

Balnuaran of Clava: Field survey, documentary
research and sample excavation 1995-6

John,
with best wishes
and thanks,
Richard

Introduction

This report summarises recent fieldwork and documentary research based on Balnuaran of Clava and undertaken alongside the two seasons of research excavation which form the subject of a separate report. It covers four different elements: a period of documentary research concerned with early records of the monuments within the guardianship enclosure; detailed recording of the standing structures; a programme of survey designed to identify the full extent of the megalithic cemetery at Clava; and a campaign of systematic fieldwalking intended to interpret the monuments in the surrounding area in relation to the Neolithic pattern of settlement. The work at Balnuaran of Clava was funded by Historic Scotland, whilst the main costs of field survey were met by Reading University.

This report is in three sections. First, it summarises the results of fieldwork designed to establish the extent of the megalithic cemetery, the position of the 'lost' monuments within its area and their likely character. This work also involved the small scale excavation of what proved to be a ring cairn south-east of the guardianship enclosure. Secondly, it reviews our understanding of the well preserved monuments currently accessible to the public in the light of documentary research and detailed recording of the standing structures. Lastly, it summarises the results of field survey undertaken between Strathnairn and the Moray Firth and reflects on their wider implications.

1. Work outside the guardianship enclosure, Easter 1996

The 1996 season provided an opportunity to extend our research beyond the guardianship enclosure, which had been surveyed in 1994, in order to ascertain the likely extent of the cemetery of which the well preserved monuments form a part. This involved the clearance of vegetation and geophysical survey as well as conventional recording of the above-ground monuments.

Two additional components of the cemetery were identified in the nineteenth century and appear in the literature as Mains of Clava North and South respectively. Mains of Clava South was claimed as a further ring cairn, but whilst Fraser's account of the monuments quotes its approximate dimensions, it had never been planned. Indeed, it is concealed by such thick vegetation that it is not clear that the monument has been visited since his day; that may be why it is incorrectly located by the Ordnance Survey. By contrast, Mains of Clava North consisted of an isolated monolith located in an area of pasture. Although it has always seemed possible that this formed part of a stone circle, no trace of such a monument has ever been observed.

The positions of two other monuments were also identified in the course of fieldwork at Clava. To the south-east of the guardianship enclosure is a circular earthwork interpreted for more than century as the remains of late prehistoric round house. This was surveyed in 1995 when it was concluded that it was more likely to be a ring cairn forming part of the cemetery. This interpretation was tested by small scale excavation during the 1996 field season. It was during the same campaign that yet another monument was observed as a low earthwork north-east of the main group of cairns. This was surveyed during 1996, when its relationship to a later field wall was established by excavation.

The areas of dense undergrowth in between the monuments at Clava were searched systematically for further features but none was found, although it is unlikely that very slight earthworks would be identified under such difficult conditions. A series

of one metre square test pits were also excavated on the terrace between the monuments and the River Nairn. These established that the entire area was covered by a deposit of alluvium. Any archaeological material might be deeply buried. It seems more likely, however, that it has been dispersed by the catastrophic floods that are recorded in this area.

Mains of Clava South was indeed a ring cairn, as Fraser had inferred, and the dimensions quoted in his report agree well with the results of our field survey. The site consist of a low bank of rubble 19 m in diameter, bounded on the inside by two arcs of upright stones, some of which are now leaning. Those to the south are more substantial than the rest. They probably represent the remains of the inner kerb of the monument. The surviving cairn is roughly concentric with this setting but no trace of an outer kerb survives, nor are there any signs of a stone circle enclosing the monument. Towards the modern road, the material of the cairn seems to have been robbed completely. This may have happened when the ground was enclosed during the last century. This monument is rather smaller than its counterpart in the guardianship area but is closer in proportions to a second ring cairn identified on the southern flank of the cemetery.

The only visible feature of Mains of Clava North was a substantial upright which might once have formed part of a stone circle. For that reason an area extending for 30 m around the monolith was investigated by resistivity survey. Although the natural geology provided a very variable response, only one feature of archaeological interest was revealed. This was a distinct arc of rather low resistance up to five metres wide enclosing an peak of much higher values. The standing stone was just beyond the limits of this zone. The most likely interpretation is that this marked the position of a levelled cairn approximately 20 metres in diameter. This compares quite closely with the dimensions of the two passage graves in the guardianship enclosure. One way of interpreting these results would be to suggest that the major anomaly marks the position of a substantial core cairn and that the halo of lower values is caused by smaller rubble forming a platform against the flanks of the monument. Again the same arrangement is found at Balnuaran of Clava. These results also confirm the farmer's observation that this part of the site was marked by a circular area of rubble after ploughing.

