names. A reliable, practical and scientific book of this kind, in its new edition, will doubtlessly be welcomed in Sweden in view of the great importance of forestry in the national economy. In other European countries a German translation would be an undoubted advantage. Finally, it may be added, almost all the English forest pests will be found to be discussed within its pages.

#### A Laboratory Introduction to Animal Ecology and Taxonomy

A Laboratory Guide with Keys prepared with Particular Reference to Freshwater and Terrestrial Habitats of the Deciduous Forest Region in North America. By Prof. Orlando Park, Prof. W. C. Allee and Prof. V. E. Shelford. Pp. x+272. (Chicago: University of Chicago Press; London: Cambridge University Press, 1939.) 10s. net.

THIS handbook is written for the naturalist, and is intended for those taking introductory college courses, interested amateurs and high-school students. Its object is to train the student to identify the terrestrial and freshwater animals of the Chicago area, to study their habits, to experiment with them in a simple way, and to find out what is known about them from books. References are given in each section, and there is an extensive bibliography. Problems are set to stimulate further investigation. There are synoptic keys, carried as a rule only to orders, and the student is encouraged to construct his own key by means of an exercise based on ten species of the local snail *Polygyra*. Pratt's "Manual of Common Invertebrate Animals" and Ward and Whipple's "Fresh Water Biology" are then used for the identification of genera and species. Statistical methods are lightly touched upon and a section on cave animals is included. A glossary of technical terms used in the keys supplements the explanations found in the text. There are seventeen clear line-drawings, mostly by T. J. Daggy. The pages are threaded on ten metal runners which keep the leaves flat when the book is open, but are somewhat awkward to manipulate. The book gives an admirable presentation of the subject.

#### Flora of Devon

Phanerogams, Vascular Cryptogams, Charophyta. Promoted by the Devonshire Association. Edited by Rev. W. Koble Martin and Gordon T. Fraser, with the assistance of Rev. Thomas Stephenson and Francis M. Day. Pp. xv+787+8 plates. (Arbroath: T. Buncle and Co., Ltd.; London: Wheldon and Wesley, Ltd., 1939.) 25s.

THE editors of this "Flora of Devon" are to be congratulated on the care and attention they have given to this long-awaited volume. Some seven hundred pages of print are devoted to a detailed study of the distribution of the plants found in the county, which for the purposes of this survey has been divided into two vice-counties (following Watson), eight districts and twenty-three sub-districts. Under each species and sub-species is given a list of the places in which it is or has been found and the

records of the species in the district. This has entailed a careful study of the specimens in the herbaria in the county, consultation with the systematists who are specialists in the different groups, and an examination of the relevant literature, of which a bibliography is given.

The result is a very complete and careful record of all the data relating to each species and sub-species, which is grouped in accordance with the "London Catalogue of British Plants" (eleventh edition). For the specialist and the systematist the book should be of immense value. Its appeal and scope would, it appears to the reviewer, have been widened had the details given for each plant been somewhat curtailed, thereby allowing of more than forty pages for the introductory portion, which seems to be of more value to the general reader and student. The meteorological, geological and ecological data which are outlined in these first few pages are of great interest and some portions, at least, might have been expanded, to group, for example, the plants under localities, and not, as is found later in the book, the localities under the plants. Out of some eight hundred pages, more than twenty might, with effect, have been devoted to the ecology of the county.

J. C.

#### Experiments in Plant Physiology

A Laboratory Text-Book. By Dr. Walter E. Loomis and Dr. Charles A. Shull. (McGraw-Hill Publications in the Botanical Sciences.) Pp. xiv+213. (London: McGraw-Hill Publishing Co., Ltd., 1939.) 12s.

THIS book consists of the first part of the authors' "Methods in Plant Physiology", which has been revised and rewritten. There are sections on colloids, water-relationships of the plant, photosynthesis, respiration, reserve foodstuffs, water-cultures, growth and tropisms, while a few experiments on growth substances have also been included. While most teaching physiologists, doubtless, will always prefer to devise their own teaching experiments, the present work is remarkably suggestive of fundamental practical work well within the capabilities of most intermediate and general class students. Two pleasing features are the questions added at the end of most of the sections, and the many references to recent literature (nearly all in English) on which the experiments have been based. The consequence should certainly be that the student will be induced to see beyond the actual experiment he has performed, and will try to relate it to the results of modern research.

One would have wished to see more attention being paid to various tests for reserve foodstuffs. A weakness of the book is the failure to include details of practical work on the physiology of the fungi: experiments on the effects of growing moulds on different carbohydrates, or at different temperatures or on media of various dilutions, should form part of any advanced course on practical plant physiology. But apart from this major criticism, it must be said that the authors have produced a very useful book which can confidently be recommended to university and college teachers.