

THE COPPER ORES OF CORNWALL AND DEVON. By H. DEWEY. Spec. Rep. Min. Res. Great Britain. Vol. xxvii. Mem. Geol. Survey. pp. iv + 73, with 4 plates and 13 text-figures. 1923. Price 2s. 6d.

THIS useful compilation carries on the general plan of this admirable series, and gives a very full account of the general features of the copper-mining districts of south-west England, with ample details of the individual occurrences. We are glad to note that the author lays special stress on geological and mineralogical relationships, and brings out clearly the well-marked zonary distribution of the copper ores. Most of the deposits appear to have been pretty well worked out, and it is unlikely that there will ever be much further development, in sharp contrast with the undoubted possibilities of tin-mining at deeper levels in the same area, especially below many of the old shallow abandoned copper mines.

ON CONCRETIONARY LIMESTONES IN GENERAL AND ON PEBBLES FROM LAKE OMEO IN PARTICULAR. By F. CHAPMAN, A.L.S. Victoria Naturalist. Vol. xl (1). 1st May, 1923. pp. 5-9, 1 plate.

MR. CHAPMAN, having made a study of various concretionary nodules from Australia, has furthered the knowledge of their organic origin. He finds those from the Mallee Bores contain shells and ostracod valves seen to be enwrapped with a finely granulated deposit which has all the appearance of a disintegrated calcareous plant-thallus, which bears evidence of its organic origin by being riddled in places by the parasitic boring fungus allied to *Achlya*. In pebbles from Lake Omeo calcareous algæ are present in considerable quantities. Some may be siphonaceous, while others are presumably of the nature of Characæ.

CORRESPONDENCE.

MR. S. HAZZLEDINE WARREN'S VIEWS ON THE SUBSOIL PRESSURE-FLAKING OF FLINTS.

SIR,—In reading the letter in your November issue from Messrs. Barnes and Reid Moir on the above subject, one cannot help reflecting that it is generally better to discuss the ideas put forward in a paper than to criticise the Author on his use of English.

When I read Mr. Warren's presidential address (to which your correspondents particularly refer) in the *Proceedings of the Geologists' Association*, and his previous paper on similar lines in the *Journal of the Royal Anthropological Institute*, I had no difficulty—as an Engineer—in understanding the meaning which the Author intended to convey, and I would suggest that the trouble experienced by

Messrs. Barnes and Moir may be mainly due to the frame of mind in which they approached the subject.

When, some years ago, Mr. Reid Moir published¹ a serious mechanical blunder regarding the pressures used in his experiments, his critics were more considerate. I pointed out to him, in private letters of which copies lie before me now, that in calculations relating to his screw press he had left out frictional resistance, which in the case of a fine pitched screw accounts for the greater part of the applied force.

I should not have referred to the matter now had not your present correspondents, in their letter, mentioned an article² in which they have this year repeated the fantastic figure of 300 tons per square inch. I would only remind your readers that, according to data published at the time,³ this was applied over an 8-inch diameter cylinder—i.e. a total pressure of 15,000 tons—through a *rubber ram*! I am not much interested in what happened to the flints, but I should like to see that piece of rubber!

An error in the order of an experimental figure is bad enough, but it is not so serious as the fallacy involving Newton's Third Law of Motion, also repeated in the same article,² which is referred to in your November issue. The writers state that Mr. Warren's calculated figures of subsoil pressure due to the dead weight of superincumbent strata are not correct in sand, because (as one of them has put it): "Pressure is not distributed vertically through sand, but is distributed largely horizontally by such a medium."

To prove this curious proposition they cite an experiment in which a column of sand in an inch-diameter iron pipe is found to jam when pressed downward by a loosely fitting plunger. This is a perfectly good experiment, but unfortunately its application to sand in bulk is all wrong.

In the first place, they have not observed that the downward thrust is there all right, though in this particular case transmitted by the tube, meeting Newton's "equal and opposite reaction" vertically upward at the jaws of the vise or other support.

In the second place, they do not investigate what happens when the rigid wall of the tube is replaced by more sand, and more outside that, till the diameter is greater than sand grains will arch or bridge across.

It is, of course, well known that a secondary effect of a vertical pressure on running sand is a horizontal thrust in all directions (this incidentally accounting for some of the underground movements postulated by Mr. Warren), but these horizontal forces balance each other, and (on the principle of the "triangle of forces") cannot do away with the downward pressure.

I hope neither of your correspondents will regard this as a personal

¹ *Proceedings of the Prehistoric Society of East Anglia*, part ii, p. 181.

² *Man*, vol. xxiii, 1923, No. 74.

³ Professor Ray Lankester in *Westminster Gazette*, 20th December, 1911.

attack. Mr. Barnes and Mr. Warren I have not the pleasure of knowing. From Mr. Moir I have personally experienced nothing but courtesy, and I have always had a high regard for his enthusiasm and sincerity. I am only sorry that he should descend to a style that will tend to discredit the views he advocates.

S. E. GLENDENNING.

84 ROSARY ROAD, NORWICH.

22nd November, 1923.

THE BASE OF THE DEVONIAN.

SIR,—Whilst recognizing the transitional nature of the Downtonian strata, I fear the suggestion made by Dr. Evans in your October issue to regard them as Passage Beds belonging neither to the Silurian nor to the Devonian hardly meets the case. This solution of the problem was, indeed, suggested long ago by Professor Hull (*Q.J.G.S.*, 1882, p. 200), but has met with little favour. It would not obviate the present confusion in such generalized accounts of the Silurian and Devonian faunas as appear in textbooks. It would further necessitate the separation of the equivalent beds in every part of the world.

The other points raised are answered, to some extent at least, in my recently published "Introduction to Stratigraphy", where my views on the relation between the Welsh and Cornubian Devonian are summarized (pp. 115–21). They accord almost exactly with those of Dr. Evans. Geographers do not hesitate to include as lakes such impersistent areas of water as occur in most desert regions—areas which often migrate from year to year—so surely there can be no objection to the use of the word to include "a deep mountain-girt basin into which poured raging torrents from the surrounding mountains" in Devonian times.

L. DUDLEY STAMP.

UNIVERSITY OF RANGOON.

3rd November, 1923.

FOSSILS FROM THE MIDLAND COALFIELDS.

SIR,—I have received several inquiries about various fossils in my collection from the Coal Measures of the Midland coalfields and about unpublished maps and sections of boreholes, to which I am unable to give a detailed reply because the collection, etc., has been boxed up and stored away for the past nine years during my absence in the desert. As I am leaving for the Far East within a few days, I request your assistance in making the following details known pending an opportunity either of completing the study begun in 1907 or of depositing the notes and collection in some public museum where they will be available to specialists.

With the exception of a few rare plants in the hands of Dr. R. Kidston, some of which have been described in part ii of memoir "Fossil Plants of the Carboniferous Rocks of Great Britain"; some