ART. II.—*Some Notes on Mound Opening, with a Description of one recently explored on Sizergh Fell, Westmorland.* By T. MCKENNY HUGHES, M.A., F.R.S., Woodwardian Professor of Geology, Cambridge.

Read at Carlisle, April 30th, 1903.

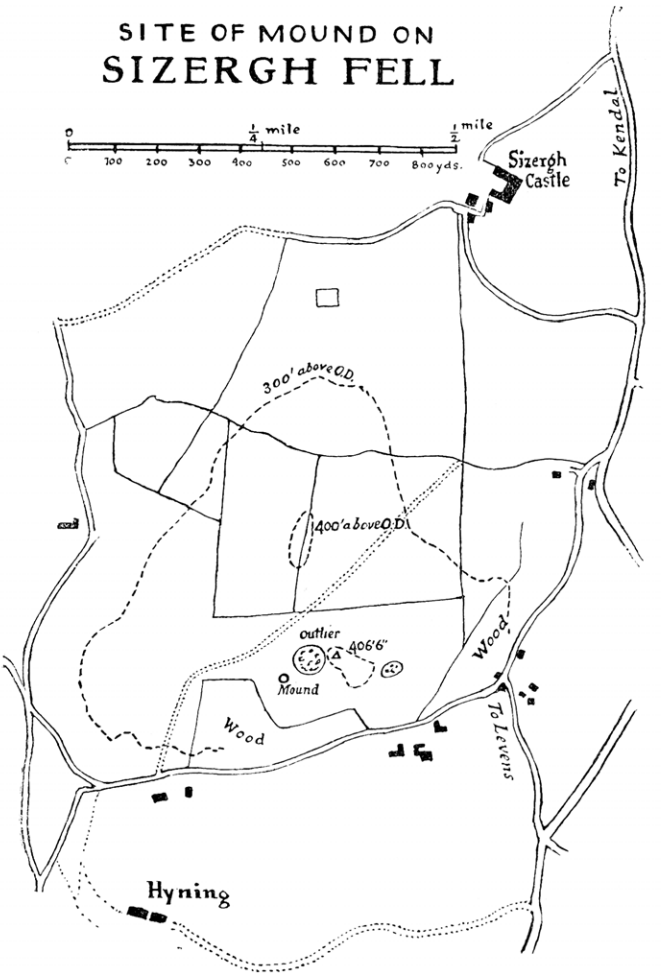
WE can generally from a glance at the geographical features of a district explain why the pre-Roman strongholds were placed where they are. They were not towns permanently occupied, but merely camps of refuge to which the inhabitants could retreat, and where they could hold out against a sudden attack of short duration such as most of the raids and warlike expeditions of that age must have been. We find them therefore constructed on the heights and promontories which, by taking advantage of the natural irregularities of the ground, could be easily defended, and from which the movements of the enemy could be watched. It was necessary that the approaches should be of such a nature that their own people could without great difficulty get into the fortified area with their cattle and other belongings, and yet the enemy find it dangerous to approach. British camps always fulfil these conditions.

But why did the ancient Britons, using this word for the pre-Roman inhabitants to whatever race they may have belonged—why did the ancient Britons bury their dead on the most prominent points in the landscape? Was it to facilitate finding the grave with a view to any kind of periodic "in memoriam" ceremonies, or was it because a large cairn raised over the grave was a conspicuous monument impressing all who could see it from far or near with the greatness of the person to whom so much respect had been shown, and was the custom once

established continued in the case of interments over which smaller mounds were raised? We may allow our imagination free play in guesses of that sort, but the fact remains that when looking for the places of interment of the ancient British folk you should search along the most prominent terraces and hill-tops and conspicuous features of the country.

Bearing these facts in mind, I was wandering over the flat-topped ridge of mountain limestone which runs south between the valleys of the Gilpin and the Kent—an area in every way suitable for primæval man. Here was open ground for pasture when domestic animals came in, as these limestone terraces never carried much timber. On the west was the peat-covered estuary of the Gilpin, affording a rich hunting ground and a safe retreat to man and beast that knew its ways, but more encroached upon by the tides in those days than now. There was the Kent sweeping round the southern end of the promontory, with plenty of salmon for food and otters for fur.

