

II.

AN ACCOUNT OF EXCAVATIONS WITHIN THE STONE CIRCLES OF ARRAN. By JAMES BRYCE, M.A., LL.D., F.G.S. (Plate XVII.)

Many stone circles and single standing-stones are found in Arran. Not a few are known to have been removed to make way for agricultural improvements; and many may have disappeared, of whose existence and removal no record has come down to us. The circles which remain are situated on the west side of the island, in a tract offering no temptations to the inroads of the farmer, and are still in a tolerably perfect state. The monoliths are found in wild and cultivated tracts alike; but as they occupy little space, and are looked on with something of the veneration attaching to "ancient land-marks," by a people which has not been displaced for many ages, they have been permitted to stand undisturbed, and still form a striking feature in many Arran landscapes.

No descriptive account of these stone circles having, so far as I was

¹ Cornish-English Vocabulary, p. 436.

aware, been ever published, and as I was desirous to place such an account on permanent record, lest, in process of time, they should be swept away, I made a careful survey of them in the summer of 1860.¹ That examination very much increased my interest in this singular assemblage of ancient monuments, and in the general question of the origin and purpose of such works. In examining all that had been written about them, I was not able to satisfy myself that there was undoubted evidence of any relics having been found at them which could throw any light on their original purpose, or the uses to which they may have been applied. The few authentic cases which are on record of such circles being opened, and which are mentioned in the appendix to the preface of Mr Stuart's magnificent work on the "Sculptured Stones of Scotland," led me to suppose that the result would probably be the same as in those cases. This I was anxious to determine, in order to throw additional light upon a question which could not be regarded as finally settled. Besides, the case of Arran might be peculiar. Professor Daniel Wilson has remarked, that the "uniformity of the Scottish monolithic groups is not sufficiently marked to prove a common origin for all; the differences are so striking, that we look in vain for evidence of uniformity of faith or object in their builders The huge columns are simply evidence that there prevailed alike in Europe and Asia in a remote time, a remarkable phase of the human mind, the influence of which has long since disappeared The varieties apparent in their grouping and structure are such as may well justify the conclusion, that instead of being the temples of a common faith [the Druidical], they are more probably the ruins of a variety of edifices designed for diverse purposes—perhaps for the rites of rival creeds." (*Archæology*, pp. 110–112.) Discarding the Druidical theory, and alike dissatisfied with that which took its place, namely the Scandinavian origin of these works, and their erection for purposes of worship, Dr Wilson considers that this much at

¹ The stone circles are noticed in "Headrick's Arran," in the "Statistical Account" of the island, and with somewhat greater minuteness by Mr John Macarthur, in a paper on some of the Antiquities of Arran, in the "Edin. New Phil. Journal," vol. ix. N.S., p. 59. I made the survey above referred to with the view of adding a chapter on the antiquities of the island to the next edition of my little work on "The Geology and Botany of Arran."

least is certain, "that the latest, if not the only, unquestionable evidence of their use which we possess is not as religious temples, but as courts of law and battle rings, wherein the duel or judicial combat was fought, though this, doubtless, had its origin in the invariable union of the priestly and judicial offices in a primitive state of society" (p. 113). Yet it cannot be doubted that some of them are sepulchral monuments; and in regard to the crowned cairn, the crowned or encircled mound, and the cromlech, which bear a close resemblance to the stone circle, as Dr Wilson has himself shown, it is clear that their original purpose and use was as a place of sepulture.

Farther investigation into a subject confessedly so obscure seeming thus highly desirable, I placed the nature and importance of the inquiry before the Duke of Hamilton, and requested permission to make a series of excavations within and around the stone circles and monoliths of Arran. His Grace not only at once most kindly acceded to the request, but expressed a wish that the operations should be conducted at his expense. His Grace also placed me in communication with his agent in Arran, James Paterson, Esq. of Whitehouse, Lamlash. In Mr Paterson I had a most able and enthusiastic coadjutor; and to his activity and judicious arrangements not a little of the success and rapid conduct of the excavations is due. From Mr Stuart, the learned Secretary of this Society, and Mr John Buchanan of Glasgow, I obtained some useful hints on the best mode of proceeding. But before entering on an account of the excavations, it will be necessary to describe the present state and external appearance of the circles.

Descriptive Notices.

The Stone circles to which the following observations refer, and which form the only group now remaining in Arran, are situated on Mauchrie Moor, in the townland of Tormore, which is said to derive its name from them. They are half a mile to a mile from the west shore of the island, and somewhat less from the banks of Mauchrie Water. Their relative positions will be best understood from the annexed plan (Plate XVII.) The principal circles are on the eastern part of the moor, where it falls north and north-east towards Mauchrie Water; two of these consist of tall upright sandstone slabs, three of large granite blocks. Westwards the crest

of the moor is surmounted by three incomplete circles of upright slabs of sandstone, nearly two hundred yards apart; and to the west of the most northern of these, on the western slope, is the largest circle of the whole group, enclosed by great blocks of granite. Six of the circles are tolerably perfect, one very incomplete, and two have but a single stone now standing. There is, besides these, a small enclosed cell open to the day, apparently once fitted with a lid or covering stone. There are also indications of the remains of other circles and of mounds to the south of the eastern group, but so imperfect that no positive conclusion can be formed regarding them.

I shall now briefly describe the structure and dimensions of these groups, referring to each by its number on the accompanying plan.—The most eastern of the group (No. 1), is a single circle of granite blocks, having a diameter of fourteen yards; two of the stones are entire, and stand about five feet high, the rest merely protruding from the mossy surface of the moor.

The second (No. 2) is a single circle of tall sandstone slabs, three of which, from W. to N.E., are perfect and upright, but the rest of the circumference is sufficiently defined by the bases of the other stones remaining in the soil. The diameter of this circle is 15 yards. There seem to have been originally in all seven or eight stones. The tallest, that on the west side, is 16 or 18 feet high, 3 feet 6 inches broad, and 1 foot 10 inches thick. The next, that on the north-west, is about 15 feet high, 3 feet broad, and 1 foot 2 inches thick. The third, on the north-east, is 12 feet high, of irregular breadth, but at the broadest part about 4 feet broad, and 11 inches thick. This stone is broader upwards; the two others taper, but not to a point. Within the circle, towards the east side, there lie two large stones, about $4\frac{1}{2}$ feet in diameter and 11 inches thick, flat on both sides, one of them being perforated as if for the admission of a shaft. The circumference of the perforation has a series of regular grooves, and both have been plainly cut from a fallen pillar, or one upset on purpose, and prepared for mill-stones, but never removed. This destruction is of course the work of modern times.

