

west of Binegar, the continuation of which disturbance may, and very probably does, run through the Vobster coal-district, to the north of the Downhead anticlinal: and it would be quite capable of producing the phenomena of the inverted Limestone-masses (see *GEOL. MAG.* Decade II. Vol. III. p. 457).

My belief is, that had a diagram on a true scale (as regards the configuration of the land and the great divisions of the rocks), been attempted by those who now support the "overthrow theory," this theory would never have found an advocate. Will Mr. Winwood kindly furnish such a diagram? HORACE B. WOODWARD.

FAKENHAM.

THE GEOLOGY OF ANGLESEA.

SIR,—I do not clearly see the object of the paper by Dr. R. D. Roberts, which appears in the May Number (p. 152). It is simply a recapitulation, from his point of view, of the arguments which have already been submitted by us to your readers, with whom the matter, so far as I am concerned, must now rest. It is, perhaps, rather singular that Dr. Roberts should strive so persistently to hunt to the death an argument which was adduced by me in support of a conclusion which he himself accepts, viz. the Archæan age of the granitoid series. I must decline to adopt his views as to the mode in which I shall use my private note-book. I claim to be the best judge of what is essential or non-essential to my argument. The faulted sections have not been published, simply because they are not required. Dr. Roberts evades the difficulties which I pointed out in his reasoning on the sections at Bryngwallen and Penlon, on the pretext that he has discussed them in his dispute with Prof. Bonney. This is quite erroneous, as those who have followed the controversy can judge.

From Dr. Roberts's paper, your readers will have learned, probably not without surprise, that he sent to you his list of my "errors" at a time when he had not access to my papers, and they will know how to estimate the accuracy of a critic who can make sweeping charges against another, without taking the trouble to ascertain if he is truly representing his opponent's views. Dr. Roberts has, however, candidly apologized for one of his random assertions; and the other corrections will, I doubt not, appear in his next communication.

WELLINGTON, SALOP.

C. CALLAWAY.

THE HEADON HILL SECTION.

SIR,—Possibly Prof. Judd's letter in the April NUMBER may have been read by some who had not seen mine. I therefore ask you to reprint the portions to which he refers. I wrote:—

"When we recollect that one of the authors (of the paper under discussion) was born in the Isle of Wight, and spent the best years of his life in professional work, chiefly in exploring and collecting from the Eocene beds of the district, some little amount of warmth

was justifiable in defending what were his own well-matured views, as well as those of the surveyors, against an attack, which, however learned, was apparently based upon work in the museum and library." "Palæontological evidence is a powerful assistant to stratigraphy, but it must yield precedence to results clearly made out in the field."

The Professor in his reply enumerates his extensive continental labours and studies, thus justifying my estimate of his learning. But it seems to me now, that his foreign studies have been carried too far. For his comment on the above quoted passage is, that he hopes I am the only geologist who will regard such action (the study of foreign geology) as constituting a disqualification on his part—an interpretation certainly "foreign" to my meaning.

O. FISHER.

RATE OF DENUDATION.

SIR,—The appearance in your March Number of the letter of Mr. McJames asking explanation of some points in Mr. Tylor's letter induces me to notice some errors in the latter.

1. Evidently by a slip of the pen Mr. Tylor has given v^5 instead of v^6 as the law of variation of transporting power of running water, although his calculations are based upon the true law: v^6 . Mr. Tylor is right, therefore, in stating that, when the velocity increases 3 times, the transporting power is increased 729 times, and not 243 times, as Mr. McJames thinks it ought to be. This law was established by Mr. Hopkins in 1842 (Phil. Mag. 1845, vol. xxvii. p. 56), and is now universally accepted. It may be stated thus: "*The weight of the largest fragment (of given form and sp. gr.) transportable by a current varies as the sixth power of the velocity.*"

2. But *transporting power* must not be confounded with *erosive power*. This is Mr. Tylor's mistake, and it vitiates all his calculations. The resistance to be overcome in the one case is *weight*, in the other *cohesion*. The one varies as v^6 , the other probably v^2 . In many cases of lightly cohering material the resistance is a mixture of these two resistances and the power of removal will vary somewhere between v^2 and v^6 .

JOSEPH LE CONTE.

BERKELEY, CALIFORNIA.

JUKES AND THE SUPPOSED LAURENTIAN OF DONEGAL.

SIR,—I have taken advantage of the first leisure I have had to look up my notes for the "Geology of Ireland," and have to request that you will publish the following.

In 1862, after describing the Laurentians or primary gneiss of Sutherland, Jukes goes on to say:—"Ireland—It is probable that some of the highly metamorphosed rocks of the north of Ireland may consist of this Pre-Cambrian gneiss."

G. H. KINAHAN.