The position of the monolith is also revealing for it lies to the south-south-west of the anomaly identified by resistivity survey. This is a substantial stone and its dimensions compare with some of the taller uprights found in the guardianship enclosure. This may be significant since the stone circles which surround the Clava Cairns tend to be graded in height so that the tallest uprights are generally found to the south-west. The monolith at Mains of Clava North is about 17.5 m from the likely centre of the associated cairn. The corresponding figure for the north-east passage grave at Balnuaran of Clava is 18 m.

A third monument was identified at the south-western limit of the same field. This was first recognised because the nineteenth century wall appeared to have been built over a low earthwork some fourteen metres across. This rose only 40 cm above the surrounding area, but its remarkably even profile suggested the former existence of a mound extending into the field where it had been destroyed by cultivation. This could not be confirmed by geophysical methods, but contour survey in the dense vegetation on the opposite side of the wall revealed clear traces of such an earthwork. Its relationship to the wall was investigated by small scale excavation, which confirmed that the field boundary had been built on top of this feature. The material of the mound was badly disturbed by roots but apparently consisted of redeposited topsoil like that used in the core cairn of the north-east passage grave at Balnuaran of Clava. It is impossible to offer any reconstruction of this mound. It may have been a freestanding barrow like the nearby example at Milton of Clava, or it could originally have been associated with a stone structure. It is certainly true that

where it crosses this earthwork the field wall contains a number of pieces of rock of exceptional size.

The fourth monument was to the south-east of the guardianship enclosure in another patch of undergrowth. This was an almost circular rubble bank up to 18 m in diameter identified in the nineteenth century as the remains of a round house. There were obvious problems with this interpretation. It was built on the edge of a natural spur extending southwards from the gravel terrace on which the other monuments were located. As a result it was raised well above the surrounding area. This would have made access difficult, and in any case there was no sign of an entrance. The earthwork was surveyed in 1995 and in 1996 it was investigated by a single trench, 2 m wide, cutting through the earthwork and extending into the interior. Since the object of the exercise was to characterise this monument and not to investigate it on a large scale, the trench avoided the centre of the enclosure where a burial might have been found.

Despite a considerable amount of superficial damage caused by stone clearance and grazing animals, the monument proved to be unexpectedly well preserved. It seems to have been constructed in two phases. In the first phase it consisted of a bank of rubble between one and two metres wide, revetted on the outside by a kerb of substantial boulders. Two of these remained in situ, and two others had been displaced by tree roots. It is not clear whether the bank had also been revetted on the inside; although there were a number of larger stones in the appropriate area, none of these was still in situ. The bank of rubble overlay a buried soil with pieces of charcoal on the surface.

In a second phase it seems as if the interior of the monument was dug out. The resulting material was piled up against the outer kerb of the monument, where it sealed a substantial deposit of charcoal. This external ramp also included a number of flat sandstone slabs which did not occur elsewhere on the site. They recall similar deposits placed against the external kerbs of all the recently excavated monuments in the guardianship enclosure. Again part of this deposit had been disturbed by tree roots, but it did include some small fragments of cremated bone. Flakes of worked quartz were also scattered over the excavated part of the monument. The old land surfaces associated with each phase of this structure are being studied for pollen and soil micromorphology.

Despite the small scale of this work, there seems no doubt that this was a ring cairn rather than a round house. Like the other monuments at Clava, its structure incorporated a number of flat sandstone slabs, most probably quarried on the banks of the Nairn. Like those monuments too, it was associated with cremated bone and worked quartz. This ring cairn is smaller than its counterpart in the guardianship enclosure and there is no indication whether it was originally enclosed by a stone circle; excavations elsewhere at Clava suggest that this might have left no trace. The outer kerb of this ring cairn is surprisingly insubstantial, but there may be particular reasons for this observation. The cairn was sited on the very edge of a natural bluff, so that the size of the kerb is augmented by the natural topography. Moreover that kerb was examined on the east side of the monument. If this were a classic Clava ring cairn we might expect the largest kerbstones to be found towards the south-west.

