

REVIEW.

The Iron Ores of Great Britain and Ireland; their mode of occurrence, age and origin, and the methods of searching for and working them; with a notice of some of the iron ores of Spain. By J. D. Kendall, F.G.S. London: Crosby Lockwood and Son, 1893, pp. xvi., 480.

This is a book for the miner rather than for the mineralogist. Its author is a practical man, who seems to have had experience in the examination and working of iron-ores in various parts of this country and in Spain. It is, however, with the hæmatite deposits of the Whitehaven and Furness districts that he is specially acquainted.

Although hæmatite occurs to a limited extent in the Eskdale granite, in the Skiddaw slate and in the Coniston limestone, it is in the Carboniferous limestone series that all the more important ore-bodies are worked. The writer describes the hæmatite deposits as being in some cases bed-like, and in others vein-like, whilst elsewhere they occupy dish-like hollows in the limestone, immediately below the drift, and finally in certain cases present forms of extreme irregularity. He believes that the hæmatite "is older than the lower Permian breccia, but younger than the bulk—if not the whole—of the coal-measures." The origin of the hæmatite is referred to a replacement of the limestone by ferric oxide, effected probably by the circulation of waters holding in solution ferric chloride. The chloride may have been of volcanic origin, since the formation of the hæmatite is traced to a geological period of much subterranean activity.

Viewed from a strictly scientific standpoint the volume offers much to which exception may be fairly taken. The mineralogist is not likely to look with favour upon a work so carelessly prepared that such an expression as "oxide of alumina" is allowed to recur page after page (*e.g.* pp. 211, 223, 225, 244, 250).

Text-book of Petrology, containing a description of the Rock-forming Minerals and a synopsis of the chief types of Igneous Rocks. By F. H. Hatch, Ph.D., F.G.S. 8°, London, 1892, pp. vi. 222.

The appearance within a year of a second edition of this text-book of

petrology bears witness to the success which it has met with. The book has been carefully revised and enlarged to almost double its former size, the number of pages now amounting to 222 instead of 126, while the illustrations have been increased from 43 to 86. The general plan of the book, however, remains practically the same. After a general introduction follows a chapter describing the mode of occurrence of the igneous rocks, and here several new illustrations serve to more clearly explain the subject matter of the text. The method of classification adopted by the author is based chiefly upon chemical composition and mode of origin, while mineral composition is allowed to play only a secondary rôle. In the nomenclature the author mainly follows Rosenbusch and the German school of petrologists. In the last chapter the lists giving the distribution of the various rock types in the British Isles have been considerably enlarged, and several sketch maps showing the chief igneous masses in various districts have been added.

Altogether the additions which the author has made in the present edition appear to have greatly increased the scope and usefulness of the book.

Mineralogy. By F. H. Hatch, Ph.D., F.G.S., Whittaker's Library of Popular Science. London, 1892.

The little volume on Mineralogy which Dr. Hatch has contributed to Whittaker's Library of Popular Science appears to fairly well supply all that is demanded of a popular introduction to the subject. The subject is a somewhat difficult one to present in an attractive and readable form in an elementary text-book of small compass; but the author, if not entirely successful in grappling with the difficulty, has made some advance in the right direction in the mode of treatment which he has adopted. Thus, in the first part of the book, dealing with the characters of minerals, he has wisely omitted those chapters on physical optics and chemistry which in the ordinary elementary text-book are often calculated rather to confuse than to enlighten the reader, and has confined his attention almost solely to the external characters, to that, in fact, which originally constituted the whole science of Mineralogy.

In the second part of the book, also, the method of classification made use of appears to be much better adapted to an elementary and popular text-book than the more strictly scientific chemico-crystallographic arrangement usually adopted. In the mode of classification here adopted the mineral species are divided into four groups:—(I.) The rock-forming

minerals. (II.) The ores with the veinstones accompanying them. (III.) The salts and useful minerals other than the ores. (IV.) The gems or precious stones.

This arrangement serves admirably to increase the interest in the subject by showing the connection between different mineral species as regards community of origin and mode of occurrence, and also by marking out those of economic importance which find their application in various industries.
