

Excavations at Broomend of Crichtie 2005-7: interim report

Richard Bradley and Amanda Clarke

Introduction

History has not been kind to the monuments at Broomend of Crichtie which are located beside the River Don fourteen kilometres from Aberdeen. Today the remains of the site are on the southern edge of Port Elphinstone in between modern houses and a paper mill. Originally the prehistoric features were distributed along a gravel terrace, extending for about 500 metres from a conspicuous viewpoint overlooking the confluence of the Don and the Urie to what was described as a 'sand bank' commanding the valley to the south.

In the mid eighteenth century there were two stone circles here, joined to one another by an avenue of paired monoliths. The larger circle seems to have incorporated a cairn, whilst its neighbour was enclosed by the earthworks of a henge. The avenue extended across that enclosure following a path that ran parallel to the river. Early Bronze Age burials have been recorded at several points along its course. The avenue seems to have ended beside a cist cemetery associated with early Beaker pottery and an unusual horn ladle.

Little of this remains. The large stone monument, which may well have been a recumbent stone circle, was completely removed by quarrying. All but three stones of the avenue have disappeared, and the only traces of the cemetery are a series of cist slabs which were used to build a rustic seat beside a lake in the mill-owner's garden. The earthworks of the henge are still intact, although they are damaged by rabbits. In 1832 six components of the stone circle were recorded in a drawing, but only two remained when the site was excavated in 1855.

Like many monuments in the region, the henge was investigated by a local landowner, Charles Elphinstone Dalrymple. There are problems with his account for it was not published for another 29 years, by which time some details of the project seem to have been forgotten. He represents the henge as a perfectly circular monument, with two opposed entrances. There had been seven standing stones, six of them distributed at equal intervals around the perimeter and the other in the centre where it marked the position of a shaft grave. This was a cist burial on the base of an enormous circular hole up to five metres in diameter and three metres deep. It contained an inhumation and a cremation. In the filling of the pit was a considerable deposit of boulders, and more cremated bone was found near to the surface. Further cremation burials were at the foot of each of the monoliths. Some of these were apparently contained within small stone settings which Dalrymple describes as cists. These were of Early Bronze Age date and one of them included a stone battle axe. The only surviving pottery consists of Vase Urns of a type that owes something to the form of Collared Urns. Dalrymple planned to build a wall around the monument to protect it, but this never happened. On the other hand, he rescued a Pictish symbol stone that was threatened by the nearby quarry and erected it over the position of the central grave where it remains today. To judge from a drawing of the stone whilst it lay on the ground it must be deeply bedded in that pit.

Why has excavation resumed? There are three reasons for renewing work at Broomend of Crichton. The first is that knowledge of Scottish henges is unevenly distributed. There are classic sites at North Mains, Balfarg and Cairnpapple, but none has been excavated and published between Perth and Orkney. It is difficult to discuss the roles of these earthworks in northern Scotland when most of the excavated examples are so far to the south. That is a particular problem as so many henges have been identified from crop marks. Secondly, it is unusual to have the chance of investigating one of these monuments as part of a wider complex, however damaged. Lastly, this project represents the final stage in an investigation of the role of prehistoric architecture in the north and north east of Scotland which has already examined recumbent stone circles and Clava Cairns. It is important to establish the relationships between these different traditions, especially as the previous projects resulted in the reinterpretation of those classes of monument.

New light on the 1855 excavation

Work at Broomend of Crichton resumed in 2005, 150 years after the first excavation. Our first task was to understand Dalrymple's work on the site. This was no easy task for he says nothing about his excavation methods, nor is it clear how he identified the positions of the stones that had been removed. He seems to have examined most of the interior of the monument, digging a network of narrow trenches into the gravel subsoil. They focused on one of the remaining monoliths and the burial in the centre of the site, but he also dug pits beside the assumed positions of the standing stones. For safety reasons these were not fully excavated in 2005-6. If he disturbed most of the interior, he left the earthwork untouched. Since 1855 the henge has been waste ground, covered with bushes and even trees. The interior has been used for dumping rubbish and the tail of the bank has been truncated by the plough.