The results of these surveys suggest that this cemetery originally contained at least eight monuments, including two or three passage graves and three ring cairns, as well as the small kerb cairn excavated by Stuart Piggott. The character of the earthen mound remains in doubt, but it almost certainly belongs to this cemetery as it is directly in line with three of the other monuments: Mains of Clava North, the north-east passage grave at Balnuaran and the central ring cairn. Taken together, these eight mounds or cairns seem to form two distinct axes, converging on the

south-west passage grave which is aligned on the midwinter sunset. Both rows of monuments follow the course of the gravel terrace, but they also echo the south-westerly orientation of the individual cairns, a point which is clearly emphasised by the grading of the monoliths and kerbstones. Having said that, it is also true that the major alignment runs along the centre of that terrace and contains the largest monuments. By contrast, the kerb cairn and the smaller ring cairns occupy a more peripheral location. In the case of the two ring cairns their position is enhanced by the terrace edge. It cannot be shown that either of these monuments was originally enclosed by a stone circle. It is interesting that the only other cemetery of this type is found a short distance away at Milton of Clava.

2. Documentary research and recording of the standing structures

Our on-site survey was integrally linked with a programme of documentary research on the surviving records of earlier fieldwork carried out at Balnuaran of Clava, the most informative of which have proved to be the large scale plans compiled by Fraser in 1883, now in the Highland Regional Archive, and those of Somerville (1910) which were recently discovered in the Museum of Mankind in London; Fraser's surveys are especially important for they show which of the monoliths were re-erected during the last century and the positions in which they had originally been lying. As with the more fragmentary records of other work, these detailed plans only make sense in relation to a new analysis of the standing structures at Clava. The latter concerned the north-east and south-west passage graves and the central ring cairn, but did not take in the damaged kerb cairn on the site where no new information was available. In the account that follows information from each of these sources is combined.

On site-recording involved the detailed planning of these three cairns. The kerbs and rings of monoliths were recorded as continuous elevations and in the case of the north-east and south-west cairns this approach extended to the central chambers, including the stonework of the corbels and the entrance passages. Those chambers were also recorded by a series of measured profiles. In addition, we drew the profiles of all the surviving kerbstones. The elevation drawings documented the position and character of any decorative motifs and the extent and character of the lichen on the surface of the stones. At the same time we recorded the original colour of these stones, their geological origin and whether or not they had been quarried; in doing this we were guided by Elspeth Reid of Inverness College. We also recorded the colour of the glacial boulders on the surface of both the passage graves. In addition to our own records, the Scottish Royal Commission have photographed the eroded cup and ring carving in the south-west cairn and have taken vertical photographs of the monuments.

The central ring cairn is the most damaged of these monuments, although we are now able to say more about the history of investigation on this site. The successive plans, which extend from the mid nineteenth century to the present day, document the piecemeal clearance of the stones, but they also allow us to 'date' an otherwise unrecorded excavation in the centre of the monument. This involved the clearance of the rubble which had once filled the interior and the burial of the original structure of the ring cairn beneath a layer of upcast. Documentary research shows that the monument still retained its filling when Somerville planned it in 1910. This had been removed by the time of Kathleen Kennedy's work twenty years later. This is important because it shows when the full extent of the inner kerb was first revealed. This also provides a fixed point in 'calibrating' the growth of lichen on the stones at Clava (this is discussed in detail later in the report). Somerville's plan indicates what he considered to be an entrance to the monument, but this must be treated with some reserve as he supposed that this would have been another passage grave comparable to the north-east and south-west cairns. In fact the 'entrance passage'

indicated in his site drawing seems to extend for some distance into the filling of the central area. The early plans also support the impression formed during the 1994 excavation that a low monolith has been added to the stone circle in recent times. This is now bedded in concrete!

The 1996 survey confirmed the position of an additional monolith of the stone circle, which had broken off at ground level. This was first recognised during the 1995 field season. It also shed further light on the character of the additional ray recorded in 1994. More important, it suggested further relationships between the components of the inner and outer kerbs and the creation of the stone circle which encloses the entire monument. Excavation had already suggested a link between one of the monoliths and a stone of very similar lithology in the inner kerb, to which it was linked by one of the rays. This can now be shown to have happened with two of the other rays on the site, reinforcing the argument that the ring cairn is a single phase monument. In other cases there may be close links between individual monoliths and stones in the outer kerb. This may apply to the isolated upright excavated in 1994 and the nearest kerbstone, and the same relationship is found on the north-east side of the monument. Pairing of this kind may have been much more common, but it is only reasonable to infer it where the stones have distinctive and unusual features. This applies mainly to the fragments of red conglomerate or banded gneiss which occur quite infrequently on the site.

