

following might be provisionally adopted as the subdivisions of the Silurians of the South of Scotland. 1. Hawick Rocks, the so-called Bolton Rocks, of uncertain age. 2. Moffat Rocks (= Upper Llandello). 3. Girvan Limestone (= Caradee Limestone). 4. Gala Group, comprising the Abbotsford Flags, the Gala Grits, the Buckholm Sandstones, and the Greiston and Thornilee Slates (this group is probably comparable with some of the beds which succeed the Girvan Limestone, and also with the Coniston Flags and Grits). 5. The Balmae Rocks (= Wenlock Shale). 6. The Ludlow Rocks of the Pentland Hills.

The author pointed out the resemblances which he thought might be laid down between the above and the Silurians of the North of England. He drew attention to the fact that the Wrae Limestone of Peebleshire might very possibly be the equivalent of the Bala Limestone of Wales, and the Coniston Limestone of Cumberland and Westmoreland; and that this would considerably simplify the elucidation of the Scotch Silurians. He showed, however, that much work must yet be done before it would be possible to speak with any certainty as to the correlation of these ancient deposits.

CORRESPONDENCE.

HALL'S MINERALOGIST'S DIRECTORY.

SIR,—Owing to absence from home, I have only just seen B. J. R.'s letter in the *GEOLOGICAL MAGAZINE* for September.

Few tasks can be more difficult than the preparation for the first time of a work which deals with so extensive an area as that of the British Isles; and whilst thanking B. J. R. for his notes on the Cornish localities, I may repeat the assurance contained in my preface that notices of omissions or errors, and any additional information, whether publicly or privately sent to me, will be gladly received for insertion in a future edition. The value of any such communications will, however, be much enhanced if accompanied by the name and address of the writer.

B. J. R. takes exception to the names Towanite and Limnite, and asks why I have used them instead of either Chalcopyrite or Copper pyrites, and Limonite respectively. With regard to the first of these minerals, I may say that the names Chalcopyrite and Copper pyrites were both abandoned by me in order to avoid the use of the term "pyrite" as applied to an ore of copper. It must be remembered that the name Pyrite was originally given to one specific mineral, the Sulphuret of Iron, from its property of striking fire with the steel; and as the corresponding ore of copper, from its comparative softness, does not possess this quality, the appellation seemed to be a decided misnomer. At the same time I do not justify the use of the synonym Towanite,¹ further than to say that in default of any better name it appeared to be the least objectionable of the three.

¹ I think B. J. R. will find he is mistaken in supposing that "Towanite" was ever employed by Greg and Lettsom to represent a modification of chalcopyrite.

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.