NO. IX.—THE AULD WIVES' LIFTS. By JAMES NEILSON.

[Read 14th December, 1916.]

[Issued separately, 30th December, 1917.]

THE Auld Wives' Lifts have—from time immemorial—been looked on as an ancient monument.

This, however, did not (and there was no reason why it should) prevent geologists from inquiring as to the origin of these stones—whether they had come to their present position through natural or human agency. Although certain of our members considered that the stones may have come there through natural causes, yet until the present year of grace only one (Mr. Renwick) had the hardihood to read a paper advocating this view, and his courage seems to have oozed away, as he has never published it.

Our old and esteemed member, the late Dugald Bell, who was our foremost authority on glacial geology, just touches the subject in his charming little book, "Among the Rocks Round Glasgow" (1885, p. 66), thus—

"The 'glacial' or 'iceberg' theory, which some geologists favour, is not without its difficulties, such as the improbability of a glacier or iceberg placing three stones so similar in size in such a position, and the likelihood that, if transported by such an agency, they would be brought from a greater distance and be of different kinds. These and other considerations . . . an observer interested in the subject must weigh for himself."

It seems strange to find Mr. Bell, a man of very strong views, thus halting between two opinions, although it seems to me that his summing up is rather against the glacial origin.

Mr. Renwick has kindly sent me part of his paper, from which I extract the following:—

"From a geological point of view, we are chiefly interested in how these stones have come to be where they are. Considering that the topmost stone weighs about, say, 100 tons, we shall dismiss the idea that the trilith was erected by human agency, as being very improbable, although not absolutely im-

possible, and only to be seriously entertained if we find that the action of natural forces seems to be inadequate."

After passing lightly over the "glacier" or "iceberg" theory, he says—

"We consider whence they came, and are at once met by the fact that they are of the same rock as is all around on the moor. Upon examining the neighbouring escarpment we find that large blocks are broken off and separated from the main mass of the hill by miniature gullies. Water lodged in the natural fissures of the rock, and, freezing in the winter, has by the consequent expansion forced the blocks apart. Upon becoming exposed on all sides to the weather they get worn down all round, the less solid parts more quickly, and the resulting débris is washed away by the rain. Thus the edge of the plateau has been broken up into masses resembling those known as the Lifts, and we here evidently witness the evolution of a 'cromlech.' . . . Indeed if we suppose it was used in connection with worship, we may more easily account for the absence of small blocks between it and the escarpment of the surrounding amphitheatre."

"I think it is rather unfortunate that Mr. Renwick dismissed the idea of human agency, and I consider his theory insufficient to account for the great distance from the nearest escarpment. There are plenty of detached blocks about, but, without exception, these are found on slopes, while the Lifts stand on almost level ground.

Nor does the weathering theory account for the gap, as the rock is a very hard, gritty sandstone, and has been used for millstones (of which there are several yet to be seen only partly cut out), and the faces and edges of the detached blocks look quite fresh, with hardly any sign of weathering.

At a meeting of our Society (May, 1916) Professor Gregory read his paper, entitled "The Auld Wives' Lifts: A Pseudo-Megalithic Tor." He certainly had the courage of his opinions, for he published them in the June Number of the *Scottish Geographical Magazine* (with two figures). I regret that they have not been published in our *Transactions*.

To account for the Lifts, the professor postulates two valleys having a dividing ridge, running north and south, and the

boss gradually reduced by wind, rain, and weather to a sandstone tor. (I say postulates, because I can find no evidence of these valleys ever having existed.) He has also expressed the opinion that these two valleys were pre-glacial.

I differ from this theory entirely, for the following reasons :—

(a) The valleys could not have been cut by wind, because the prevailing winds of our country are from the south-west, and these valleys would be in a sheltered position, and the stones are in the most sheltered positions in the valleys, so that the great storms would pass over them, and there is no evidence of such wind erosion on any part of the more exposed rocks of the neighbourhood.

(b) Wind, rain, and weather have made practically no alteration on the more exposed rocks since the great ice period. (This view will be elaborated further on.)

(c) The Lifts rest on a pavement of glaciated rock, which can be traced all round, a fact which is fatal to any valley theory.