There is also some evidence for the organisation of the stones in relation to their sources, colour and shape. To the west the stone circle is characterised by a series of red sandstone slabs, which must have been quarried for the purpose. On the opposite side of the monument there is only one quarried slab but there are three glacial erratics, two of them of banded gneiss. The erratics that were selected were usually rather squat and pointed, whilst the largest quarried monoliths have flat tops.

The outer kerb uses stones from different geological sources, and the largest and the smallest both include quarried material, although the south-western sector may have included more of this than the remainder of the monument. These stones would originally have been coloured red, so that this pattern echoes the distinctive configuration of the stone circle in the same area. Similarly, the material employed in the north-eastern section of the outer kerb generally consisted of pointed erratics, which resemble the shape of some of the nearby monoliths. These kerbstones were usually more varied in colour and for the most part they reveal a striking alternation between three different kinds of rock: red conglomerate, grey banded gneiss and quartz which is either pink or white. In most cases it seems as if the pink or red stones were used to 'frame' the others. Exactly the same effect can be observed at the nearby kerb cairn.

There is less to say about the stones of the inner kerb, all of which were quarried slabs. To achieve any structural stability they must have been set in a bedding trench - a feature that was recognised in the 1970s during the excavation of the ring cairn at Newton of Petty. Apart from the links already mentioned, the shapes of two of these kerbstones echo those of the nearest components of the stone circle.

Early plans of the south-west cairn also reveal important features of the monument. Comparison of these surveys allows us to recognise the sequence in which different parts of the chamber, passage and kerb were cleared of rubble and this evidence is completely consistent with published accounts of this cairn. More important, they also reveal two structural elements that we can no longer observe today. The first is the distinctive flattening of the outer edge of the platform in front of the entrance to the monument. This is a feature of the early surveys of the site, and it seems as if this evidence was removed during the reconstruction of the cairn that took place in the 1930s. A related feature was observed during the 1996

survey, which showed that the kerb is also flattened in this area. Such evidence provides one indication that the south-west cairn may have possessed a forecourt.

The second striking feature is shown in Somerville's survey which depicts the stones of the passage extending out from the entrance to the monument. This would seem to indicate that the ramp was originally broken in this area and that the cairn was approached through some kind of 'porch'. In the absence of any photographic evidence, it is impossible to prove that this interpretation is correct, but there are strong reasons for supposing that this is the case. Somerville was an expert surveyor and his records in the Museum of Mankind show that he was keen to keep himself informed of the best available equipment. For this reason it seems unlikely that these stones were depicted in error. Nor were they at all important to his search for astronomical alignments, which was based on the orientations of the passages and would not have been affected by the existence of this additional feature. In fact there are obvious parallels for this arrangement at other Clava passage graves, notably Corrimony. Although it would be easy to suggest that Somerville was influenced by this knowledge, it is not clear that this feature was recognised until the time of Piggott's excavation at that site. It seems more reasonable to suppose that a stone 'porch' had been exposed at Clava at some stage between 1883 and 1910 and that the uprights had been removed by the time of Kennedy's work twenty years later; as we have seen, the ring cairn was damaged by unpublished work during the same period. The entrance to the south-west cairn has been so heavily restored that the removal of an extension to the passage would not be altogether surprising.

Apart from emphasising the way in which the kerb is flattened on either side of the entrance, the 1996 survey drew attention to a number of other features of this monument. The passage kinks slightly and also becomes wider as one moves between the entrance and the central chamber. At the same time, the height of the surviving orthostats shows that the lintels of the passage sloped down towards that chamber. The chamber itself was distinctly asymmetrical. It was more extensive to the north than it was to the south and its highest point seems to have been close to the back wall. As a result it appears to have sloped down towards its junction with the passage. It is at that point that we find the stone decorated with cups and rings.

