

show that most of the pedestals of these boulders must have existed *before* the arrival of the boulders, while the pedestals *acquired* through the boulders protecting the underlying rock from denudation, were generally imperfectly formed. On the Clapham plateau he found that the *average* vertical extent of denudation around the boulders with acquired pedestals was not more than on the Eglwyseg plateau, or about six inches. In the case of boulders which are not well adapted to concentrate rain-water, the extent of lowering of the surrounding rock-surface was often inappreciable; and this accounted for the continuous extension of flat limestone rock-surfaces under some of the boulders. The author then described what he had found to be *preglacial* as well as postglacial rain-grooves on limestone rock-surfaces, near Minera and on Halkin mountain (North Wales), where he found the average depth of those of the grooves which were probably postglacial to be about six inches. In conclusion the author entered into a consideration of the time which has elapsed since the close of the glacial period, and stated the main results of his observations as follows:—

1. That the average *vertical extent* of the denudation of limestone rocks around boulders has not been more than six inches.

2. That the average *rate* of the denudation has not been less than one inch in a thousand years.

3. That a period of not more than six thousand years has elapsed since the boulders were left in their present positions by land-ice, floating ice, or both.

3. "Notes on the Corals and Bryozoans of the Wenlock Shales (Mr. Maw's Washings)." By G. R. Vine, Esq. Communicated by Prof. P. Martin Duncan, M.B., F.R.S., V.P.G.S.

The author briefly discussed the views of different writers upon the systematic position of the genera *Chaetetes*, *Monticulipora* and their allies, and also of the forms referred to the Polyzoa, and gave a list of 39 species and varieties of Corals and Polyzoa obtained by him from Mr. Maw's washings of deposits belonging to the Wenlock series in Shropshire. These forms were referred by him to the genera *Dekayia*, *Monticulipora*, *Callopora*, *Heliolites*, *Thecia*, *Favosites*, *Syringopora*, *Halysites*, *Cenites*, *Cyathophyllum*, *Lindstrœmia*, *Cladopora*, *Leioclema*, *Ceriopora*, and *Ceramopora*. New species are *Leioclema granatum* and *pulchellum*.

CORRESPONDENCE.

MR. HOWORTH ON IRISH GLACIAL DRIFTS.

SIR,—Some errors have crept into Mr. Howorth's reference to the Irish Glacial Drifts, in your February Number. Bovevagh (not Boreragh) in Co. Derry, where the fossiliferous glacial deposits in the North of Ireland attain their greatest altitude, is 450, not 1150 feet above the sea-level, and this particular bed does not yield either *Nucula oblonga* (*Leda permula*) or *Cyprina*, as stated on authority of Mr. W. A. Bell (*GEOL. MAG.* Vol. X.). Portlock only mentions

Turritella terebra, and *Astarte multicostrata*? as found at Bovevagh. The former is the characteristic shell at that place, and the only one at all plentiful. Some time since, I had the opportunity in company with two other geologists of examining the river-bank near the old church at Bovevagh, and we found a number of specimens of *Turritella*, but not in such abundance as we had been led to expect. The only other fossil we could find was one valve of *Venus gallina*.

The inaccuracies cited would no doubt have been avoided by relying more on the work of Portlock, and subsequent writers having a personal knowledge of the country and its geology, and less on that of a gentleman, who, however qualified in other respects, has not, I fear, had the advantage of personally examining the beds concerning which he wrote, and who has consequently not been in all cases as accurate as could be desired when treating of the drift of the North of Ireland. Mr. Howorth's argument is scarcely affected by the above corrections, but the slightest error should be avoided in such discussions.

WILLIAM SWANSTON, F.G.S.

BELEAST, 5th March, 1883.

HÆMATITE IN THE PERMIAN BRECCIAS.

SIR,—Can any of your readers inform me of any locality or localities where Hæmatite occurs *in situ* in the neighbourhood of the Longmynd or of other parts in the West of England or in Wales, whence these Breccias of Central England are considered to have been derived? Also, are the Hæmatites fossiliferous, and have they been commented upon or in any way referred to by geologists? If so, in what publications do they appear?

W. S. GRESLEY.

OVERSEAL, ASHBY-DE-LA-ZOUCH.

REGENCY OF THE CLOSE OF THE GLACIAL PERIOD.

SIR,—As very little attention has been devoted to this subject in England, you would oblige by inserting extracts from a letter I received from the late Mr. Belt¹ a few years ago. "I am heartily with you about the comparative recentness of the Glacial Period. My earliest lessons in glaciation were in the north of England, where the freshness of the ice-tracks are most remarkable. All the arguments for putting it back are founded on theories which may be, and I think are, incorrect. . . . I shewed some time ago that the argument that had been founded on the cutting out of the gorge below the falls of Niagara, was a weak one, as only three miles, and that in the softer rocks, had been excavated since glacial times. Some of the American geologists, including Professor Hall, have visited Niagara since, and convinced themselves that my explanation is the right one."

Dr. J. W. Dawson, in his review of Wallace's "Continental and Island Life,"² remarks that "in Canada the character of the river-courses cut through the Glacial beds, and their very unformed and

¹ See an account of Mr. Belt's theory of the Glacial Period, with accompanying remarks, in the Presidential Address to the Geologists' Association (1874), by Henry Woodward, F.R.S., F.G.S.

² Princetown Review for July, 1881.