

shaft at the foot of the escarpment is worked by a level about 125 feet deep; it appears to thicken, and the sand increases in purity and freedom from crystalline spar to the east, where, under the limestone range, it is much farther from the surface. I am informed that the late Mr. Hewson, Analytical Chemist, of Liverpool, could detect no trace of metallic oxide or other foreign matter, and ascertained the sand to be absolutely pure silica with a little water. I enclose some of the sand for your inspection: it is, without exception, the whitest mineral I have ever seen, and should think such a perfectly pure form of native silica would be of great value in the manufacture of the better kinds of glass and pottery.

I remain yours very truly,

GEORGE MAW.

BENTHALL, BROSELEY: June 19, 1865.

P.S.—As I recently described, in the pages of the Magazine, some deposits of sand in cavities in the Mountain-limestone of the same district, I would state that they are of a totally different age and character to the sand in the Talargoch Mine lode. I have recently observed, over a large district of Flintshire and Denbighshire, a great extension of the white sand and clay deposits, older than the boulder-clay-drift, similar to those at Llandudno.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—The President of the Geological Society, in his able address which appears in the 'Journal' of the Society for May 1865, in noticing my Memoir on 'the Geology of the Country around Oldham, including Manchester and its Suburbs,' makes a strange—I might say hap-hazard—supposition, which it is only due to him, the Geological Survey, and myself, should not be allowed to pass without notice.

In recounting the succession of the formations in the neighbourhood of Manchester, as described in this Memoir, the President says, 'Above them' (the Coal-measures) 'come the Permian Rocks, consisting of Lower Permian Sandstone and Upper Permian Marls; and these again are overlain by the Pebble-beds, or Conglomerate of the New Red Sandstone or Trias.

'No fossils are mentioned as occurring in this Conglomerate; but as it is described as conformable to the underlying Permian, with an inclination of about 10° to the south-west, they (*sic*) may possibly turn out to belong to the Permian series, like the Sandstones described by Sir R. I. Murchison at St. Abb's Head in Cumberland, and then the Trias would be here wanting altogether!'

Now, in the first place, St. Abb's Head is not in Cumberland, nor even in England; and doubtless the President means St. Bee's Head. But, under this supposition, I may state, in the first place, that there is no similarity whatever between the St. Bee's Head Sandstone and the Pebble-beds or Conglomerate in the neighbourhood of Manchester above referred to; and even supposing that it had been conclusively established that the former is of Permian age, it would

not in the least affect the question of the Triassic age of the Lancashire Pebble-beds.

As regards these latter, which consist of brownish-red sandstones, with pebbles of coloured quartz scattered throughout their mass, there has never been any question even amongst the most ardent *Philo-Permianists*; and they have been correctly described as Triassic by Ormerod, Binney, and all other good geologists who have examined the country. An experience of some twelve years in working out the Triassic and Permian formations of the midland and north-western counties enables me to confirm their views. These Pebble-beds are the equivalents of the quartz-ore Conglomerates of the central counties, which frequently constitute the only representatives of the Bunter Sandstone; and if they are not of Triassic age, then there is no Lower Trias in England, or in Europe, or indeed anywhere; and the Permian Empire must spread its broad ægis far beyond its present bounds! This, however, is out of the question. The Pebble-beds, and the Lower Red and Mottled Sandstone, which form the lowest division of the Bunter, lie discordantly with reference to the Permian Beds throughout; and, in the neighbourhood of Manchester, any conformity which may exist is only local and accidental. Discordance is the rule, the reverse the exception, all along the margin of the South Lancashire Coal-field; and if Mr. Hamilton will come down here, I shall be very happy to show him that the Pebble-beds cannot 'turn out to belong to the Permian series.'—I am, Sir, faithfully yours, EDWARD HULL.

GEOLOGICAL SURVEY OF GREAT BRITAIN,
MANCHESTER: August 3, 1865.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—With reference to a short paper on a supposed 'Pre-Cambrian Island,' read by me at the British Association last year, and inserted in your Magazine for December last, I have to beg you to apply a *caveat*. I did not, I hope, speak at all dogmatically on the point to which I could give but a very moderate degree of attention; but knowing of how great interest the fragments of old *Pre-Cambrian* land are to geologists, I did try to draw some of my friends who have the leisure to that neglected locality, St. David's. The result has justified my endeavour, if it has not turned out exactly as I could have wished. The Rev. W. S. Symonds and the Rev. H. H. Winwood, of Bath, visited the spot this year, attracted by this notice, and they saw some reason to doubt the correctness of the suggestion I made—'that the Syenite-ridge of St. David's was a portion of the old land of which the Hebrides, parts of the north-west coast of Ireland, and the Malverns, are fragments.'

My supposition has now been tested by the close observation of my friends just mentioned, and my colleague, Mr. H. Hicks. Like myself, Mr. Hicks at first paid far more attention to the fossiliferous beds *above* the Cambrian, than to the metamorphic or igneous rocks at their base. But his keen eye and good hammer, once turned to