It is difficult to relate Dalrymple's schematic site plan to the outline of the monument, but fortunately he buried two bottles in the filling of his excavation and they may mark positions where he found prehistoric graves. The first was underneath a setting of stone slabs similar to those he describes covering Bronze Age burials, whilst the second was set into a layer of cremated bone on the bottom of a pit. Each bottle contained slivers of glass with the names of the people who had visited, or perhaps sponsored, the excavation, for the actual digging was done by workmen. The pieces of glass were wrapped in newspaper which has now been conserved. The bottles were placed in the ground nine days apart, on November 13 and 22, 1855. One included an account of Dalrymple's address to the total abstainers of the north east and was of a type that contained non-alcoholic drink. The other had held whisky, claret or beer and contained the timetable of the Great North of Scotland Railway in which Dalrymple had shares.

Apart from the central grave, his excavation located a number of cremation burials. Three Early Bronze Age urns survive, although a short account of the work published by his colleague Alexander Watt in 1865 suggests that there were originally nine. Little of the cremated bone was retained, and it seems to have been tipped straight back into the trench as each vessel was unearthed. As a result these cremations remained more or less intact and still include some artefacts that were overlooked in 1855.

Excavation in 2005-7

The second excavation took place in 2005-7 and has investigated the entire area enclosed by the earthwork and an area of 300 squares metres outside its southern entrance. Inside the enclosure the work was done entirely by hand. The project also investigated the area to its north extending as far as the nineteenth century quarry. This had been ploughed until relatively recently, and after test pits had shown that there no artefacts in this area, the topsoil was removed mechanically. The same procedure was followed to the south of the henge in 2007. The 2005 excavation sectioned the bank and ditch on the south-east side of the monument and, in 2006, it also examined the earthwork at the northern entrance. This work took in the ditch terminal, where the excavation was stepped for safety reasons, the end of the bank, and approximately 50% of the causeway. The site has been badly disturbed by rabbits, many of them exploiting the loose filling of the previous excavation. The northern entrance had also been affected by rabbit burrows. The central pit could not be investigated because it was covered by the symbol stone put there by Dalrymple, but the surface of this feature was cleaned and planned.

The henge monument

One feature is apparent from a new survey by the Scottish Royal Commission. The earthwork enclosure is much more irregular than the nineteenth century site plan suggests. To someone outside the monument it does appear circular and is 37 metres in diameter, but the interior is actually oval and measures about 16 metres by 21 metres. In fact the perimeter is disproportionately large. The ditch was over five metres wide and between two and three metres deep. It was accompanied by an external bank which must have been unusually high and narrow. At the north entrance, where the ditch terminal was deepest, that bank was only five metres wide. The ditch terminals are farthest apart at the northern entrance but the ends of the bank extended beyond them, leaving only a narrow gap through which people could enter the enclosure. The earthwork would have screened most of the interior of the monument from anyone outside it.

The ditch was of a single phase and cut steeply into the natural gravel. The bank was on the outside and consisted of a homogenous deposit of spoil. There is no evidence of any kind of revetment and the entrance is very narrow. It is clear that the entire earthwork was unstable and that the bank had collapsed soon after it had been built. The faces of the ditch had not experienced a significant period of erosion before much of the gravel fell in, carrying with it intact turves which had been cut from the original land surface. In contrast to other sites, there were no deposits of artefacts against the butt end of the ditch.

Two charcoal samples recovered from the surface of the primary silts have now been dated to the Early Neolithic period. This is much earlier than any henge and so these samples must be regarded as residual material which had originated on the old ground surface. That is supported by studies of the buried soil below the bank which seem to show a phase of cultivation some time before the monument was built. The base of the sequence was also associated with charcoal dated to the early fourth millennium BC. When the area was finally cleared for building the monument the ground seems to have been covered by light vegetation, especially bracken. The process began about 2000 BC, and charcoal on the ground surface buried by the bank provides a *terminus post quem* of approximately 1900 BC for its construction.

That would suggest that the earthwork was contemporary with the henge at North Mains, which also enclosed Early Bronze Age burials.