The kerbstones were not seriously affected by the repairs carried out in the 1930s, but careful recording of their profiles confirmed an impression formed during the first season of excavation. These were never intended to be set upright in the ground. Rather, they leaned back into the body of a cairn at an angle of roughly eighty degrees. Kathleen Kennedy's records tell us which stones were reset, and these are among the only parts of the kerb to lack this characteristic.

Lastly, by combining the successive plans of this monument we could establish approximately when different parts of the structure were first exposed. This is important for it provides a maximum age for the lichens that have developed on individual stones. In combination with similar evidence from the central and north-east cairns, it is possible to estimate the approximate rate at which these have grown - this procedure is necessary because there is no calibration curve for Postglacial lichens in this part of Scotland. In 1996 the distinctive bands of lichen on the surfaces of the monuments were recorded in some detail, for they provide some indication of the extent to which deposits of earth or rubble have been removed over the years. In particular, this procedure allows us to estimate the depth to which the chambers and passages had once been filled and the height to which rubble had built up against the outer kerb. Since lichens grow steadily over time it is also possible to estimate very roughly how long particular surfaces have been exposed to the sun. On that basis we can suggest that the original filling of this passage grave was removed about 180 years ago. This agrees quite well with documentary evidence for excavation on the site early in the last century.

The 1996 survey paid considerable attention to the nature of the stones used in building this cairn. We were especially interested in four elements: the small boulders capping the cairn and the material employed in the chamber, the kerb and the outer stone circle. Again there were striking patterns in the sources and colours of these stones.

One of the most striking patterns is shown by the boulders that form the outer skin of the cairn. These may no longer be in their original positions, but it is reasonable to infer that when the monument was restored the material that had eroded from the cairn was replaced on the surface of the monument. No fewer than 2300 boulders were recorded, of which 31% were white or grey and no less than 69% were red. This does not seem to match the proportions in which stones of these different kinds occur in the glacial gravel on the site and contrasts sharply with comparable figures from the north-east passage grave where the equivalent figures are 50.5% and 49.5% respectively.

There is the same emphasis on red stones in the chamber, where a number of pieces of quarried sandstone seem to have been decorated with cup marks before they were incorporated in the monument; the same is true of one of the orthostats which form the lowest layer of the chamber. All these 'hidden' carvings face the passage, and opposite them is the one stone which is decorated with cups and rings. The importance of red sandstone slabs is only emphasised by what seem to be levelling courses which extend for considerable distances around the chamber walls. There are several of these and they seem to have been intended to compensate for the irregular nature of the erratic blocks that make up the main mass of the structure.

The importance of red sandstone slabs extends to the stone circle, all the components of which are likely to have been quarried close to the Nairn. Where these stones are undamaged, they appear to have been flat-topped. By contrast, only three of the kerbstones are likely to originate from the same source. In two cases these kerbstones appear to be paired with the nearest monolith. There is little to suggest that the colour of the stones was an important feature of the kerb, although it is clear that red stones tend to be found together in the same parts of the structure. Instead the main colouring of the monument was provided by the use of red sandstone in the ring of monoliths and by the concentration of red boulders on top of the cairn.

The north-east cairn has many features in common with this monument. The early records indicate the sequence in which different parts of the structure were cleared of rubble. They also provide an outline chronology for the development of lichen on the stones, with the result so that once again we can work out the amount of material that has been removed from the chamber, passage and outer kerb and devise an outline chronology for this activity. The north-east cairn has also been more extensively restored than its counterpart at Balnuaran of Clava and the documentary evidence allows us to establish which parts of the structure have kept their original form. This approach only emphasises the substantial similarity between the two passage graves on the site. Most of the observations made for the south-west cairn apply to this monument as well.

But there were some important differences. It is not clear that this cairn originally possessed a forecourt and in fact the kerb shows no sign of flattening on either side of the entrance; on the contrary, it projects slightly outwards on either side of this feature. Nor is there any documentary evidence for a 'porch' similar to that recorded on the south-west cairn: a conclusion only reinforced by the results of the 1995 excavation. A few points are important nonetheless. The small monolith beside the entrance to this tomb is certainly spurious; in fact it is bedded in the filling of an unrecorded excavation. The positions of the two 'missing' kerbstones found in 1995 were already lost when the monument was first surveyed in the nineteenth century,

and the tallest of the monoliths outside the entrance to the cairn may have been re-erected in the wrong position in the 1880s. Quite possibly it is upside down.