The next circle (No. 3), is nearly of the same dimensions, being about thirteen yards in diameter. Along the circumference five stones are still distinctly seen, but one only is entire and upright; it is about fourteen feet in height, and the other dimensions are about the same as those of the

stones in the last circle. A little to the west of the centre there lies a large square stone crossed by five grooves, of which three are six or seven inches deep, and the others somewhat shallower. A village antiquary, who paid us a visit on the first day of our excavations, offered the suggestion that these grooves may have been the channels for carrying off the blood of the victims sacrificed upon a central altar by the Druid priests, who practised here their horrid rites! The dark-red blotches peculiar to the Arran Old-Reds lent some plausibility to this conjecture.

All the stones of both circles are of dark-coloured close-grained sandstone of the Old Red system, whose line of junction with the Carboniferous formation runs nearly in the line of Mauchrie water. One can hardly see, however, how masses of such size could have been taken from the bed of this stream, the only place where the rocks are exposed, without an extent of quarrying which seems to imply the use of iron tools; they were more probably severed from the huge sheets of sandstone which crop out on the adjoining shore. But the sandstone on the nearest part of the shore is not like that of which these stones consist; it resembles more the chocolate-coloured rock of the Old Red formation in the bed of the lower part of the river, and of the shore towards Auchincarr, north of Mauchrie Water-foot. But if we look to a distant origin, and transport over a rough country, the weight of many of the stones forms a great difficulty. Estimating at six feet the length sunk in the ground—and judging from the excavations which I made, I consider this not too much—and taking the specific gravity at 2600, the weight of the largest slab will be nearly ten tons, and of the others from six to eight tons; yet I was unable to discover in the immediate neighbourhood any outcrop of the sandstone rock from which the slabs could have been taken. All the stones have plainly undergone a certain amount of coarse “dressing” after removal from their native bed; but with what tools it is impossible to say.

The next circle (No. 4), is situated to the south of that last named. It is formed by four blocks of coarse-grained granite, apparently a little shaped and flattened, about three feet high, and standing nearly on the four cardinal points; but the stones are not exactly equidistant, nor indeed is the figure quite a circle; it is elliptical rather, and the longer axis, which is directed north and south, is about seven yards in length.

The four circles now described are on that part of the surface of the moor which is covered with peat-moss, and peat is cut from banks which are fast approaching the bases of the stones. This, however, will not affect the stability of the pillared stones, as the peat is only eighteen inches to thirty inches deep, and the pillars have a firm hold in the hard red till below.

The fifth circle, a little to the west of No. 4, is upon higher ground, dry and gravelly, at the head of a field of arable land reclaimed from the moor; a few dozen yards north of it there is a humble farm-house. This circle has remarkable features, which have led to its frequent mention. It is alluded to under the name of "Siudhe choir Fhionn," or "Fingal's Cauldron Seat," tradition assigning to the encircling stones the purpose of supporting the cauldron of the giant. It consists of a double circle of stones; the outer circle having fourteen, and the inner eight; the diameter of the inner circle is eleven yards, the breadth of the ring between the two circles is from five to seven feet. The irregularity being probably caused by some of the stones having been shifted. The largest stones are in the inner row; one is four feet high, and three others very little less; the greater number of the outer row are smaller than any in the inner; those of the inner row are from three to four yards apart. All the stones are granite blocks; boulders, in fact, gathered from the surface of the adjoining moorland, which, like most parts of the island, is strewn with the ice-borne spoils of the granite nucleus to the north. A block, on the south-east side of the outer circle, has a ledge perforated by a round hole, which is well worn on the edges, and said to have been formed for the purpose of fastening the favourite dog Bran of the giant aforesaid.¹

A little farther west, under a bank by the side of a peat-road, there is an enclosure like an open raised grave (No. 6), formed by five slabs of sandstone, placed with their edges in the ground, and standing two or three feet above the surface, so even all round that a large slab may once have fitted on as a lid. The enclosure is six feet east and west, by four feet broad; two stones form the east side, one stone each of the other sides.

Still further west, and on the crest of the moor, here gravelly and heath-clad, are the remains of two other circles (Nos. 7 and 8). The one

¹ Statistical Survey.

to the N.W. is marked by a single upright slab of sandstone, five and a-half feet high, and very conspicuous, from the ground falling away on three sides; some other stones projecting amid the heather seem to indicate the original circumference. About one hundred and eighty yards south of this stone is another upright sandstone slab of the same size, with several smaller near it, apparently fragments of larger ones, all indicating the former existence here of a complete circle; the centre of which, however, it is difficult now to determine. Still farther W. is a monolith without indication of any other stones (No. 9).

Some way down the western slope of the moor, and close to a farmhouse, is another large granite circle (No. 10), twenty-one yards in diameter, formed by a single and complete row of stones, three or four feet high. Their forms are rounded, or but slightly angular, like those which may now be seen to strew the adjoining tracts, and, like the blocks in the other granite circles, they do not seem to have undergone any process of dressing, but to have been rolled into their places as they were found upon the moor. The process of collecting them would require no great time or labour, since none of them pass the weight of four tons, and most of them are very much under this weight; unless, indeed, the country was covered with forest, which is most probable from several considerations, chiefly that many trunks of trees are found imbedded in the peat on the moor.

Several stone circles are known to have existed in other parts of Arran, but nowhere else do they occur in groups, as those now noticed. I have been able to find but one still remaining entire. It occupies a platform, a little elevated above the road, precisely at the summit level between Brodick and Lamash, and consists of a single row of granite blocks. A few yards south of it there is an upright stone of coarse conglomerate, nearly four feet high, and others near it now prostrate, all apparently portions of a former circle; but of this it is impossible to speak with certainty.