The stone setting

Dalrymple's plan shows the positions of seven standing stones, although it is not clear how they were identified, for only two remained in position at the time of his excavation. Six are represented in a drawing by John Skene which dates from 1832; he is generally considered to have been an accurate observer. Although some of the Victorian excavators may have remembered roughly where the monoliths had stood, the most likely clue is provided by concentrations of large granite flakes. They were recorded on a metre grid during the 2006 excavation. It seems as if the stones had been broken up using a sledgehammer. Flake scars can still be seen on the two monoliths which remain today.

Excavation in 2005-6 located the positions of four stone sockets, three of which were completely excavated whilst the remaining example was on the edge of the excavated area where the ground had been disturbed by rabbits. The sockets differ significantly from one another and include two vertical pits with a ramp and a filling of massive packing stones, as well as a shallow depression whose base had been compacted by the weight of the monolith. All four were associated with large flakes of granite, and the variations in the shapes and sizes of these features probably result from employing stones of quite different forms. Those with round or pointed bases had to be set deeply in the gravel; those with flat bottoms needed little support. The rubble used to pack the monoliths was of similar character to that associated with the burials. Curiously enough, parts of two missing monoliths were actually identified in a layer of rubble piled up against the tail of the bank. One group of fragments refitted to produce a complete monolith with a rounded base which would have stood two metres high. The other was incomplete and represented by two pieces that could be reunited. Their position outside the northern entrance suggests that they had formed part of the avenue joining the two stone circles.

The new excavation suggests that the stone setting was not the perfect circle that Dalrymple suggested, but an arc of monoliths spaced at roughly equal intervals, with two large portal stones to their north. The complete 'circle' seems to have been twelve metres in diameter. In plan it is strikingly similar to the nearby site of Tuack, which was enclosed by a shallow ditch. Again it was associated with Early Bronze Age burials. The layout of the stone setting at Broomend does not conform to the outline of the henge, and their entrances appear to be offset from one another by approximately five degrees. The monoliths that still survive strengthen that impression for they do not face the entrance of the enclosure. Where they have survived recent damage, their outer faces are directed further to the north-north-east.

Excavation outside the earthwork located another two stone sockets. One of these was deep and well preserved. It was associated with a deposit of rounded boulders which had evidently been employed as packing. This is on the axis of the avenue postulated by James Ritchie in 1920 and may have formed part of the alignment linking this monument to the large stone circle recorded in the eighteenth century. Ritchie's argument is credible for there is only one part of the quarry large enough to have contained a monument of that size. The socket is certainly on the course that

he suggests for the northern section of the avenue, and it conforms quite well to the positions of the monoliths at the entrance of the stone circle. That axis also seems to be reflected by a row of three small post holes excavated in 2006.

The other socket was badly disturbed by rabbit burrows but had clearly been recut. It was immediately outside the north entrance of the henge and contained a number of granite flakes. It seems have been in line with the extension of the avenue leading south from the henge monument. This idea is consistent with Ritchie's reconstruction and was confirmed by the discovery of a further stone socket in the 2007 excavation. The two rows of monoliths appear to have been roughly six metres apart and the few that have been located all seem to have positioned at multiples of approximately fifteen metres. Again that is broadly consistent with James Ritchie's reconstruction.

Cremation burials

Dalrymple claimed that there were cremation burials at the foot of each of the monoliths in the stone circle. All of them were located on the inside of the enclosure. This is supported by the work carried out in 2005-6. Without exception the finds of cremated bone were within the area contained by the monoliths, and the same is true of every find of pottery. There were no artefacts or cremated bone in the area in between the stone setting and the ditch, nor were any associated with the earthwork of the henge.

The remains of four urned cremations were identified in the recent fieldwork, one of them in a shallow pit which had been disturbed by Dalrymple's workmen who had broken a Collared Urn and left it behind. It had been buried close to the position of a monolith. Another cremation was associated with an intact vessel of the same type found inverted on the base of a cylindrical pit which had a deposit of charcoal in its filling. This material included small fragments of burnt bone suggesting that it had been gathered from the pyre.

Two further cremations were found with inverted Vase Urns similar to those recovered in 1855. Again both were buried in deep pits beside the position of one of the standing stones. One vessel rested on a thin granite slab and contained the cremation of a child, whilst the other, which included an unusual stone shroud fitting, was beneath an enormous glacial boulder. Outside the rim of this vessel was a series of small pebbles of a variety of different lithologies which must have been introduced to the site. In the case the burial was that of a young woman. Again very similar deposits are noted in Dalrymple's report.