The top of Sizergh Fell commands the skyline of the watershed between the Kent and the Lune, and of the limestone ridge between the Gilpin and the Winster. To the south the estuary opens out seaward, with abundant seafish and shellfish. There are caves known to exist here and there in the limestone crags all around, and there are certainly many more not yet discovered concealed under the talus. In such a district we might expect to find traces of primæval man of almost every age. My attention was first caught by the flat-circular eminence on the very top of the hill, but this proved to be a natural feature, an outlier of limestone (see Plan opposite) that is, part of a higher bed which has been removed from the surface of the surrounding ground by the ordinary processes of denudation; but it is not at all improbable that it may have been occupied by primæval man, or may have had a sepulchral mound in it, and that traces of interments may yet be found in the crevices of the rock.


SITE OF MOUND ON
SIZERGH FELL
0
1/4 mile
1/2 mile
0 100 200 300 400 500 600 700 800 yds.
Sizergh Castle
To Kendal
300' above O.D.
400' above O.D.
Outlier
406'6"
Mound
Wood
Wood
To Levens
Hyning

In that country there are two principal sources of error in looking for cairns and other sepulchral mounds. The water-washed moraines of the receding ice of the glacial period form mounds which are in shape exactly like the burhs on which mediæval forts were built. or the grave mounds of still earlier times. Examples of these natural mounds are abundant on the lower ground of the surrounding district, as, for instance, near Carnforth. Very good examples may be seen close to Raines Hall, east of the Lancaster and Carlisle Railway, where it crosses the road from Sedgwick to Crosscrake. On the higher ground the remains of a pipe of insoluble stony loam often project above the level of the surrounding limestone, which has been lowered by the chemical action of acidulated water on the carbonate of lime.

These are both natural formations, and a slight knowledge of the geology of the district warns us to look out for them and enables us to detect them before wasting labour on opening the whole mound. But the most troublesome mounds are those raised when first the land was enclosed and cleared, when all the stones not suitable or not required for walling were thrown together in heaps; and as this was often done a very long time ago, the stones are weathered on the exposed surface, and the heap more or less overgrown with vegetation. It is often impossible to tell by merely looking at the surface whether a mound was thrown up 20 or 2,000 years ago.

Other sources of error arise out of the settlement of the soil and the action of the weather upon the buried objects (organic or inorganic), as well as on the surface of the underlying rock when that is a limestone.

Large stones expand and contract at a different rate from the surrounding earth so that water gets down along their sides and puddles the clay and earth, and into the mud thus formed the stone gradually sinks, especially if part of it projects above the level of the ground. When a boulder is lifted the effect of this action of the weather

can often be seen in the film of mud which lines the bed in which it lay. For our present purpose it is enough to note that boulders being of greater specific gravity than that in which they lie gradually work their way down.

When the solid rock below the stony soil consists, as it does on Sizergh Fell, of limestone, another action which produces movement in the soil is set up. The surface of the limestone is rapidly eaten away chemically by the acidulated water, so that the joints are opened out into fluted fissures or cylindrical holes, into which the overlying soil and stones sink, disturbing all that is buried in them. A heap of stones facilitates this action by catching the rain and snow, and passing it down into the ground. Various animals work still more rapidly in disturbing and destroying the objects buried in sepulchral mounds. I have found bones, pottery, and even stones marked by their claws and teeth, and once found a small live rabbit in a Roman skull many feet below the surface of the ground. The presence of a body or of an urn causes a hollow or, at any rate, softer place, and is therefore apt to be followed by burrowing animals.

Such conditions as those sketched above have often led explorers of mounds to infer that they had been opened before, whereas there may have been no disturbance of the ground except by natural causes.