Survey of the standing structure in 1996 revealed other important details. Again the passage into the tomb kinked slightly and became wider towards the chamber, but in this case there is no evidence for variations in the height of the lintels. As with the south-west cairn, the chamber was asymmetrical, with more space to the north of the main axis than to the south. Again the chamber was probably highest towards the back and sloped down to meet the end of the passage. The north-east cairn was also slightly larger than its counterpart, even though the chamber and passage were the same size in both monuments. Nor were the two entrance passages on precisely the same axis as one another, although the difference was very slight, perhaps suggesting that the south-west cairn was built before work on the north-east cairn commenced (or vice versa). An additional decorated stone was identified in the entrance passage, whilst another cup marked slab was recorded within the structure of the corbel.

The most important contrasts between the two passage graves concern the use that was made of raw materials. We have already seen that unlike the situation at the south-west cairn the rubble that provides the outer skin of the monument includes an even mixture of boulders of different colours. Such differences also extend to the deployment of more massive stones about the site. In this case just part of the stone circle seems to have been quarried and the only slabs of red sandstone are the tall uprights that flank the entrance. These are complemented by another upright of red conglomerate, but for the most part the monoliths are glacial erratics of other distinctive colours, including banded gneiss, pink quartz and white quartz. Towards the entrance these stones have flat tops, whilst the stones behind the monument are significantly shorter and generally taper to a point.

By contrast, just one of the kerbstones is quarried, although those nearer to the entrance tend to have flat or rounded tops, whilst their counterparts on the opposite side of the cairn include a number of stones which have a more pointed profile. Some of the stones on either side of the entrance are red, whilst the kerbstones further away include occasional pieces of pink quartz and banded gneiss. In the same area there appear to have been alternating lengths of red and white kerbstones which recall the patterning found on the central ring cairn. In three cases the colour of a kerbstone also seems to match that of the nearest upright in the stone circle.

The combination of documentary research and detailed recording of the standing structures reveals an unexpected variety among the monuments in the guardianship enclosure. Although the two passage graves have many features in common, they are not identical. The south-west cairn may have possessed a forecourt breached by a continuation of the entrance passage, but the north-east cairn provides no evidence of this kind. The south-west cairn made subtle use of coloured stones, with an abundance of red boulders on the capping of the monument and a circle of red monoliths which seem to have been quarried for the purpose. Its counterpart to the north-east made much more use of glacial erratics and here the most striking effects might have been the alternating sections of red and white kerbstones at the back of the cairn. The monoliths enclosing the south-west passage grave all assumed the same profile, whilst the stones which surround the north-east cairn varied between the taller flat-topped uprights and shorter stones which tapered to a point. The same distinction is apparent in its kerb.

The ring cairn has features in common with both these monuments, and also with the kerb cairn which was not a major focus of fieldwork in 1996. The stone circle shows the same mixture of quarried slabs and erratic blocks as the north-east cairn, and once again these stones may have very different profiles from one another. The kerbstones provide much more evidence for the visual effects created by alternating

material of different colours, and this is a feature which is shared with the kerb cairn and, to a lesser extent, the north-east passage grave. On the other hand, the ring cairn provides much more evidence that individual monoliths were paired with stones in both the inner and outer kerbs. The equivalent practice is uncommon at both of the passage graves. One feature which does unite all three major monuments, however, is the preference for red stones towards the south-west, which in two cases also marks the position of an entrance. This concern with the colour of the monument is perhaps strongest towards the south-western limit of the site and weakest to the north-east, and this may explain why different quantities of quarried sandstone were used in these different structures. It is in the south-west passage grave that it is most strongly represented, and it may be no coincidence that this cairn faced directly into the midwinter sunset. Its counterpart to the north-east shares the same basic alignment but in this case it is also directed towards the position of that cairn. There is even an indication of a further contrast between these two monuments, for the emphasis on red sandstone at the south-west cairn is balanced to some extent by the use of pink and white quartz in the north-east passage grave. This occurs to a lesser extent in the ring cairn.

3. Field survey

The 1996 field season also saw a substantial programme of field survey, which built upon the results of Aaron Watson's work for the project carried out between 1994 and 1996.

The objectives of this survey were quite simple. It aimed to provide a broad assessment of the distribution and density of worked stone in a study area extending from Strathnairn to the southern shore of the Moray Firth. It was also intended to investigate the relationship between the siting of the Clava Cairns, the distribution of portable artefacts and the local topography. A subsidiary aim was to consider the changing use of raw materials in relation to the settlement of this region.