A particularly distinctive cremation pit was identified during the 2005 season, but its identification poses rather more problems. This was a large oval feature, which cut through the edge of one of the stone sockets and had been lined with rounded boulders. This had obviously been excavated before, as the filling included an upright bottle containing fragments of window glass with the names of Dalrymple and three of his colleagues plus the date of the excavation. It was set into a layer of cremated bone, but it is clear that this had not been the only burial on this part of the site. Dalrymple's report records the finding of an urn in what was almost certainly this feature, yet an account by his colleague Alexander Watt, one of the people named on the glass, refers to the discovery of no fewer than five urns on the same day.

Another kind of burial was found in 2006. It consists of several concentrations of cremated bone and charcoal in the filling of Dalrymple's excavation. Among them are Early Bronze Age sherds, a bone pin and two flint arrowheads. One of the arrowheads was of the Ballyclare type which is most common in Ireland during the Early Bronze Age. Similar material was found in the hole that he dug at the foot of one of the surviving monoliths. It should represent the remains of the grave that was originally associated with the battle axe. It was this material that included a burnt flint arrowhead and a bone pin. Excavation of the urns recovered in 2005 showed that their contents were held together by a mass of roots. If this had been true of the cremations excavated 150 years ago, it might explain why they occurred in such well defined clusters within the redeposited soil.

The shaft grave in the centre of the monument presents even more of a problem, as it could not be re-excavated, although the surface of Dalrymple's backfill contained a broken cist slab and a sherd of Food Vessel. This kind of burial is certainly characteristic of the Early Bronze Age, but its position within the monument raises questions. Skene's drawing shows that its position had been marked by the tallest monolith on the site but it is offset from the centre of the stone setting. Instead this feature is located in the middle of the henge, midway between the entrances. If the earthwork had acted a screen, concealing the interior of the site, the standing stone would have blocked the view along the axis of the monument.

Finally, the clusters of cremation burials also included some entirely empty pits of a suitable size to have contained a child or animal burial. These features did not produce any artefacts, but the possibility that they once contained unburnt bones is being explored by phosphate analysis.

Post holes within the henge monument

One other group of features was excavated in 2006 and may have important implications for the interpretation of the monument. This was a series of large post holes which extend between the entrances of the henge. They were exceptionally deep and normally occurred in pairs, one replacing the other. These features are confined to the eastern half of the enclosure. One pair of post holes is directly associated with the tail of the bank at the northern entrance. These features are so similar to one another that it is tempting to treat them together, in which case they seem to represent a row of posts extending down the long axis of the henge, but curving around the position of the central shaft grave. In that case they may be supplemented by a shallow slot, which had probably contained uprights linking the ditch terminal in the northern entrance to one of the surviving monoliths.

Post holes and other features outside the south entrance

In 2007, an area of 300 square metres was stripped mechanically outside the south entrance to the henge. This was set back from the tail of the bank, as excavation in 2005 had shown that it had been significantly reduced by cultivation. The main aim of the work was to record any remaining traces of the south avenue, of which only three monoliths now remain. One stone socket with a packing of large rounded boulders was identified on the line suggested by Ritchie in 1920. This would have formed part of the east side of the avenue. No trace was found of corresponding

socket to the west, perhaps because the socket was flat bottomed and did not need to be set in the natural gravel. That was certainly true of the isolated monolith in the same field that escaped destruction when the land was cleared in the nineteenth century.

The excavated area did not produce any signs of burials associated with the stones of the avenue; the only artefact was a flint flake from the modern ploughsoil. On the other hand, a ring of substantial post pits was identified on the long axis of the henge. The posts had rotted in situ and formed a perfect circle nine metres in diameter; a few of the timbers were replaced by smaller uprights. After all the posts had decayed, the hollows left by their sockets filled with charcoal-rich sediments. In the absence of artefacts, it will be necessary to date this building by radiocarbon, but it seems too substantial to be compared with the remains of round houses in this region of Scotland.

Further to the south were scattered post holes of various dimensions. They are unlikely to belong to a single structure. There was also a pit which did not contain any artefacts.