We are told by Headrick, in his "History of Arran," that a large circle formerly existed near the mouth of Glen-Shirag, where it opens on the plain of Brodick, but that it was "removed in 1813, to make way for the operations of the plough." It has also been stated, and upon authority which seems sufficient, that up till 1836 a double circle of tall standing

stones existed on the farm of South Sannox, fronting the opening of Glen Sannox, one of the finest and most picturesque situations imaginable, and that in that year they were removed to form a fence. A single pillar in front of South Sannox House is all that now remains. The gentleman who now holds that farm maintains, however, that no such circle existed there—nothing but a single stone, raised about the date I have named, and placed in its present upright position.

The localities of the monoliths it would be tedious to specify; and there are no means of determining whether they were always single, or are but the remains of circles.

The Excavations.

The excavations within the circles have now to be described; they occupied three days.

On the morning of the 24th May 1861, Mr Paterson and I met by agreement at Shiskin, and proceeded to the ground. Nine men, fully equipped, were already there; they were fresh for the work, having been sent across from Lamlash by Mr Paterson the day before, under the direction of the chief hedger, whose intelligence and zeal were of the greatest use to us during the whole of the operations. I determined to break ground first in the more eastern of the two circles of upright stones, that already described as No. 2. There being here three points undoubtedly on the circumference, I drew two chords, bisected them, and raised perpendiculars; this at once gave the position of the centre, and here an opening was made. At the same time an excavation was begun at the base of the south-west pillar, and carried to a considerable depth and distance inwards, along a radius; the base of a pillar or the centre of the circle being the spots most likely to receive any object valued or venerated. In the trench proceeding from the base of the pillar nothing was found; at the centre we were more successful. And here I may mention, for the guidance of those who may conduct such an inquiry, that, except in a peaty or gravelly soil, the ground *can be felt* to a considerable depth by means of a crowbar, or strong pole armed with a sharp iron facing, and thus much digging be saved, and the right direction given to it, after a certain amount of surface has been cleared off. In this way, after the *stratum* of solid peat, here fifteen inches deep, had been

removed, and the substratum of till laid bare, the ground was sounded, and we became aware that we were over a flat stone of considerable size. The interest of the inquiry now rapidly increased, and when, at the depth of two feet from the surface, a large slab became visible in its full dimensions of 4 feet 2 inches by 3 feet 9 inches, this interest was wound to the highest pitch, even the least enthusiastic being strongly excited.

Our efforts were now directed to raise the slab, which, being fully thirteen inches thick, was of great weight. But being a large party, and furnished with strong ropes, we effected this with no great difficulty, and disclosed a cist with an urn, but neither skeleton nor bone. The "ashes of the urn," a handful of black earth at the bottom, were regarded as all that remained of the great chief in whose honour, and for whose last resting-place, these huge monuments had been reared. The moment of this discovery was one of profound interest; and it was pleasant to notice how, when I appealed to the intellect and feelings of the men, by explaining the nature and circumstances of the old mode of sepulture and cremation, and the special importance of the inquiry to antiquarians, their interest was excited, and their zeal redoubled. The cist was found to be 2 feet 2 inches deep, 1 foot 10 inches broad, 2 feet 11 inches long on the east side, on the west 4 inches more; it lay N.N.E. and S.S.W.; the floor consisted of the hard natural till, not of stone; the upper edges of the stones were all on the same level, so that the huge lid fitted nicely on to it; all the stones and lid were of sandstone. The urn lay near the N.W. corner, half inclined over to S.S.W., and contained only some soft black earth. It is in excellent preservation, but of rude construction. In the bottom of the cist, lying loosely about in the black earth, four flint arrow-heads of rude construction were found.

Our next attempt was made within the circle No. 3 (see plan). Striking here the centre as before, we passed through fifteen inches of compact peat-earth, then through three feet three inches of red sand with stones, in which a flint arrow-head was found, and then touched a large flat stone, which proved to be the lid of another cist. It was in the form of a truncated triangle, and was protected all round its outer edge by a series of smaller stones, eight in number, resting partly on the slab itself, and partly on the earth beyond. It occurred to Mr Paterson and myself that either of two reasons might be assigned for such a construction,—more effec-

tually to prevent sand, &c., from entering the cist by the edge of the lid; or that the stones might distribute the pressure, on the principle of the "safe-lintel," and so diminish the chance of collapse of the sides of the cist. The cist was 1 foot 5 inches deep, 1 foot 3 inches broad, 2 feet 10 inches long; the upper surface 4 feet 6 inches from the surface of the moor. The direction of the length was nearly the same as in the former case, being a little more to the north, or almost north-east and south-west. Close to the south-east side there stood an urn in an upright position, lined inside with black-matter, and having black dust in the bottom. On lifting it the bottom parted off, and the rest has since gone into fragments; it is of ruder construction than the other. Two flint arrow-heads were found in the cist, and also a fragment of granite, once a component part of the soil above. Having replaced the lid and the eight edge stones, we continued the opening about three feet southwards on a radius of the circle, and came laterally against another cist at a higher level. The upper surface of the lid was only 1 foot 8 inches from the surface, and, as it was 13 inches thick, the upper edge of the cist was but 2 feet 9 inches from the surface. The slab forming the lid was 4 feet 1 inch by 4 feet. No sooner was the northern edge of the lid so slightly elevated as to give a glimpse of the interior, than the interest of the party was again raised to the highest pitch. A white object like a blanched human skull loomed out from the deep obscurity of the cist. We had come at last to a veritable human grave. I was pleased to see the interest of the men; they relieved one another at the ropes that they might go down and catch an early glimpse into the dark recess.

The skull proved to be a very perfect one, with most of the teeth entire. It lay at the south end, some long bones at the north end, of the cist; the upper jaw was partly decayed, the lower was only traceable on the floor in outline. The cist lay N.N.E. and S.S.W.; the length was 3 feet, the depth 2 feet, and breadth 1 foot 4 inches. As in the other cases, the floor was found to be formed of the natural soil, and not of a stone slab or pavement. The side stones of the cist were not quite parallel, the west side having a slight lean inwards, so that the width at the bottom was greater than at the top. It was also narrower at the north end than at the south, the slab forming the north end being shorter.

Two flint arrow-heads were found in the cist, of the same rude forms as in the other cases. The slabs forming the lid and sides were, as in the other cases, all of sandstone, those of the sides plainly subjected to a slight degree of dressing.