The methodology was a simple one. As far as the agricultural regime allowed, the survey aimed to sample the main topographical features of the study area in proportion to their extent on the ground. From south to north these were: the river valley of Strathnairn, the plateau on which Culloden Moor is situated; the area of drained wetland extending eastwards from Castle Stuart, which we termed the Dalcross Basin; the coastal plain on the northern side of this basin; and the raised beach above the Moray Firth. Within the broader extent of the upland plateau a subsidiary objective was the springline overlooking the Dalcross Basin. The shore was also searched for workable raw materials.

The first stage of this work was to examine the ploughed fields on a twenty metre grid. This was undertaken when they were well weathered and before visibility was impaired by growing crops. In all 150 such fields were examined. This work was sufficient to identify some broad trends in the distribution of earlier prehistoric settlement (here defined as the period from the Mesolithic to the demise of lithic technology in the first millennium BC). It also suggested some regularities in the relationship between Clava Cairns and settlement areas, but the amount of material recovered was never expected to be sufficient to support a more detailed analysis. That took place after a second phase of fieldwork, which was carried out by a small team over five weeks in spring 1996.

The objectives of this work were equally straightforward. It was intended to test the broad projections made as a result of this preliminary reconnaissance. It aimed to increase the sample of chronologically diagnostic material and to investigate its distribution in more detail. In order to integrate the two phases of survey a selection of fields that had already been investigated on a twenty metre grid were re-examined

on a five metre grid. Where both exercises were undertaken during the same season, the two grids were offset from one another so that the same ground was not searched twice.

Preliminary reconnaissance resulted in a very tentative reconstruction of the distribution of human activity and it was this projection that was tested during the second phase of fieldwalking. By the 1996 field season we had formed certain impressions that were sufficient to guide the choice of study areas. Despite an extensive distribution of worked flint and quartz in the ploughed fields, the only concentrations that could be thought of as 'sites' were of Mesolithic date and this material was virtually confined to the raised beach. The most extensive spreads of artefacts, however, included material of Neolithic date and were found mainly in two areas: along the edges of the Dalcross Basin and on the lower terraces of Strathnairn. Apart from a few finds from the spring line above the Dalcross Basin, there were virtually no artefacts on the plateau. In the same way, apart from Mesolithic artefacts there were few finds from the coastal plain or the raised beach.

These patterns were interesting for they also reflected the general distribution of the Clava Cairns. Excavation at Balnuaran of Clava, Raigmore and Newton of Petty had all produced evidence of settlement preceding the construction of major monuments but how close was their relationship in the wider landscape? It was essential that the work carried out in 1996 was not confined to those areas that had already produced surface artefacts. The apparently negative fields also needed to be revisited, together with those areas where finds of artefacts were few. As a result, work focused on the artefact-rich regions along the raised beach, on either side of the Dalcross Basin and on the terraces of Strathnairn, but it did not do so to the exclusion of the apparently unproductive areas on the coastal plain and the plateau - it was just as important to confirm the absence of artefacts in some areas as it was to confirm their presence in others. Wherever possible, large blocks of land were examined on a five metre grid, and for the most part isolated fields were not investigated. Thus the main work concentrated in two large areas. One extended inland from the raised beach, crossing the coastal plain, the Dalcross Basin and the northern part of the plateau, whilst a second focus of interest was the northern slope of Strathnairn together with the valley floor. Within the very large area of the plateau we considered not only the fields located along the springline but also those which lacked an obvious source of water.

The 1996 season produced a surprisingly large number of artefacts and these are still being analysed. Even so we are already in a position to comment on the main conclusions of this exercise. There still remains an important contrast between the distribution of Mesolithic artefacts, the majority of which were on the raised beach, and that of Neolithic or later material which avoids this area almost completely. Instead the latter material was located on both edges of the Dalcross Basin, on the lower terraces of Strathnairn and in much smaller quantities close to the springline on the plateau which separates those two areas. These are all locations where Clava Cairns have been found, and where the survey included fields in the vicinity of such monuments typical concentrations of artefacts were found. Unlike the Mesolithic material, these did not cluster into clearly defined sites but took the form of extensive scatters of worked flint and quartz, which lacked any obvious boundaries. Where diagnostic artefacts could be identified, it seemed as if certain preferred locations had been used over considerable periods of time, but the relatively low density of finds suggests that such activity was discontinuous. A typical example is found close to the two Clava Cairns at Cantraybruch where an extensive artefact scatter located in a sheltered position just above the River Nairn included artefacts that spanned the entire period from the Mesolithic to the Beaker phase. It was not always possible to trace these scatters to their outer limits, although it was quite clear that the groups of material found beside the springs on the plateau were much less prolific and covered smaller areas than the others.

