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*GEOLOGY AND SCENERY OF THE LAKE DISTRICT.*

*The Geology of the Lake District and the Scenery as Influenced by Geological Structure.* By Dr. J. E. Marr. Pp. xii+220. (Cambridge: At the University Press, 1916.) Price 12s. net.

EVER since the days of Jonathan Otley and of Sedgwick the Lake District has attracted much attention from geologists, largely on account of the variety and difficulty of the problems that it presents. As is well known, Dr. Marr has devoted a very large part of his life to the study of these problems, and the present volume contains an admirable summary of the results obtained by his predecessors, by his contemporaries, and by himself in this field. Although comparatively small when measured in square miles, there is, perhaps, no other well-defined area where so much variety of topography and of geological structure is to be found, or where the connection between geology and scenery is so clearly marked. On this latter feature the author rightly lays much stress, pointing out that each formation gives rise to its own particular type of scenery, easily distinguishable even in the distant view.

The arrangement of the book is historical. Beginning with the oldest known rocks, a clear and connected account is given of the origin and characters of each formation, and also of the events that occurred during the intervals when no deposition was in progress. The chapters dealing with the periods of non-deposition are in some ways the most interesting sections of the book, as they give more scope for originality and speculation. Even yet there remain problems among the older rocks still awaiting a final solution; perhaps the most important and the most difficult of these is the question of the true age and tectonic relationships of the Borrowdale volcanic series. The similarity of these rocks to the Charnian volcanics was long ago noted by Prof. Lapworth, who suggested that they may possibly be of pre-Cambrian age, owing their present position above the Skiddaw Slates to overthrusting. As a result of the researches of Dr. Marr and Mr. Harker, and the more recent work of Mr. J. F. N. Green, the balance of evidence seems to show that they are in reality, as they appear to be, of Llandeilo age; the question may eventually be settled by a study of the graptolites of the uppermost Skiddaw Slates. Should these be found to contain, as is possible, a Glenkiln fauna, a place would have to be found for the Borrowdales elsewhere, since the overlying Coniston Limestone Series is undoubtedly of Caradocian age. The relationship of the Eycott lavas to the Borrowdales and to the Carboniferous rocks which immediately follow them also offers an interesting field for investigation.

In the Lake District the connection between topography and glaciation is naturally close, and

this is a subject on which the author is particularly competent to speak with authority. The development of the drainage system, together with its later modifications, as well as the origin of the lakes and tarns, are dealt with in a masterly manner. It is made abundantly clear that both ice-erosion and glacial deposit have played an important part in producing the characteristic types of scenery to which so much of the present beauty and interest of this region are due.

The author has succeeded admirably in the difficult task of producing a book which will be both interesting and instructive to the general reader as well as valuable to the serious student. The portions printed in large type form a continuous narrative of the main features of the geological history of the district, while the sections in smaller type provide a wealth of descriptive detail with ample references to the original literature, which will be of the greatest value to those who wish to carry out further work along special lines.

The book is well printed and the illustrations are numerous and well chosen, a feature of special interest being several reproductions of maps illustrating, among others, the classical papers of Dr. Marr and Mr. Harker on the Shap granite and of Mr. Harker on the gabbro of Carrock Fell. Both the author and Dr. H. H. Thomas are to be heartily congratulated on the beautiful coloured geological map of the district; possibly this helps in part to account for the very high price at which the book is published. R. H. R.

*A HAUSA BOTANICAL VOCABULARY.*

*A Hausa Botanical Vocabulary.* By Dr. J. M. Dalziel. Pp. 119. (London: T. Fisher Unwin, Ltd.) Price 6s. 6d. net.

DR. DALZIEL deserves imperial thanks for producing a little book of imperial importance: the names in Hausa of all the more striking and important trees and plants in the flora of Northern Nigeria. The scope of the book, so far as botanical regions extend, is probably limited by the Sahara Desert on the north, the river Benue on the south, the Chad region on the east, and the course of the Middle Niger on the west. It does not, therefore, extend into the almost oppressively rich flora of Southern Nigeria, because nearly all of Southern Nigeria lies beyond the experiences of the Hausa-speaking folk, though, it is true, that experience does cross the Benue.

Companion works to this book ought to make their appearance in all parts of British Tropical Africa. Some years ago the Scottish missionaries of Blantyre (see the present writer's work on British Central Africa) endeavoured, with the assistance of their native pupils, to print similar researches, at any rate to give the native name of every important tree and plant in Nyasaland. But, unfortunately, they were not able to combine with this in all cases correct botanical identifica-