Discussion

How were these different elements related to one another? At present the structural sequence at Broomend of Crichton can only be presented as a series of hypotheses, but they are based on certain key observations:

- The earthwork of the henge has a different orientation from the stone setting inside it. Its entrance may also cut across the line of the avenue linking that monument to a recumbent stone circle which once existed to the north-north-east. In the same way, the southern section of the avenue is partly cut by the earthwork of the henge.
- All the finds of artefacts and cremated bone are associated with the stone setting and none is directly associated with the structural features of the henge or with the timber structure found outside it.
- The shaft grave excavated by Dalrymple is offset from the centre of the stone setting, but is located in the middle of the henge, on the axis leading between its entrances
- The henge seems to have been associated with a line of massive posts leading between the entrances and extending around the eastern edge of the shaft grave. Again this is quite distinct from the orientation of the stone setting.
- The timber setting outside the southern entrance is located on the long axis of the henge monument. Its position does not seem to respect that of the internal stone setting and impinges on the course of the southern avenue.

On that basis it is possible to suggest the sequence of development at Broomend of Crichtie, although these ideas will need to be tested during post-excavation analysis.

1. The earliest features may have been a recumbent stone circle, now destroyed, and the Beaker cist cemetery. These were located at opposite ends of the gravel terrace and remain little understood. The recumbent stone circle, however, had an avenue extending towards the south-south-west which may have led to the stone setting excavated in 2005-6. It is not clear when this was built, but all the intact burials were within the area enclosed by the monoliths and are of Early Bronze Age date. One of the burial pits had been dug through the socket of one of a standing stone. A few Beaker sherds were found during the excavation but they were effectively unstratified. Despite the early radiocarbon dates, there are no Neolithic artefacts from Broomend of Crichtie.

2. The henge monument does not conform to the layout of the stone circle. Nor does it respect the course of the southern section of the avenue which may possibly have been added on to the original stone setting. The building of the henge seems to have established a new alignment for the site. The earthwork was a massive construction which would have almost concealed the interior of the monument. At least one of the entrances was very narrow and the entire monument was unstable. The bank seems to have collapsed into the ditch soon after it was constructed and nothing was done to rebuild it. It seems possible that the earthwork was built for use on one particular occasion, after which it was allowed to decay. On the other hand, the building of the ditch and bank cannot have 'closed' the monument, for each of the post holes associated with the new alignment had been replaced. The enclosure must have remained in use long enough for this to have happened.

3. If there was one event which demanded this extraordinary investment of labour, it was surely the deposition of the central burial. The shaft grave was excavated three metres into the natural gravel - the same depth as the deepest section of the ditch - and it was located at the centre of the henge. Its position did not conform to the layout of the stone setting. The line of posts extending across the monument seems to respect this burial and might even have guided spectators around an open grave. The density of gravel in the subsoil to the west of this feature suggests that the excavated material had been dumped there. The north entrance of the henge is so narrow that people would have moved through the enclosure in single file. When the funeral ceremonies were concluded, the shaft was refilled. According to Skene's drawing, its position was marked by the tallest monolith on the site. It would have blocked the view between the entrances of the monument. The replacement of the posts in the interior suggests that people continued to file past the grave for some time after this had happened.

4. The earthwork of the henge was not built until the Early Bronze Age. Thus it is likely to have been constructed some time after the recumbent stone circle that may have existed to its north. Radiocarbon dating suggests that its construction took place during the same period as the cremation burials at the foot of the stones. At present that argument depends on the identification of the associated artefacts, but it will be checked by radiocarbon dating.

5. The timber circle outside the southern entrance remains undated, although charcoal samples are being submitted for analysis. It is located on the axis of the henge. This is unlikely to be a coincidence. Either it was visible when the earthwork was built, or the two monuments were contemporary with one another. Alternatively, it might have been constructed during the later prehistoric period and could have referred back to the visible remains of the older monument. There are precedents for this arrangement at other sites in Scotland. At all events its position impinges on the line of the avenue and the two features are unlikely to have been in use together.

The excavation at Broomend of Crichton is now concluded, and these ideas, and others, will be explored as the results are prepared for publication.

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Figure 1. Plan of the 2005-7 excavation, showing the excavated features.

