

been scooped out by glaciers, or in the ranks of those who have with such ability insisted on the important share which subaerial denudation has played in producing the shape of the surface.

I need scarcely add that I do not write for professed geologists; to them nothing that I have said will be new, and they do not require cautioning; but there must be many of your readers who would accept a statement coming from so high an authority as Mr. Judd without question; to such I may give a word of warning, and remind them that even Homer was not exempt from the failing of an occasional nap. Whether Mr. Judd was napping, and a vivid imagination conjured up during his dreams a spectre so repulsive to a philosophical mind that there was no resource but to write him down immediately, I can't say. Some great authors are reported to have composed during sleep; but however the curious mistake into which I cannot help thinking he has fallen has arisen, all who know Mr. Judd will agree that there cannot possibly have been any intentional misrepresentation.

A. H. GREEN.

LEEDS, February 12th, 1876.

#### ELEVATION AND SUBSIDENCE OF LAND IN JERSEY.

SIR,—It may interest your readers to know that in addition to the indications of subsidence of land in Jersey, described by Mr. Peacock in his paper lately read before the Geological Society,<sup>1</sup> there exist indubitable proofs of elevation of the coast of the island.

Close by Elizabeth Castle in St. Aubyn's Bay, there stands the picturesque pinnacle of the Hermitage, in the rock of which St. Helerius is said to have impressed his holy body. At the base of the Hermitage, on the northern side, is a very fine raised beach. I have had an opportunity of examining this, and found it to consist of light-coloured, not very coarse, shingle and sand, containing an abundance of shells of species now flourishing on the adjacent shore. I visited this raised beach again in the autumn of 1874, intending to investigate it more carefully, and then found that, in the progress of the harbour works, it had been turfed over and rendered inaccessible.

On the opposite side of St. Helier's Harbour, under Fort Regent, there is a somewhat doubtful specimen of a raised beach. The harbour works here, however, have disclosed proof that the land stood formerly at a lower level; the workmen, in blasting and cutting back the rock (syenite), have quarried away a sea-worn cave running inland some twenty or more feet, and high enough (so the workmen informed me) to admit a man erect, and containing syenitic boulders of all sizes, rounded and shaped by the breakers.

A comparison of levels would probably facilitate the determination of the chronological sequence of these (geologically) recent subsidences and elevations of land in Jersey. I have not yet, however, had an opportunity of making it. If it be true that St. Helerius<sup>2</sup> lived in the Hermitage Rock, it is at any rate obvious that the littoral accumulation at its foot must in his time also have been a raised

<sup>1</sup> See abstract of Mr. Peacock's paper, *ante* p. 130.

<sup>2</sup> One antiquary fixes his date somewhere in the ninth century; another in the latter half of the sixth.

beach; for even a robust hermit could not have long supported life with the roaring waters rushing through the channel, locally known as Hell Gate, within a few feet of him, and effectually cutting him off from the mainland, even though this channel must then have been considerably wider than at present.

Dr. Martin Bull, of St. Helier's, informs me that at least two other raised beaches occur in the island. One of these is at the southern end of St. Owen's Bay, near La Pulente; it is about 100ft. above the present beach, and contains quantities of shells of extant species. The other is in St. Clement's Bay, between Le Hoeq and Pontac.

Proofs of elevation are not confined to Jersey. A similar raised beach is passed in mounting from the Harbour of Sark by the side of the road leading into the interior of that islet.

DOWNING COLLEGE, CAMBRIDGE,  
January 25, 1876.

T. W. DANBY.

GLACIAL EROSION.—The subjoined Postscript deserves a place in this MAGAZINE, although the hand that penned it is now cold. It was sent too late as a rider to a letter which we published in October last (p. 524).—EDIT. GEOL. MAG.

P.S.—Follow Swaledale, Wensleydale, and all the rivers descending from the Pennine chain, through the *soft* strata, between the Permian and the *hard* gorge cut by the Humber through the Chalk Wolds. In these soft strata the separate valleys almost disappear. Atmospheric disintegration, and the *vertical* descent and erosion of rain, have worn down the hills which intervened into what is called "The Plain of York." But if, as Mr. Goodchild says, valleys are formed and *widened* by "mechanical means," be these mechanical means the *horizontal* thrust of glaciers or the *horizontal* undermining of rivers, each valley would run between two precipitous cliffs, and the Ouse and the Humber, and their tributaries should traverse what is now the Plain of York, with sides as high as the Chalk Wolds, and running up to Mr. Goodchild's "scars" and ledges on the Pennine Chain.

BROOKWOOD PARK, ALRESFORD.  
September 24th, 1875.

GEORGE GREENWOOD, Colonel.

#### MISCELLANEOUS.

AQUARIUM ROCKWORK.—The rockwork in the tanks at the New Westminster Aquarium contains a considerable amount of Portland Oolite. We understand that it was purchased from the *débris* of the Colosseum, Regent's Park, as a sandstone, and it appears to have been introduced into salt and fresh-water tanks alike without investigation as to how far it is suitable. It perhaps may do no harm, but it would be well if any one who has experience of what its effect will be, would communicate his knowledge before any animals are placed in the tanks. There is, in addition, a good supply of Carboniferous Limestone used, and in considering the conditions, it must be remembered that the water circulates constantly from tank to tank, so that the carbonate of lime will be just as present to all the inhabitants of the aquarium as to the Lamellibranchs and others it might (possibly?) benefit.—*Nature*.