

In deciding upon the relative merits of the synonyms Limnite and Limonite, I was led to reject the latter, because it was already adopted by some of the foreign geologists to designate one of the beds of the Neocomian series; and, further, that having a due regard for its Greek origin, the pronunciation of the word Limonite would be very different from that which is usually assigned to it.

I think it will be some time before mineralogists are able to determine whether this mineral occurs most frequently in a marsh (*λίμνη*) or in a meadow (*λειμών*); but as the two names have always been looked upon as synonymous, I preferred to adopt the one which had the double advantage of being pronounced as it is spelt, and which is hitherto unappropriated as a geological term.

PILTON, BARNSTAPLE,  
October 22, 1870.

TOWNSHEND M. HALL.

#### GEOLOGY OF THE LAKE DISTRICT.

SIR,—I have read Mr. Mackintosh's paper in the October number of the GEOLOGICAL MAGAZINE, and having helped to survey several portions of the Lake District mentioned by him in his paper, I feel bound to record my dissent from some of his views, and my disbelief in the accuracy of some of his observations.

The valleys of Kentmere, Long Sleddale, and Bannisdale, contain plenty of Moraine stuff with scratched stones; in the last-named there is a fine moraine spanning across the middle of the valley, and I believe that the old lake represented by the alluvium of Kentmere originated partly from damming by a moraine, the remains of which may still be traced. On the high ground between Kentmere and Long Sleddale there is abundance of drift, and moraine stones are very numerous. The basin of the Skegges water which lies on the high ground between these valleys was probably scooped out by ice. I have met with glacial striations running nearly east and west near this tarn, but have not observed the north and south ones mentioned by Mr. Mackintosh, at least I do not remember having seen them, although, no doubt, they exist; but not having my maps at hand, I cannot speak with certainty upon this point. My own impression, however, was that at a late period of the Glacial epoch, ice had passed across the fell, though no doubt at an earlier period it had moved in the direction of the axes of the valleys.

I have, as a general rule, observed that glacial striæ low down in the valleys run in the direction of the valleys themselves, but that on the sides of the hills they usually take an oblique direction to the valley-axis. I have seen nothing resembling "the old sea-cliff" at Elleray, mentioned by Mr. Mackintosh.

I do not agree with Mr. Mackintosh in his conclusion that because the ridge of School Knott is striated transversely to its general trend, that the hollows on either side of it have not been formed by land-ice moving in the direction of their length. I think it quite possible that that which Mr. Mackintosh endeavours to disprove may have taken place, and partially helped to form those depressions, although the evidence may not be strong in support of such a view.

Mr. Mackintosh does not seem fully to appreciate the fact that these valleys have been filled with ice, and that it has not merely filled them, but passed over the fells which divide them.

What Mr. Mackintosh will endeavour to prove from the observations he has recorded, I cannot venture to predict, and so will wait patiently for the *dénouement*.

FRANK RUTLEY,

Geological Survey of England and Wales.

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ON A COLUMNAR CLAY-BED IN TIDESWELL DALE, AND ON SO-CALLED PHOLAS-BORINGS IN MILLERS DALE.

SIR,—Allow me to express my general concurrence in the views put forth by Mr. Edward Wilson, in your last number, as to the nature of the altered Clay-bed in Tideswell Dale. I only awaited a full report of the Rev. J. M. Mello's paper, as read to the Geological Society, before publicly expressing my belief in the volcanic nature of the beds in question. I have, on two occasions during the last summer, examined very carefully the Tideswell marble-quarry, and certainly a more instructive section could not be desired. Mr. Wilson's description of it leaves little to be said. We have at the lower part of the quarry, a coral reef converted into a bed of hard massive Limestone marble; upon that a thin layer of ash; then a deposit of red clay, varying in the open section from a thickness of about five feet at one end of the quarry, to from twelve to fifteen feet at the other; and upon this, with a *well-defined line of demarcation*, lies the Toadstone, which is probably twenty feet in thickness at the middle of the quarry, but which is much wasted by denudation in other parts. One inference only seems to me inevitable, viz.: that we have before us in the quarry a complete record of an eruption, during which lapillæ were first thrown down; then an outflow of ferruginous mud took place; and, finally, a bed of lava was ejected, which must, in this place at least, have flowed with so steady and majestic a movement that it rolled over the mud without displacing it; hence the nearly horizontal line of division is clear and well defined to a remarkable degree.

One singular and striking fact seems to have escaped the notice of Mr. Wilson. At the north-west end of the quarry, where the Clay-bed is the thinnest, the hexagonal columns are from three to four inches in diameter, and they extend from the upper to the lower boundary of the bed; whilst at the other end of the quarry, where the Clay-bed has a threefold thickness, the columns are only about one inch across, and they die away in the amorphous clay of the lower part of the stratum. Important deductions might be made from this fact as to the persistency of the heat of the superincumbent Lava-bed at the time of its deposit.

I consider that the Tideswell quarry settles for ever the question as to whether or not this bed of Toadstone, at least, was or was not intrusive in its origin. No one looking at the section can fail, I think, to come to the conclusion that the Toadstone-bed was a sub-