

parts. Part i., "Collecting the Material," gives an eminently readable account of the different genera and species in their homes, illustrated by some excellent photographs. It will interest the educated layman as well as the botanist. Part ii., "The Life History," is a concise account of the Cycads in their various stages, including vegetative structures, reproductive structures, fertilisation, and the embryo and seedling. It is written with great clearness and is also well illustrated, but the mere educated layman will not get far beyond the first chapter. In part iii., "The Evolution and Phylogeny of the Group," we pass from the record of fact to speculation. This will interest the botanical student, who will follow easily at any rate the development of the different types of female sporophyll from the foliage-leaf, while he will be struck with the comparative uniformity of the male cone throughout the group. The evolution of the gametophyte and of embryogeny presents greater difficulty. Botanists will look forward to reading the much more extended technical account of the living Cycads on which the author has been at work for many years; and the results of this work will be of the greatest interest to those who are investigating the evolution and phylogeny of the Gymnosperms.

(3) Mr. Crabtree's little book on the British ferns makes a delightful introduction to their collection and study. The habitat and form are described in twenty-eight species (about three-fourths of the British species), and each description is accompanied by a full-page photographic reproduction of the plant as it grows and of a portion of a fertile leaf showing the sori on the pinnæ. The latter are sometimes wanting in clear definition. An introduction gives a very brief account of the life-history of a fern, and also directions for collecting, drying, and mounting. The author recommends mounting in a book. This was the custom in the old herbaria, but the plan of mounting on separate sheets which may be kept in a box or portfolio is much to be preferred. It allows intercalation of additional specimens or replacement of old ones, as well as alterations in arrangement, all of which are impracticable with the book-form.

OUR BOOKSHELF.

Ireland: The Outpost. By Prof. Grenville A. J. Cole. Pp. 78. (London: Oxford University Press; Humphrey Milford, 1919.) Price 3s. 6d. net.

A BRAVE and poetic effort is here made to present what Vidal de la Blache would call the personality of Ireland. The country is viewed as an outpost of Eurasia, from which her people and her civilisation have been derived in successive and overlapping waves. Prof. Cole's name assures the picturesque interest of the structural sections, and the maps and views are most helpful. A laudable effort is also made to set forth the present state of the problem of the peopling of Ireland, and this chapter is a welcome change from the too common fanciful remarks about Celts. No two

writers would make the same sketch on this subject, and several would dissent from Prof. Cole's identification of the archæologically named Beaker folk with the "Bronze age" invaders of Ireland and with the monuments of New Grange. Nevertheless, Prof. Cole has made a suggestive summary that may well make a basis for discussion. The very short mention of Roman times and of the days of the saints is a little disappointing perhaps, as the story of those days emphasises the initiative of Ireland.

Separate accounts of the barrier of Leinster and the Irish plain, the uplands of the north and the Armorican ranges of the south, are full of interest with many a picturesque phrase and much fine human sympathy. The section on exits and entrances and communications hints at future developments of train ferries and of trans-Atlantic services from the West, while it gives a fresh criticism of the railway system.

The book should promote a more sympathetic understanding of Ireland's problems, and must be useful to the student and teacher, as well as to the general body of British citizens.

H. J. F.

British Rainfall, 1918. On the Distribution of Rain in Space and Time over the British Isles during the Year 1918. By Hugh Robert Mill and M. de Carle S. Salter. The Fifty-eighth Annual Volume. Pp. 242. (London: Edward Stanford, Ltd., 1919.) Price 10s.

TABULAR matter of great precision and of considerable scientific value as recorded by about 5000 observers constitutes the bulk of the information set out in this volume. The British Rainfall Organisation is to be congratulated on the high standard of the work which for the last time is produced under practically private management. Dr. H. R. Mill, after acting as director of the Organisation for nearly twenty years, has given over the control, which has now passed to the Meteorological Office.

An article on the development of the British Rainfall Organisation since 1910 shows considerable activity in the production of rainfall maps. A series showing the annual rainfall of the British Isles from 1865 to 1914, on a scale of nineteen miles to an inch, has been completed. A map on the scale of half an inch to a mile, showing the relation of rainfall to geographical features, is stated to be in contemplation.

Mr. Carle Salter contributes an article on "The Relation of Rainfall to Configuration," and he deals with the physical processes of rain formation.

Rainfall maps are given for each month, showing the actual fall in inches and the percentage of average. A coloured map shows the relation of rainfall in 1918 to the average of 1875-1909. The rainfall was more than 30 per cent. above the average in Merionethshire, Central and North Lancashire, North Dumfriesshire, and part of co. Kerry. The areas of deficient rainfall during 1918 occurred chiefly in the east of Great Britain.

C. H.