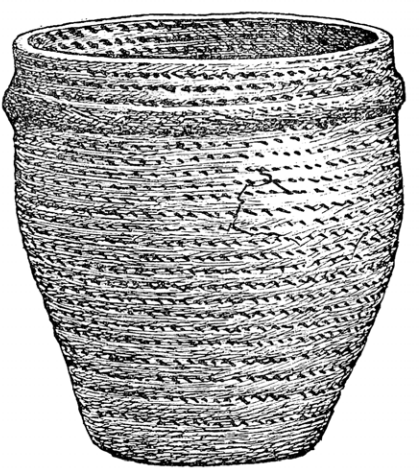
All these difficulties presented themselves on Sizergh Fell, but still I thought it worth opening one of the small heaps, of which I noted several on the top of the hill. It rose but little above the surrounding ground. What made me most suspicious of this spot was that the larger stones, which were chiefly grits and volcanic rocks from the Lake District, were arranged in a circle, with a cluster in the centre. It is not unusual when making a heap of stones picked off the land, to roll the larger pieces of rock to the outside, with a view to keeping the smaller stones from rolling down and getting again scattered over the surface, and also to save the

labour of getting the heavier masses up on to the heap. But in this case the larger stones could have been easily lifted by one man, and they were not arranged on the outside of the mound, but around some centre within it before the completion of the mound. Moreover, they were conspicuously different from the slabs of limestone derived from the underlying rock. We removed the whole of the earth and stone over the central part of the cairn, and found that all the agents above described had been at work disturbing the interment and its covering stones.

The solid limestone rock was dissolved away so that no flat surface of any extent remained. The joints were opened out into gaping fissures up to six inches or a foot across, with fluted sides or shallow cylindrical hollows where its action had been more concentrated. The rock had also perished along the bedding planes so that it broke off into slabs of various size, which sometimes remained in their original position so as to give a deceptive appearance of having been built up. In one of these holes, with the rock so weathered on either side, and it may be with the addition of a few small slabs from elsewhere to raise the sides, we found portions of an urn (see next page). The cavity in which it lay was covered by a large boulder measuring 18 × 12 × 8 inches. This protected the urn from being crushed, but yet it was hopelessly broken and imperfect. Part of one side seemed to be in its original place, but the rest of it occurred in scattered fragments along a definite line at the bottom of the mound. This manner of occurrence and the condition of the fragments makes it probable that rabbits had burrowed into the bottom of the mound, and had broken right through the urn.

A sufficient portion was obtained to enable us to form an opinion as to its size, shape, and ornamentation, and a restoration has been attempted. The urn was made by hand, without the aid of any lathe or turning

plate, of a dark-coloured clay such as might be obtained from the washings of the boulder clay anywhere along the flanks of the adjoining hills or valleys. It was burnt red on the outside, but the inside was black. The few scattered chips of quartz or other silicious rock suggest the imperfect cleaning of the clay rather than that they were purposely added. In form it was an irregular cup, bulging slightly round the middle and tapering to the base. There was a projecting band about $\frac{3}{4}$ inch below the rim such as would prevent a cord from slipping off. The portion of the vessel above this band was thinner than that below, but this was produced by taking the clay off the outside only; the inside surface was not affected. The urn measured about four inches across the opening, and about the same in height. It was ornamented from rim to base on the outside, and inside as far down as the bottom of the shoulder band, by thin wriggling lines such as might be produced by pressing a twisted fibre or thong on to the unbaked clay at intervals of about seven or eight to the inch.



RESTORATION OF URN FOUND AT SIZERGH FELL.

Some fragments of charcoal and a few burnt stones

occurred in the mound, but there were no signs of any fire large enough to suggest the probability of cremation having been carried out here.

There were no traces of any weapon or ornament or any object other than the urn which would fix the age of the interment. The urn is certainly not Roman, Saxon, or Danish, and I should be inclined to assign it to the Bronze Age.

I shall hand it over to Sir Gerald Strickland, on whose property it was found, and I take this opportunity of thanking him for his kindness and courtesy in affording me the opportunity of carrying out these most interesting researches.