At one level the distribution of lithic artefacts is concentrated in the areas which are relatively sheltered and fertile, but many of these positions would be poorly suited to cereal growing because they are located on north-facing slopes. There seems to be a far closer association with a ready supply of fresh water. The most prolific area is in fact on both sides of the Dalcross Basin which seems to have contained a freshwater lake or wetland, suggesting that the use of wild resources combined with the pasturing of livestock may have been especially important during the period represented by these lithic scatters. The wide distribution of this material and the lack of any obvious clusters or 'sites' might also suggest a pattern of activity in which mobility was of some importance. In this respect the distribution of these finds contrasts sharply with the distribution of cropmark settlements on the gravels, which probably date from later phases.

It is usually supposed that the choice of raw material in such artefact scatters, and even the ways in which it has been worked, were determined by the need to make the fullest use of what was available. The evidence from our study area suggests another possibility. During the excavation at Balnuaran of Clava two artefact scatters were encountered, both of them belonging to the same general period. In the first case, there is possible evidence that a structure had existed on the site before the creation of the ring cairn. The associated material consists of worked flint and quartz. At the north-east passage grave, however, there is a much more expedient industry based on quartz and quartzite which may have been created during the building of the tomb. The contrast between the two groups of artefacts may reflect the character of the occupation rather than the problems of maintaining a raw material supply; in any case this would not be a major problem since we now know that good quality flint can be collected on the shoreline of the Moray Firth.

This observation provides a vital clue to the understanding of the finds from fieldwalking, for it is in the more sheltered locations, close to areas of productive land, that good quality flint or quartz artefacts predominate. Such areas include Strathnairn and the edges of the Dalcross Basin. In more marginal areas, such as the raised beach and the springline on the plateau, finds of the same general period usually consist of poor quality worked quartz. Here perhaps stoneworking possessed a more expedient character and domestic activity was less sustained. A similar interpretation has been applied to the artefacts recovered during fieldwalking in Strath Tay.

Both groups of material are found in areas with Clava Cairns, whereas these monuments do not seem to occur in those parts of the landscape where evidence for domestic activity is absent. This is particularly striking as fieldwalking on the Black Isle, on the opposite shore of the Moray Firth, has encountered a rather similar distribution of stone artefacts. The important difference is that in this case the megalithic tombs, which belong to the Orkney-Cromarty tradition, are located in a quite different relationship to the areas of domestic activity. This is a problem that needs to be addressed in the future. Was the pattern of settlement the same over larger areas of northern Scotland? And could the tomb locations show more local variation?

There is scope for additional work between Strathnairn and the Moray Firth, for certain issues have still to be addressed. We do not know enough about the full extent of the artefact scatters in this area because so much time had to be devoted to re-walking areas of ploughland which proved to be without archaeological material. Approximately half the available time in the 1996 field season was devoted to such areas because this was central to our objective of testing the projections arising from our wide-spaced fieldwalking. It would certainly be possible to double the cover of artefact-rich areas in a further short period of fieldwork. At the same time, there is cultivated land containing Clava Cairns which we were not able to investigate for

the same reasons. It would be highly desirable to extend the areas surveyed on a five metre grid to incorporate some of these fields. But even allowing for these problems, much has been achieved, and the study area must be one of the very few regions in Britain where the distribution of chambered tombs can be related directly to the distribution of earlier prehistoric occupation. That is a useful foundation on which to build.

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Captions

Figure 1. The full extent of the Balnuaran of Clava / Mains of Clava megalithic cemetery in the light of field survey in 1996. The insets show details of the newly surveyed or excavated monuments.

Figure 2. The fields examined on a twenty metre grid, indicating the relative quantities of worked stone recovered.

Figure 3 The areas re-examined on a five metre grid. The stippled area depicts the extent of the Dalcross Basin.