We now made a trial of the double granite circle on the high gravelly ground, No. 5 in the plan. Under the thin sward we found a complete floor of stones, of various sizes, mostly small, but placed without any such arrangement as would be found in a pavement, and immediately below this, at less than a foot from the surface, two flat slabs on edge, in a direction nearly north and south, both a little inclined inwards at the top, in all respects like the two sides of a cist; but we could find no trace of either of the ends. Accustomed now to the appearances, Mr Paterson and I agreed that this was originally a cist, probably placed so near the surface on account of the difficult character of the ground; and that the interior of the circles had in all probability been disturbed, more than once, before the examination made by us.

I next had the small enclosure open to the day, marked No. 6, dugged over to the depth of more than three feet, but found no trace of cist, or remains of any kind, except a fragment of a flint arrow-head, like a small piece that might have been chipped off a larger one.

At the western base of the single standing-stone, on the northern crest of the moor, I had a deep opening made, being unable to determine the centre, from the imperfect definition of the circumference, but no remains of any kind were found, nor did the ground appear to have been before disturbed. But the position of the centre in such a case is very uncertain. This concluded the labours of our first day—it was bright and warm, and our operations were prolonged late into the evening.

Our next examination was made on the 26th September; the force and its organisation being the same as on the previous occasion. His Grace the Duke of Hamilton honoured us with his presence during the greater part of the day, remaining on the ground with us till nightfall, and aiding us by his advice. The day was one of the most brilliant and genial of the season. The atmosphere had that unusual transparency, ominous of change, which gives magical effects to a landscape. The granite peaks of the Goatfell group were defined against the deep azure of the north-

eastern sky with wondrous distinctness,—they seemed close at hand, and lifted up into the clear air far beyond their usual height.¹

As in the excavations within the second circle of standing-stones (No. 3 in the plan) a cist had been found to one side of the centre, so now I was desirous of discovering whether a similar arrangement existed within the other circle of upright stones (No. 2); that is, whether this other circle, already found to have a central cist, had also a cist removed from its centre. The result showed that it was so; for to the north of the centre, between it and the north-east upright stone, a cist was exposed to view at a depth from the surface of 3 feet 1 inch; it was 3 feet 3 inches long, 1 foot 11 inches broad, and 1 foot 9 inches deep. The slab which served as lid, was 4 feet 6 inches long, 3 feet 8 inches broad at one end, and 2 feet 4 inches at the other. All the stones were sandstone, and the floor, as in the other cases, was the natural soil; the direction of the length was, as in the others, about N.N.E. The floor was a little lower towards the north-west corner, and here there was a pool of water. It is remarkable that nothing whatever was found in the cist—neither bone, urn, nor arrow-head—no object whatever could be discovered; yet such objects as we had before found could not have disappeared by decomposition, and we could not detect the slightest sign of any earlier intruders. The conclusion which seems warranted by these facts is, that the cist had been prepared as a place of sepulture, along with the others, but never used.

Another excavation was made in this circle to the south of the centre, with a branch from it running west, but nothing was found. It appears, therefore, very unlikely that the practice was to form a series of cists around the central one. If such had been the arrangement, there is great probability we should have come upon some of the cists in this excavation.

Satisfied thus far with the result of the inquiry as regarded the circles of upright stones, I was anxious to determine whether a like arrangement existed in the case of the circles of granite blocks. The cist at the

¹ By invitation of the Duke of Hamilton, the Rev. Duncan Taylor of Brodick, Major Finlay of Easterhill, and Mr Hering, the well-known landscape painter, were with us. The cunning pencil of the artist was often employed upon the singular groupings of our party amid the strange old monuments.

centre seems clearly to indicate the purpose for which the circumference was reared; and if the central cist exist within the granite blocks, the purpose will seem to be the same for both. The excavation at the double granite circle was unsatisfactory; there seems no chance of any distinct response ever being obtained from it. But two granite circles remained to be tried, and to these our attention was now turned. The larger and more eastern one, the most eastern of the whole group (No. 1), yielded nothing; the centre was first tried, and then a trench was run towards the north-east, in both cases without result, though the usual depth was reached. In the other granite circle—that lying due east of the farmhouse, south of circle No. 3, and marked No. 4 on the plan—we were more successful. Striking the centre, and excavating there, a cist was discovered at the depth of 3 feet 4 inches, covered as before by a slab of stone 6 inches thick, 4 feet 6 inches long, 3 feet broad at one end, and 2 feet at the other. The dimensions of the cist were found to be the same as in the other cases, the length being 3 feet, depth 2 feet, and breadth 1 foot 4 inches; the length being in this, as in the other cases, almost exactly in the direction N.N.E., and S.S.W. The cist was the most perfect we had seen, the four slabs perfectly upright, the sides quite parallel, and the stones all nicely fitting. The fragments of an urn lay in the north-west corner; it had been laid upon one side, inclining towards the south-east; under it there were some bone fragments; and three arrow heads or flint implements of the rudest forms were lying about on the floor of the cist.

Thus, then, we find the circle of granite blocks yielding us the very same results as the pillared circumference of huge sandstone slabs; the stones have in both cases been disposed in reference to the central cist.

Our last excavation was made at the more southern of the two imperfect circles which occupy the crest of the moor (No. 8 in the plan). Two stones only remain, but several others lie about; and from these two being close together, and the others wholly out of position with respect to them, the course of the circumference and situation of the centre are mere matters of conjecture. A trench was opened to the east of the stones across the supposed position of the centre, and also at the east base of the stones, and continued to a depth of nearly 3 feet, but no remains of any kind were found. At a little distance down we did in-

deed come on a large slab of the same truncated triangular form as the cist-lids before found; but under it there was only a broad slightly hollow space, coated thinly over with dark earth, under which was a dense mixture of earth and stones, into which we went a little way without result. This slab lay close to the base of the southern stone. It was nearer the surface than any of the cist-lids found by us, and was doubtless but a fragment of a once upright sandstone pillar. The cutting at the supposed centre showed a thin layer of peat, and a fine red till, which had no appearance of having been before disturbed.

This digging concluded our second day's work. The large granite circle, the most western of the group (No. 10), was the only one that remained untouched by us. Time did not permit that it should be now attempted, as it was already night-fall; but we did not in the mean time propose to return to it, as it seemed highly probable, from the tossed appearance of the interior, that it had been long ago opened in more than one place, doubtless in the hope of finding treasure concealed here, as being a place round which there hung a certain amount of sanctity.