(d) Thus if the valleys were pre-glacial, the Lifts, standing as a "tor," would have been swept miles away, been ground up and broken, and any fragments left would have been smoothed and scratched similar to other boulders. Besides, the ice could not smooth the underlying rock with the tor in position.

(e) If the "tor" was "post-glacial," the valleys would have destroyed all the ice-formed surfaces, and distinct traces of them (*i.e.*, the valleys) would still remain.

Another theory—that of Mr. Stark—is that the Lifts may have been carried—as a single block—in the body of the glacier, and, after attaining their present position, been split and shifted as we see them now, the lower stones sliding apart first, and then the northern one being pushed over the other by ice.

Now, if ice had anything to do with it, some part at least of the stones would have been glaciated, but there are no glacial marks on any of the stones; the surfaces are all rough and the corners all sharp. Besides, if they had been imbedded in the ice long enough for the above movements to have taken place they would have been carried miles (instead of less than 100 yards) from their parent rock.

My conclusion therefore is that these stones never were exposed to glacial action.

A number of years ago I looked into the question, and the conclusion I then came to was that these stones had not come to their present position through natural causes.

My reasoning was as follows:—These stones must now be either in (a) their natural position; or (b) must have been shifted to their present position by a force such as ice; or (c) must have been erected by man.

(a) There is a considerable clear space all round the stones forming a *flat* amphitheatre, entirely clear of the sandstone rock which outcrops all around. I could conceive of no process of natural denudation, either subaerial or submarine, which could clear this space and leave the stones as we see them now. This area being flat, they could not have slid there, so I felt compelled to reject this explanation.

(b) *Ice Theory*.—This also bristles with difficulties. An advancing glacier would simply sweep these stones away before it, and a retreating glacier could not leave these without also leaving any amount of moraine matter, which is conspicuous by its absence, and this also applies to the theory that they may have been dropped from floating ice. This, in addition to Mr. Bell's objections, seems fatal.

It seems to me that the present configuration of the rocks in the neighbourhood of the Auld Wives' Lifts is due to glacial action on the peculiar strata of the Craigmaddie sandstones. Their aspect is that of a series of very slightly inclined beds, having precipitous edges, in this respect resembling those volcanic rocks to which the name "trap" has been applied.

The reason of this unusual form I take to be that each of these beds is underlain by a thin bed of mud or shale, so that there is neither adhesion nor cohesion between the overlying and underlying beds. Thus the ice moving from the west-north-west tore off these rocks at the edges and left them in their present precipitous state.

This also accounts for the formation of the north-west side of the amphitheatre, this bed being thinned here and then torn off, and the whole bed swept away south. This bed, from

which the Lifts have probably been taken, has been entirely swept away (as shown on Plate X.), and the support on which the Lifts rest is the glaciated surface of the underlying bed.

One gets a better idea of the process by going up the hollow, say, a quarter of a mile, above the Lifts, and then turning and walking back in the direction of the ice movement. It is then seen that the hollow both above and below the Lifts is part of the same glacial valley, and that the rocks forming the north-

Fig. 1—(a) Plan of Amphitheatre.

(b) Sketch of same (viewed from south).

The lines show the escarpments formed by the broken-off edges of the various beds.

A.W.L. = Auld Wives Lifts. R. = Roches moutonnées.

—θ—> = Direction of Glacial Striae.

west side of the amphitheatre have been first thinned and then broken off at right angles to the path of the glacier. The break is different in shape from that of a water or wind shaped valley. The east side of the amphitheatre is formed of a bed of overlying rocks, and the miniature "Whangie" is in this higher bed of rock. The whole width of the valley below the break forms a single symmetrical curve due to the same cause, viz., ice, and formed at the same time.

Photo. by J. A. Stewart.

Distant view of Auld Wives' Lifts, from south-east, showing escarpment of amphitheatre.

FIG. 1. *Photo. by R. Dunlop.*

Auld Wives' Lifts, from south-west.

(This is the view shown in Prof. Gregory's paper.)

FIG. 2. *Photo. by W. Sinclair*

Auld Wives' Lifts, from north-east.

