

**Cryptogamic Botany**

Vol. 1: Algæ and Fungi. By Gilbert M. Smith. Pp. viii+545. 24s. Vol. 2: Bryophytes and Pteridophytes. By Gilbert M. Smith. Pp. vii+380. 18s. (McGraw-Hill Publications in the Botanical Sciences.) (New York and London: McGraw-Hill Book Co., Inc., 1938.)

**T**HESSE two volumes together form a good general review of the Cryptogams in which representative series in each of the major groups are described in detail. Though most of the types chosen are those found in the United States, the majority are so very widespread that students who adopt these books for their reading in cryptogamic morphology need not necessarily be confined to the United States. Thus, the work should be welcomed by British students, since, though the major groups of Cryptogams are well reviewed in separate British text-books, there are few satisfactory single works which cover all representative Cryptogams.

Vol. 1 opens with a discussion of the classification of spore-producing plants. The author gives cogent reasons for not recognizing the Thallophyta as a division of the plant Kingdom, but prefers to split the Algæ into several distinct divisions. He also gives reasons for considering the Fungi as having evolved from Protozoa rather than Algæ, and therefore keeps them apart. Following this discussion are descriptions of various types of Algæ, Fungi, Fungi-Imperfecti and Lichens.

Vol. 2 considers the Bryophyta and Pteridophyta. The Bryophyta are considered in the evolutionary series—Hepaticeæ, Anthocerotæ and Musci; thus the author follows Howe's suggestion that the Anthocerotæ (consisting of a single order—Anthocerotales) be placed in a special class co-ordinate with the other two. The Pteridophyta are divided into the more generally accepted classes—Psilophytinæ, Lycopodinæ, Equisetinæ and Filicinæ.

These two volumes can be warmly recommended to students of cryptogamic botany. In themselves, there is enough material for students reading for a general degree, whereas for the benefit of honours degree students and research workers there are about two thousand references.

**The Petrology of the Sedimentary Rocks**

By Dr. F. H. Hatch and Dr. R. H. Rastall. Third edition, revised by Maurice Black. (Text-Book of Petrology, Vol. 2.) Pp. iv+383. (London: George Allen and Unwin, Ltd., 1938.) 15s. net.

**M**UCH research on problems connected with the sedimentary rocks has been carried out since the publication of the last edition of Hatch and Rastall's text-book, in 1923. The appearance of a revised edition is therefore timely. The author and subject bibliographies with which the latest edition is provided reveal the extent of the literature on sediments, and it is noteworthy that a very considerable proportion of the papers cited have been issued during the last fifteen years. The task of revision, which has been carried out by Mr. M. Black, must therefore have been no light one.

Actually a great deal of the text has been re-written, and the general arrangement of the subject-matter has been modified. Apart from the incorporation of new material, an important change is the omission of the chapters on metamorphism. These, it is claimed, would now be superfluous, owing to the publication recently of Dr. A. Harkers' book "Metamorphism". On the other hand, Mr. T. Crook's useful appendix on the minerals met with in the loose detrital sediments, which was excluded from the second edition, has been re-introduced in modified form.

Mr. Black has carried out his task very thoroughly, and few omissions of any importance were noted. It is perhaps to be regretted that a substance of such economic importance and scientific interest as bauxite should not have received fuller treatment; and it is rather surprising that no reference is made to the limestone deposits known as 'cornstones' that are so well known in Britain. These, however, are minor blemishes in what is, to all intents and purposes, an entirely new text-book, filling a definite gap in British geological literature. Both Mr. Black and the publishers are to be congratulated on its preparation.

**Rainfall and Tree Growth in the Great Basin**

By Ernst Antevs. (American Geographical Society, Special Publication No. 21.) Pp. v+97+2 plates. (Washington: Carnegie Institution; New York: American Geographical Society, 1938.) n.p.

**I**N recent years drought has become a major problem in the western States, and it is important to study the variations of rainfall over as long a period as possible. In this region there are few rainfall stations with long records—scarcely any before 1871—and the author accordingly set out to supplement these with data from other sources, such as historical records of rains and droughts, crops, the levels of lakes and rivers and especially the annual growth-rings of trees.

The area studied includes a number of lake systems in the Great Basin, mainly in Oregon, northern California, Nevada and Utah. Each area is discussed in considerable detail and the results are expressed in curves and tabulations back to about 1850, with curves of tree-growth permitting general estimates for longer periods. The results of this detailed study are then combined in a summary of the major fluctuations of rainfall since 1801, from which the author draws some hopeful inferences as to a future improvement in the water supply. In order to find a parallel to the drought of 1924-34, he has to go back to the 1840's. Since 1887 there have been nearly three complete minor oscillations, but it is doubtful if these are truly periodic, and the predictions of water supply based on them are to that extent uncertain. The final chapters give the curves of tree-growth back to 1450 and discuss their significance.

The book is a most interesting study of historical climatology, bringing together and interpreting several different lines of evidence in a sound and critical way.