

Carne and Mr. W. J. Henwood, the latter of which gives details of several other stream tin-works in Cornwall, very similar to those given by Mr. Colenso regarding those at Pentuan, particularly mentioning the occurrence of human skulls with bones of other animals. Mr. Colenso expressly states that he sends one skull to the Society for their Museum. If this Museum be still in existence and the skull retained there, it appears to me it would be well worthy of examination by some competent authority.

There is something about the description of the "tin-ground" in these papers that reminds one very much of the "boulder-clay." Whether formed by ice or water, it was afterwards covered by a "moss," and therefore was above the level of the sea then, but was subsequently depressed at different times till covered by more than 40 feet of marine deposits. It seems like the "sub-marine forests," or submerged mosses, with roots and erect stumps of trees found all round our coasts. The most interesting point, however, seems to me to be the finding of human skulls in these beds.

DUBLIN, February 10th, 1866.

J. BEETE JUKES.

THE RAISED BEACH OF CANTYRE.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—I have only just seen Mr. Hull's interesting communication relative to "the Raised Beach of Cantyre," or I would otherwise have made some earlier remarks upon it.

In October last, I spent a week in the neighbourhood of Campbeltown, and I was struck with the apparent proofs, on every hand, of a comparatively sudden rise of the land at no distant date, speaking of time in a geological sense. The cliffs of the Island of Davar, and of other parts of the coast, have, in most places, a footing of many yards in width, composed of broken rock fragments; and the rock faces, which contain the sea-worn caves, are now far removed from the direct influence of the waves. The height of the floors of those caves which I examined was from 15 to 30 feet above the present high water mark.

It occurred to me, at the time of my visit, that the cave of St. Kiaran might be used as a cogent argument in favour of the theory that the relative heights of sea and land have not been altered since the Saint inhabited the cave. Were the land to be twenty feet lower, the cave would not be habitable, and it would then be quite unapproachable excepting by means of a boat; whereas, tradition asserts that St. Kiaran occupied the cave as a residence for some years, and that he communicated with his neighbours by means of a horse, that he had trained to go forth and to bring to him the supplies which were sent by his charitable admirers.

St. Kiaran is *believed* to have been the tutor of St. Columba. Of the latter-mentioned Saint, Bede says,—“In the year of our Lord 565, when Justin the younger, the successor of Justinian, had the

government of the Roman Empire, there came into Britain a famous priest and abbot, a monk by habit and life, whose name was Columba, to preach the word of God to the provinces of the northern Picts, who are separated from the southern parts by steep and rugged mountains." Now, the history of St. Columba, who made Iona famous, and who preached, among other places, in Cantyre, is tolerably authentic. But St. Kiaran, who is *said* to have been baptised by St. Patrick, and to have commenced his preaching in Cantyre in the year 536, is comparatively a mythical personage. I cannot meet with any information respecting St. Kiaran that will bear the sceptical examination of geologists; otherwise the cave of the Saint would conclusively prove that the high-water mark was not at a greater elevation 1300 years ago than it is at the present time.

This will be a most important fact if the premisses can be proved by our historical friends; and should it turn out that the thirty feet elevation of the land has taken place since the building of the Roman wall of Antoninus, the space of time during which it could only have occurred, would thus become narrowed to the interval between A.D. 140 and 536.

It is evident, as Hugh Miller remarks, looking at the greater number, and far greater dimensions of the caves, that are situated on the so-called "thirty feet shore line," as compared with those existing between the present high and low-water marks, that the time during which the waves washed the higher line was immensely greater than that in which they have been operating upon the present coast line.

The Cave of St. Kiaran has evidently originated, as Mr. Hull says, in a line of fault in the Old Red Conglomerate; and there is in course of formation, in front of the cave, a very large mound of fragments that have fallen from the face of the cliff, owing to the action of frost and sun upon the lofty face of rock in which the cavern is situated. This growing heap is in itself a proof of the great antiquity of the elevation of the coast line, for, so long as the waves reached the place upon which the fragments had fallen, they must periodically have washed away all the talus deposits.

In proof that the beach is in course of being eaten away by the wearing action of the waves, I may mention that the shingle bar, of about three-quarters of a mile in length, which connects the Isle of Davar with the mainland, and which is covered by the sea at half tide, partially occupies ground which, in the memory of the last generation, regularly bore crops of corn. Should this bar be ultimately entirely carried away, the noble harbour of Campbelton will have seen its most prosperous days.

In reference to the porphyries of Davar, M'Culloch says,—“The rock produces some beautiful varieties of green as well as of brown porphyry, easily wrought, to be obtained of any size, and extremely ornamental when polished, but as yet neglected. Sweden, with far less capital and far less industry (or of reputation for that at least) than ourselves, contrives to fill all Europe with the elegant produce

of an article similar, yet far inferior in beauty, and utterly without variety; whereas this rock produces not less than ten or twelve distinct kinds." This beautiful stone is still as much neglected as it was in the time of M'Culloch. If a market were found for it, it might be quarried close to deep water, where vessels might ride and load in safety; and the works would be carried on with the advantage of every facility that the owner, Sir Lewis Campbell, would willingly afford.

During the few short hours that I could devote to a ramble over Davar, I found the attractions of the porphyritic rocks to be so seductive, that the hammer was much more frequently in use than the gun.—I am, Sir, yours obediently,

EDWIN BROWN, F.G.S.

BURTON-ON-TRENT, February 13, 1866.

GEOLOGY OF THE MOON.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—I have no doubt many of your readers will thank you for introducing the subject of the Moon into the GEOLOGICAL MAGAZINE. The letter of Mr. Birch on Lunar Glaciers ought to lead to observations and speculations calculated to enlarge our knowledge of the present and past condition of the moon's surface. That glaciers to a limited extent may now exist, and that traces of former glacial action may be discovered on the surface of the moon, does not appear to be a very extravagant assumption. But few astronomers would probably be disposed to concede that all the white parts of the moon are Snow and Ice. The absence of an atmosphere (beyond a possible shallow gaseous envelope) would at first sight appear to be incompatible with a belief in a general glacial condition of the lunar surface. It is however for the photo-selenologists to inquire whether the modern theory of the moon advocated by Professor Hansen and others will afford him any support. This theory implies that the farther or unseen hemisphere of the moon is a comparative depression in which an ocean surmounted by an atmosphere may exist, and in which volcanic fires have not yet become exhausted—that the side of the moon turned towards us is a vast hemispherical mountain-system, rising above the lunar sea-level to a height corresponding to the distance between the Centre of figure and Centre of gravity, or according to some about 30 miles. Is it possible that Vapour from the "ultra-montane" sea may find its way over the border, so as to be converted into snow and ice on the higher lands of the visible hemisphere of the moon? The mere asking of such a question may subject a writer to a charge of presumption, if not of ignorance, in the present state of astronomical discovery.

But there is one subject connected with the Geology, or rather Selenology of the moon, on which one may now venture to make suggestions with less hesitation. The theory above noticed