Our third and last day's work was directed to the circles on the east side of the island.¹ I have already mentioned the circle near the entrance to Glen Shirag, said to have been removed in 1813. An attempt was first made upon it. Its site was pointed out to us as having been in a field between the farm-house and the church; but after several hours' search, in the usual way, within the conjectural limits, the place was abandoned as hopeless. While this inquiry was going on, a part of our force was employed to open a grave-like mound placed up against the back of a hedge in an adjoining hollow. The tradition regarding it, as preserved by the village patriarch, is to the effect that the rightful heir of the Fullarton property was murdered about 200 years ago by another claimant, and buried in this spot; the property thus usurped ever since remaining in the line of the usurper, to the exclusion of himself, the patriarch aforesaid, and the other rightful heirs! Unfortunately this romance was dealt with as unscrupulously by us as was the Druidical

¹ We had the pleasure on this occasion of enjoying, during most of the day, the company of the eminent physiologist, Dr Carpenter, who was just then closing a residence of several months in Arran. In the afternoon we were joined by Mr Campbell, younger of Islay, author of "Legends of the West Highlands."

theory. A thorough examination of the mound produced no evidence that the victim of this dark plot was interred beneath.

Our whole force was now transferred to the summit level of the road between Brodick and Lamash, where a circle of granite blocks, boulders from the northern mountains, exists, as already mentioned, with an eccentric upright stone of conglomerate sandstone. Excavating at the centre we found a small cist at less than a foot in depth, and lying about north-east. It was covered by a small lid, and the dimensions were 2 feet 2 inches in length, $10\frac{1}{2}$ inches in depth, and 11 inches in width. Inside there were several bone fragments and black earth. A flint implement was found in the stony soil above, and three other flint fragments, but nothing of this kind in the cist itself. This was of a much ruder structure than any we had before seen; it was cut out of the solid sandstone rock, but with little care or exactness; the sides, however, were nearly perpendicular. The difficulty of excavating without iron tools may account for the smaller size and ruder form of this cist. No other cist was found, nor remains of any kind, though a trial was made at several points round the centre. A deep opening was also made on both sides of the upright stone, but nothing was met with worthy of being recorded. The place altogether was very unpromising, and we penetrated only to a small depth. From our previous experience, Mr Paterson and myself were now able to decide pretty early as to the chances of success.

I had intended to close the proceedings of this our last day by excavating at the base of one or two of the monoliths, those on the farm of East-Mayish, and that by the wayside near Invercloy; but the afternoon turned out very unfavourable. Our operations at the summit-level were not half completed when the storm that had been threatening all forenoon burst upon us with extreme violence. Exposed in this elevated spot to the full fury of the south wind and force of the pelting rain, our men could hardly keep their footing, yet did they work away bravely till I had fully explored the rude cist, and satisfied myself that there was no hope from the monolith. We were thus compelled to abandon all further researches on this occasion; but I hope to have another opportunity of completing the inquiry by an examination of the monoliths. It would be very interesting to determine whether

they are true monoliths, or but the remains of circles; and if true monoliths, for what object they were erected. If they are monumental, remains like those of the stone circles would certainly be met with; and if commemorative of a battle, there would probably be bones and fragments of weapons. The non-existence of remains of any kind would show that the monolith was simply indicative of a boundary, or commemorative of a treaty of amity,—that neither party “would pass this pillar for harm” to the other, as in Gen. xxxi. 51, 52.—I may perhaps be permitted to lay before the Society the results of a future inquiry, if it should seem desirable that such should be instituted,—sanction being had from the proper quarter authorising the researches; and these might be extended to the mounds, cairns, &c., of the southern part of the island, regarding which we at present possess but casual notices in the works already quoted, and in newspaper paragraphs.¹

The Objects found (see Plate XVII.)

The objects already mentioned as found during the excavations are,—numerous flint implements of rude workmanship; several urns, and a skull with other bones, both human and of one of the lower animals. Besides these there was found, in the cist at the centre of the granite circle, No. 4, a pointed conical object about $2\frac{1}{2}$ inches long, with a polished surface, resembling the pin of a brooch or bracelet. The end section had the dark granular appearance of an altered metal; and it was supposed by us to be a metallic object, and of course highly valued,

¹ Since this paper was read to the Society, an interesting case has been mentioned to me by Mr Reid of the Union Bank, Glasgow. He was on a tour round Arran with the present Master of the Mint about fifteen years ago, when they came upon a cairn raised over a series of cists placed together, level with the surface of the ground. Two of the cists were empty and partly broken up, and their lids had been removed: a third had the lid turned over, and contained many bones. Besides these, there seemed to be several others still concealed beneath a part of the cairn which had never been disturbed. This cairn was known as the “White Cairn,” and lay between the village of Lag and the sea. The cairn is now obliterated, but four standing stones remain.—The lately published work on the Antiquities of Arran, by Mr John Macarthur, contains an account of all that was known regarding the various sepulchral remains of the island, before the date of the researches described in the present paper.

as the solitary witness for an advanced age. On being carefully examined, and compared with similar objects in the Society's museum, it was found to be a bronze pin,¹ much altered in structure. This object, specimens of all the varieties of the flint implements, the perfect urn, the skull and other bones, are now presented to the Society. It was the desire of His Grace the Duke of Hamilton, who is a member of this Society, that they should be preserved in a national collection; and whatever value may be attached to them as illustrating an obscure question, that they should take their place amid the other monuments of the olden time in Scotland. A photograph of the perfect urn, which I have had taken by Mr M'Nab of Glasgow on a large scale, and which is very well executed, is also presented to the Society. Drawings of the urn, bronze pin, and flint flakes are given on Plate XVII.

It is needless to speculate upon the origin of the flint implements. Wherever or by whomsoever shaped thus into armatures, the stone itself is not found in any of the rocks of Arran, nor loose upon its shores. Jasper, hornstone, pitchstone, obsidian, and porcellanite, are found among its igneous products, but flint is not met with nearer than on the opposite coast of Antrim, where it forms beds in the chalk; and thence the rude stone may have been derived, as Cantire and the islands had intercourse with the north of Ireland from the very earliest times. But this is part of a very wide question, and need not be here dwelt upon.