It will also be seen that this valley is slightly curved, and that this curve commences above the cross break of the strata. This curve in the ice track is probably due to the steep side of the hill allowing freer escape to the ice.

The evidence of ice action is very distinct. Boulder clay appears to be absent (or if there is any it is covered by peat or moss), and the rocks where exposed are beautifully smoothed and rounded, in the way known as "*roche moutonnée*." While in numerous parts the glacial striæ can be plainly perceived, in some cases it is as fresh-looking as if it had been only recently done. Practically speaking, these exposed rocks are just as the ice left them, and, taken all over, I question if the effects of wind and water have worn off an average of more than an inch or two since the glacial period. Boulders are rare and small.

It will also be observed that at the lower end of the valley the rock appears nearly across the whole way, and that it is glaciated, which is altogether inconsistent with Professor Gregory's theory, that this hollow is due to either wind or water.

Professor Gregory considers the Auld Wives' Lifts to be a tor, similar, I presume, to those of Dartmoor, which are all or mostly of granite, and the peculiar way in which granite weathers produces these very fantastic results. One thing is necessary, they must be in an exposed position, and their bases kept clear by wind, not overgrown by moss, as are the Auld Wives' Lifts. A very similar structure may be seen among the cyclopean walls about the tops of the Arran mountains.

These have no affinity to the detached blocks on Craigmaddie Moor, which all owe their existence to the undermining of the soft underlying bed *close to a steep slope*, down which the outer stone slips. This accounts for the miniature "*Whangie*," which belongs to the second bed above that on which the Lifts rest. There are numerous others, *e.g.*, two large ones at the escarpment of the bed on which the Lifts rest, but the finest are on the first high ridge, seen from the road, and near the wood. Here are fantastic forms, which I associate, not with the "*Whangie*"—which is not beautiful—but with the Fairy Dell, near Loch Ranza. After passing through avenues you

come to a rock arch which resembles a cromlech in all but that one side and the top are part of the rock *in situ*. This chamber is about 8 feet long and about 6 feet high, the span of the capstone being about 6 feet; it is situated about 30 yards from the wood. There are also to be seen one or two cases of overhanging capstones which were arches till the outside stone slipped away too far.

A *sine qua non* in every case is a steep slope, down which the detached stones could slip, and which is entirely wanting in the case of the Lifts, which stand on a flat area some 40 or 50 yards from the nearest escarpment.

As for the Lifts themselves, they would probably be taken from the nearest escarpment, detached in the manner described, and might possibly originally have been one block. At least I have no objection to that theory.

The two bottom stones seem to have come from the same stratum, and are very much false bedded, so that I read them somewhat differently from Professor Gregory, who says, "The bedding planes in both the supporting stones dip westward about 25°." I think the west stone is in its natural position, while the inner surface of the east stone requires to be lifted up so that it is horizontal, in order to bring it to a corresponding position. They contain bands of conglomerate which can be traced through both stones.

With regard to the theory that the Lifts existed in their present position in one piece, I cannot comprehend how the one lower stone could remain unmoved while the other slid down to a considerable angle, and yet left the top stone horizontal. It seems to me that any movement of this stone would lower the side of the top stone which rests upon it.

It may be noticed that the nose of the right-hand stone is inserted below the other, so that the two stones must have been pushed together before they could assume their present position. In my view the eastern stone was laid down first, and the other pushed hard against it.

(c) For these and other reasons I conclude that the Lifts have not come to their present position from natural causes, and the alternative is that they have been placed there by man. That they are, in fact, a *pre-historic monument*, of the

class known in this country as "cromlechs," and on the Continent as "dolmens," a class which is known over almost half the world.

At first one is staggered by the great size of the stones; how could these be manipulated by people, whom the historians tell us were painted savages. Well, people who could do this work were not savages. Long ago there was a rage for large stones, and each seemed desirous to surpass his predecessor, till at length a time was reached, when the stones became so large that it was impossible to manipulate them, and Egypt and Syria bear evidence of this failure.

The greatest stone lifted by so-called savage people is (so far as I know) that known as Le Menhir Brisé at Lockmariaquer, in Brittany. Its dimensions are given as 67 feet 6 inches in length by 13 feet 6 inches by 7 feet 6 inches, and its weight as 200,000 kilos (about 196 tons).*

It stood on end like an obelisk, but was broken and thrown down by lightning in the eighteenth century.