The urns found in the cists are of the earliest forms, fashioned by the hand before the potter's wheel had come into use, and probably sun-dried. The mode of formation is shown by the irregular form. The mouth is round, tolerably accurate, but by no means perfectly so, as is more evident in the photograph than in the original. In the body of the urn, especially under the lower band, the irregularity is very perceptible,—the profile being slightly concave in some views, and convex in others. The lines drawn round the neck and body, separating the bands of ornament, are drawn without any attention to accuracy, but continued round, and united where they terminate. The ornamental markings are made by sloping lines, neither exactly parallel nor straight; and seem to have been marked on the soft clay by a bit of twig, the streak coming off light

¹ It was tested by Dr Stevenson Macadam, Lecturer on Chemistry, Edin.—*Ed.*
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towards the lower part; the two rows of alternate dabs with the thick end of the twig. The other urn, which was taken out in fragments, is similarly ornamented, and has apparently a form equally irregular. The inference drawn from the character of these urns is thus in harmony with the other evidence for the high antiquity of these singular works.

Looking at the urn with the eye of an artist, my friend Mr J. A. Hutchison has remarked, "that the form is the simplest that at first occurs to the mind to imitate—the ovoid. Varieties of this form are seen in many natural objects, as the egg, poppy seed-vessel, acorn, acorn-cup, and many fruits; and what the eye was familiar with, the hand would most readily attempt to fashion. The ornamental markings seem suggested by wicker-work or plaited rushes, as we see them made in toy caps and baskets by children. The bands round the middle resemble the over-and-over plait used in basket-work to give firmness to the whole. The sloping lines resemble the single rushes or wands side by side; the rows of alternate lines resemble the rushes or wands again twined together in a common plait." Some remarks bearing on this subject will be found in Dr Wilson's work already referred to, p. 290. The urn is $7\frac{1}{4}$ inches in height, 7 inches in diameter at the mouth, and $3\frac{1}{8}$ inches at the bottom. The circumference at the lower band is 25 inches; at the upper 24 inches.

The nature of the human remains found in the cists is of great importance in this inquiry. Of what race or type of head, of what sex and age, of what bodily proportions—those of a warrior chief or a tender female—was the individual to whom they belonged? These are questions which must have a direct bearing on the purpose for which these huge works were erected. Anxious to have the opinion of the highest authority upon these questions, I submitted the entire of the remains for inspection to Dr Allen Thomson, Professor of Anatomy in the University of Glasgow. After a careful examination of them, Dr Thomson has most kindly drawn up for me the following report. Before giving it, however, I may remark, for the sake of some who may not be conversant with this branch of archæology, and may feel surprise at the small length of the cists, that these were not used for sepulture in the manner practised in later ages. They were not intended as depositories of the body in an extended position. When cremation and the urn were not

employed, the body was interred in a contracted position, so that there was ample room in cists of the dimensions already given. In such cists, the body has been laid on its side in a bent position, the limbs being also bent; and sometimes in a sitting posture, with the arms used in battle lying on either side, ready to be grasped again when the dry bones should be clothed with muscle, and the reanimated body should start into new life. (See *Wilson's Archæology of Scotland.*)

The following is Dr Thomson's report:—

“ I regret that my report upon the bones submitted to me must be very imperfect, from the fragmentary nature and extreme fragility, owing to decomposition, of all of them, and even the considerable alteration of form which some of them have undergone.

“ They consist chiefly of the following parts, which I number for the sake of reference in my subsequent remarks:—

“ 1. The greater part of the cranium of a human skull, with various small detached fragments of the same.

“ 2. A part of the upper jaw, most probably belonging to the same skull, containing two molar teeth in their places, and a number of detached human teeth, which, with those contained in the fragment of jaw, form nearly a complete set.

“ 3. Some portions of ribs.

“ 4. The shaft-parts of two long bones, probably human thigh bones.

“ 5. The shaft-part of another long bone, probably that of an animal; not determined with certainty.

“ 6. Two small portions of the lower jaw of a carnivorous animal.

“ 1. *Human skull.*—The cranial portion of skull, supposing the fragment of upper jaw and the separate teeth to belong to it, may be that of a young person, probably under twenty-two years of age, either of a young man of rather slender stature, or of a female. It is of the brachycephalic form, broad across the parietal protuberances, and proportionally narrow, but yet of fair dimensions across the frontal part, and resembling much in form the cranium described by Prof. Wilson (*Archæology of Scotland*, p. 170), as having been found in 1833, in a stone cist below the foundations of the old steeple of Montrose. The subjoined outline sketch, with some measurements, may give a sufficient idea of its general form and dimensions (see Plate XVII.) It must be mentioned, however, that

the greater part of the occipital bone, and middle part of the sphenoid and temporal bones, were entirely wanting, and that the remaining parts of the basis were much broken and decayed, the deficiency being greatest on the right side, that not represented in the profile sketch. Both mastoid processes were broken away, and on the right side the molar and temporal bones entirely lost, so as to prevent me from giving some of the usual measurements.

"Near the parietal protuberances, more especially on the left side, the decomposition of the bone had brought out the appearance of radiation of bony spicula from the protuberance, which belongs to an earlier period of life in the natural state of the bones.

"The following are the measurements of the skull :—

"Greatest antero-posterior diameter, 7"; greatest transverse diameter, 5·7"; greatest transverse diameter 2" behind line of forehead, 4·65"; greatest horizontal circumference, 20·4"; arch over the top of the head from root of the nose to the supposed places of the occipital protuberance, 11·75"¹; distance from meatus auditorius ext. to vertex of head, 4"; distance from meatus auditorius ext. to root of nose, 4·1".

"2. *Teeth*.—The teeth, including those in the fragment of upper jaw, form nearly a complete set of the teeth belonging to a youthful person arrived nearly at maturity. Only the incisors and the anterior true molars presented obvious marks of the crowns having been worn down by use; the canines showed very slight indications of wearing, and the bicuspid and middle molars scarcely any. In most of these teeth, the enamel, though extremely brittle, was entire; but the bone or dentine part, though still entire in most of them, was so fragile, that it was liable to crumble into powder or small fragments, unless handled in a very delicate manner. This part of the tooth was also of a dark brown colour, as if it had been partially charred. In the posterior molars (or wisdom-teeth), what remained of the osseous body of the teeth crumbled entirely away under handling, so as to leave only the shells of enamel; but what remained of the bony core, when I first received the specimens, led me to believe they were half grown, as they projected about a quarter of an

¹ Length of frontal arch, or bone, from nasal to coronal sutures, 4, $\frac{3}{8}$ inches; length of parietal arch to lambdoidal suture, 5 inches.—*Ed.*

inch beyond the bottom of the enamel, and that they had therefore either passed through the gum or were about to do so.