Mr. Duncan Smith has at my request kindly measured the top stone of the Lifts with the following results:—

Greatest length (between perpendiculars)	approximately	21 ft. 6 in.
Greatest breadth,	- - - - -	13 ft. 0 in.
Average thickness,	- - - - -	7 ft. 0 in.
Solid contents,	- - - - -	1134 cubic feet.

Which at 140 lbs. (= 16 ft. per ton) gives about 71 tons.

For comparison I give some sizes of the larger capstones of cromlechs and dolmens (Borlase, p. 433)—

Carrickglass,	}	15 ft. 4 in. × 9 ft. × 8 ft., nearly 70 tons.
Co. Sligo,		
Clochmore,	}	13 ft. 0 in. × 10 ft. × 5 ft., about 50 tons.
Co. Down,		
Proleck,	}	15 ft. 0 in. × 13 ft. 6 in. 3 ft. 6 in., about 60 tons.
Co. Down,		
Kermanstone,	}	22 ft. 10 in. × 10 ft. 9 in. × 4 ft. 6 in., about 100 tons.
Co. Carlow,		

* Hutcheson ("Prehistoric Man and Beast," p. 250) states that this stone weighs about 342 tons.

BRITTANY.

La Mene Ritual, Lockmariaquer,	-	38 ft. × 40 ft.
Mané Lud, Lockmariaquer,	- -	28 ft. × 16 ft.
Table de Merchands, Lockmariaquer,	-	20 ft. × 13 ft.
Crucano, Carnac,	- - - -	24 ft. × 12 ft.

while menhirs or standing stones exist up to 39 feet high above ground.

The stones in the Carnac district are of granite, and are thinner bedded than other rocks would be. This is especially true of the first two in the above list.

Cromlechs may be composed of three or more stones, and the only difference I know of between the Lifts and the typical monument is that the chamber in the Lifts is so small. This I attribute to the men being by this time sick of the job and letting it go, and Borlase gives a number of instances of this kind (p. 432 *et seq.*).

One of his classes is thus defined—"Those in which the performance of a colossal feat of strength in raising and placing in position the most enormous block for a roofing stone obtainable was evidently the first consideration, and the symmetry of the crypt beneath which would of necessity be liable to be upset during the process, a secondary one." He says, "at Kermanstone, Houth, and Woodtown it can scarcely be said that a chamber exists at all," and "In the Kilternan example the crypt is much disarranged, owing apparently to the weight of the roofing stone."

Some cromlechs are surrounded by a rampart, *e.g.*, Giant's Ring, Dumbo, 4 miles from Belfast, the rampart of which is about 600 feet in diameter, but not anything like so grand as the amphitheatre in which the Lifts stand.

Regarding now the Lifts as an ancient monument, let us consider as to its origin and fitness for the worship to which it was an accessory. Our idea is that the natives, observing the beautiful natural amphitheatre and some detached stones lying in the corner, conceived the idea to move the stones into the centre, and build them so as to form a dolmen.

They afterwards proceeded to carve a large ring on the top, and cups and rings (discovered by Mr. Ludovic Mann) on the

surrounding rocks, and lastly to erect cairns containing tombs in the neighbourhood.

Looked at from any and every point of view it deeply impresses the spectator with a feeling of wonder and awe, that does not grow less as the years go by, and while not questioning the fact that it may be a "pseudo-megalithic tor," we conclude that it is in reality the greatest "ancient monument" of its kind in our country, and one of the grandest in the world.

REFERENCES.

- Bell, D. 1885. Among the Rocks round Glasgow, 223 pp.
Borlase, W. C. 1897. The Dolmens of Ireland, 3 vols., 1235 pp.
Gregory, J. W. 1916. The Auld Wives' Lifts, a Pseudo Megalithic
Tor. *Scot. Geogr. Mag.*, vol. xxxii., pp.
279-282.
Renwick, J. 1896. *Trans. Geol. Soc., Glasgow*, vol. xi., p. 148.