“ There are wanting to complete the set of teeth—one upper and one lower canine, two middle lower incisor, one anterior and two posterior lower molar teeth.

“ 3. *Ribs*.—Some of the smaller fragments of bone, of the form of ribs, might pass for those of a human skeleton; two of the largest, however, three or four inches in length, presented a thick median ridge on the concave surface, which caused them to resemble rather the ribs of an aquatic mammal or some other animal. At the same time it is right to remark, that as the disintegration or splitting up of the bones had produced a considerable swelling in some portions, it is possible that, notwithstanding the ridge mentioned, they may have been human bones.

“ 4. *Long Bones*.—Two subcylindrical portions of long bones may most probably be the shaft-portions of two human thigh-bones, such as would correspond with the other parts of the skeleton to which I conjecture the skull must have belonged. They are between 10 and 11 inches long, much loosened in texture from decay, especially towards the ends, about an inch in diameter at the middle and thicker towards the ends. One of them, however, is smaller than the other, somewhat flattened in the middle and tapering at one end, but still bearing such a resemblance to the other long bone, that we may suppose these changes of form to have been the effect of interstitial loss of substance from decomposition.

“ 5. *Undetermined Long Bone*.—The third fragment of a long bone, about $7\frac{1}{2}$ inches in length, $1\frac{1}{2}$ inch in diameter at the larger end, and tapering to $\frac{3}{4}$ ths of an inch at the other, I am still at a loss to determine. Allowing for a considerable change of form, from the causes already referred to, it might possibly be a human tibia; but I must confess that I do not think this view the most probable; and from the distinctness of the grooves and ridges still remaining on one side, I think it must be one of the bones of the lower limb of an animal, and most probably a carnivorous animal. Dr Cleland suggests the tibia of a seal, and I acknowledge that it shows some analogy to that bone of a seal of large size; but a closer examination and comparison are necessary for the more accurate determination of the nature of this fragment.

“ 6. *Portions of Animal's Under Jaw.*—I am also unwilling at present to express a very decided opinion with respect to the two fragments of an animal's under jaw. They consist of a part of the alveolar ridge and body of the lower jaw, including the base, belonging to that part which lies between the canine and the true molar teeth. One of the fragments is about $1\frac{1}{2}$ inch long, the other nearly 1 inch. Both are about the same depth, viz., $\frac{3}{4}$ ths to 1 inch, and they seem to belong to the opposite sides of the same jaw. They contain, implanted in the alveolar ridge, the remains of the roots of teeth, in one five, and in the other three, all of which, with one exception, would correspond to the pairs of fangs belonging to the premolar teeth of a dog or possibly of a seal. The fifth root, implanted in the edge of the largest fragment, resembles most (so far as I have yet been able to ascertain) the front root of the anterior true molar of a dog of moderate size. The whole of the fangs are too much altered by decomposition (being split up into fibres to a considerable extent) to enable me to form any decided conclusion from the teeth themselves.”

It being Dr Thomson's wish that the doubtful bones should be examined by a comparative anatomist in Edinburgh, recourse was had to the highest authority in that city, Professor Goodsir of the Edinburgh University. He has very kindly taken this trouble, and the bones have also been seen by Dr Struthers and Mr Turner. They are all of opinion that the long bones (No. 5) are portions of deer's horns; but they can pronounce no opinion on the portions of animal's under jaw (No. 6), on account of the fragments being so small, and so much decayed.

The black earth of the urns has been examined for me by Dr Thomas Anderson, Professor of Chemistry in the University of Glasgow. He has most kindly supplied the following report on the subject:—

“ I have examined the dust from the Arran urns, and find it to contain a large number of fragments of bone, most of them extremely minute. When these are separated the residue has all the characters of an ordinary soil, and contains a number of small pebbles and much sand, but no trace of animal matter. The bones, after separating the earthy matter as completely as possible by carefully scraping the surface, had the following composition:—

“ Water,	2·62
Organic matter,	3·57
Phosphates,	84·11
Carbonate of lime,	3·41
Siliceous matter,	6·29
	<hr/>
	100·00

“ A careful experiment showed the entire absence of nitrogen, and this is important, because it proves that the small quantity of organic matter found was not of animal origin; and I believe it to be due to a little soil which could not be separated from the bones, and to which also the siliceous matter obtained in the analysis belongs. From the analysis above given, I think there can be little doubt that the bones have been burned, and that the earthy matter found in the urns was merely part of the soil introduced along with them, when they were gathered from the spot in which the ceremony of incineration was performed.

“ I am not aware that any attention has been directed to the nature of the urns found in ancient burial places, and the mode in which they were made; but it is clear, from a short examination I have made of the fragments now sent, that the process must have been very different from that used by modern potters. The clay has not been brought into a uniform plastic mass, but looks as if it had been in the form of a number of small pellets attached to one another, and among these are numerous small stones,—not pebbles, but angular fragments of sandstone and of a hard siliceous rock. These have probably been used to prevent the urn cracking during the process of drying and burning. The latter process has unquestionably been performed with great caution, and continued only for a short time, for the external surface only is burned, and the interior appears scarcely to have been heated, for it still contains upwards of 7 per cent. of the water of combination of the clay, which would have been expelled had the urn been strongly heated throughout.”

It has been stated in this paper that the urn was probably sun-dried; but it will be seen by the above report that it has been subjected to artificial heat, though in a slight degree. Dr Anderson grounds this conclusion on the red colour of the surface produced by peroxidation of the iron; and the opinion of so distinguished a chemist is of course decisive.

General Remarks.

Before concluding this account of the excavations, I shall briefly recapitulate the results, and state the inferences which seem legitimately deducible from them.

1. Whatever may have been the state of civilisation among the constructors of these works, a certain sense of harmony or fitness, of the congruity of things, must have existed in their minds; for though there are so many circles in close proximity, there is no mixture of dissimilar stones; they are either all of sandstone, or all of granite.

2. They must have been capable of using mechanical appliances of great power; since such were needed for the transport and erection of the huge pillared stones, and even of the granite boulders, though these are of smaller weight and of less distant origin.

3. Archæologists generally subdivide the prehistoric period in our islands into the stone and bronze periods. If this classification be correct, and if it be conceded that there is human progress in every period, then the use of rude flint implements, and of implements of bronze, ought to be separated by a wide interval of time; and only flint implements of the most perfect forms, if any, ought to be found associated with those of bronze. But in the present case the flint implements, though of the rudest forms, are associated with an article of bronze. It seems to follow that the received classification ought to be modified;—that, in fact, flint and bronze have co-existed, have been in use together, and that at least, on the view most favourable to the theory, the two periods have deeply interlaced with one another; probably more deeply in an isolated situation such as Arran, than on the adjoining continent of Britain, where improvements in processes of art would spread more rapidly. It is highly desirable that instances of such association should be multiplied, as by them the theory must stand or fall.

4. All the cists have their greatest length between N. and N.N.E.; and their construction may therefore be inferred to have been anterior to the earlier Christian times in this country, when a superstitious regard began to be cherished for a direction pointing east. I have given the direction in all cases by allowing for the present amount of Variation, 24°; and it certainly seems strange that the directions should so agree

towards a north point—they lie roughly N. and S., being all a little E. of N. We cannot, however, refer this to any past configuration of the heavenly bodies as affected by precession—to speak of a past amount of variation would of course be absurd, while the direction has clearly no sort of reference to the inclination of the surface of the ground. Shall we rather say, then, that the direction was roughly taken north and south, that it had reference to the mid-day sun, or to a native home of the race, to which the constructors belonged, amid the wilds of the north?

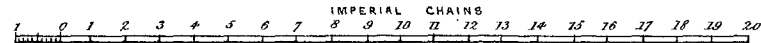
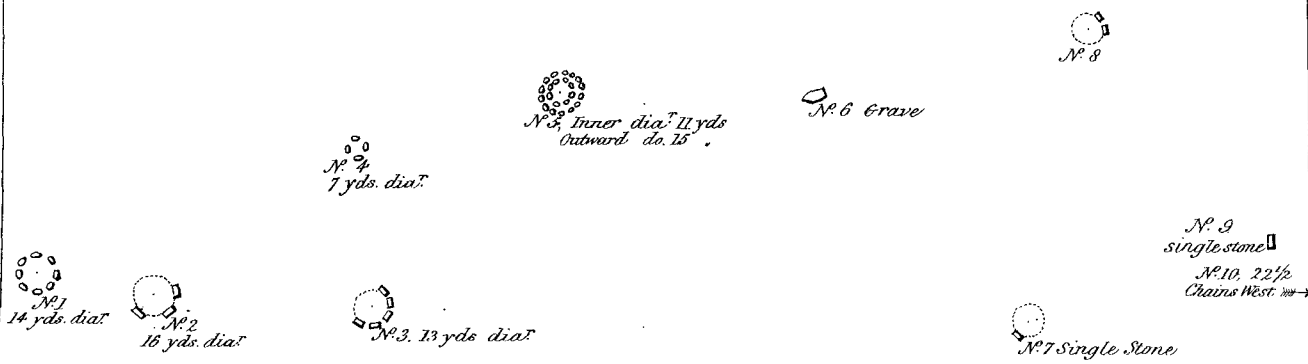
5. The skull and bones do not furnish us with information of a very definite kind; and the absence of the rest of the skeleton is not easily accounted for. There was no trace on the floor of the cist of such an amount of matter as the decomposition of the other bones would have left; but it is conceivable that, if once decomposed, the matter may have been removed or absorbed by the soil through the floor or spaces between the stones, during successive floodings of the cist with water from the soil above. The skull is of the old British type, and so far is in favour of a high antiquity for these works; it seems to be that of a young female, or of a slender male just arrived at maturity; perhaps the “daughter of the tribe,” or the future chief, who, it was hoped, would one day lead in the field of battle and the chase. Had it belonged to an aged or powerful male, we should have had much stronger evidence for regarding the circumference of huge pillared stones as reared in honour of a great chief or warrior, as the most distinguished monument of the group.

6. When it is considered that the centre of each circle is marked by a cist, and that this arrangement exists in the case both of the pillared stones and of the granite circles, as well those conspicuous ones at Tormore as in the singular little cist with its encircling blocks at the summit level of the Lamlash Road, it seems natural to conclude that the circumference has been reared in all the cases in reference to the central cist; and hence that these stone circles were erected as places of ordinary sepulture. Their limited total area is no objection to this conclusion, as we know that the sites of many circles, which have existed to a late time, are not now to be found. The circles may have been applied later to other purposes, as places of worship, as scenes of “judicial combat,” or places of meeting on great public occasions; but they seem evidently to have been designed, in the first instance, by their constructors, as sepul-

chral monuments, marking off the sacred precincts where lay the ashes or the bones of the dead. Any other supposition seems unwarranted by the facts. The reasoning, it is true, might be reversed; it might be argued that the circles were reared for religious or judicial purposes, and afterwards adopted for sepulture, as venerated places. But it would of course be necessary to produce evidence of such an original purpose in the present case—whereas none exists. There is no reason to believe that the Druidical priests, or any rites of that worship, had at any time a footing in Scotland; and in fact the Druidical theory, in regard to such works in North Britain, has been long ago abandoned by archæologists. As regards England, Brittany, and other districts where remains considered to be truly Druidical exist, the soundness of the mode of reasoning just indicated would be tested by a careful examination inside the circles, on the plan described in the present paper. To what extent such examination may have been made, I have no means of knowing. Within Stonehenge a trial has, I believe, failed to discover any human remains. Such are, however, found abundantly in the barrows and other earth-works on the adjoining plain.

I consider, therefore, on the various grounds here set forth, that a strong case has been made out for regarding the Arran circles as originally constructed for places of sepulture.

URN, SKULL, FLINT FLAKES, & BRONZE PIN, FOUND IN STONE CIRCLES, TORMORE.



W. & A. E. JOHNSTON.

PLAN OF THE STONE CIRCLES ON MAUCHRIE MOOR, TORMORE, ISLAND OF ARRAN.