

The excavation and restoration of the Camster Long chambered cairn, Caithness, Highland, 1967–80

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with illustrations by Christina Unwin

ABSTRACT

The excavations on the Camster Long chambered cairn, a monument in the care of the Secretary of State for Scotland, were begun by John Corcoran in 1971–3 and completed between 1975 and 1980. Pre-cairn activity was identified and light was cast on the structural sequence of the cairn. The validity of the current reconstruction is discussed. The excavation and post-excavation work were organized and funded by Historic Scotland and its predecessors.

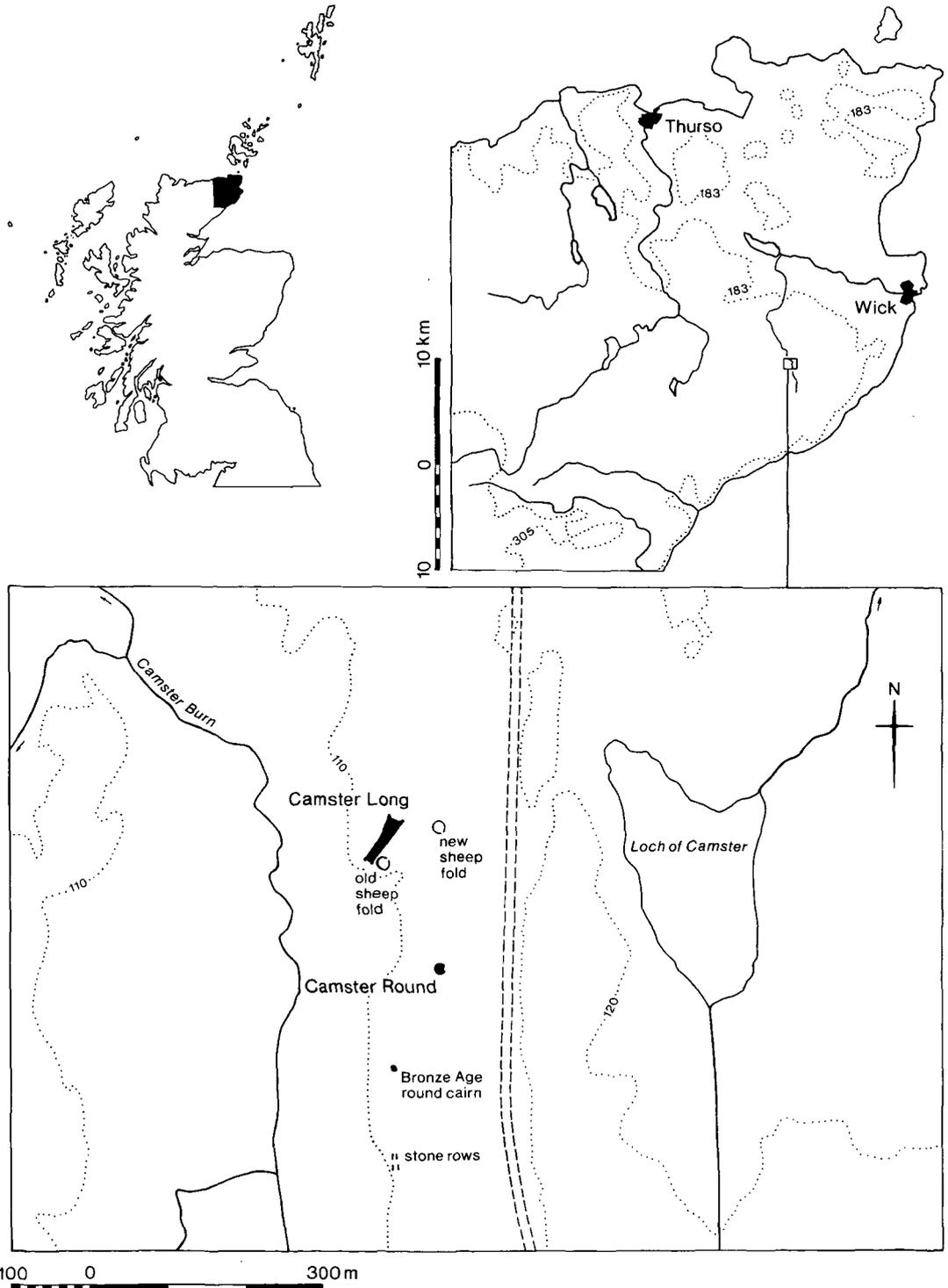
THE SITE AND ITS SETTING

The hinterland of the often spectacular coast of Caithness is gently undulating fertile ground, contrasting sharply with the low, bleak, wind-swept, treeless, infertile peat-covered moorland of the interior, bordered on the west and south by higher ground culminating in the Morven range (705 m). The legacy of glaciation can be recognized in the ground moraines and spreads of fluvioglacial gravel and sand.

It is only in the Neolithic period that settlement on any significant scale can be detected. In Caithness Henshall (1963; 1972) recorded 70 chambered cairns, subsequently increased to 76 (Davidson & Henshall 1991), which vary considerably in plan and the arrangement of structural components. A notable feature is the clustering of cairns in discrete localities, for example between Lochs Calder and Shurrey (Henshall 1963, 54–6; Davidson & Henshall 1991, 17–20). There are some examples of pairing of cairns as, for example, the Grey Cairns of Camster, where Camster Long is situated only 200 m away from its neighbour Camster Round.

Camster Long is located 2.4 km north of Camster Farm, in the Parish of Wick (NGR: ND 260442), in an area of desolate, peat-covered moorland some 10 km from the coast, although there has been considerable recent afforestation in the vicinity of the cairns (illus 1). The terrain is broken by a number of north/south ridges, through some of which protrude the local Latheron subgroup flagstones of the Upper Caithness Flagstone group (Mykura 1991, Table 9.1). To the west of the cairns the narrow Camster Burn meanders northwards through its wide valley, to join the Wick River east of Loch Watten. A low north/south ridge, to the east of the sites, screens them from the small Loch of Camster. A minor road, first constructed in the mid 19th century

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ILLUS 1 Location map. (Based on the Ordnance Survey © Crown copyright)



ILLUS 2 Cairn in 1966 before excavation, from south-east

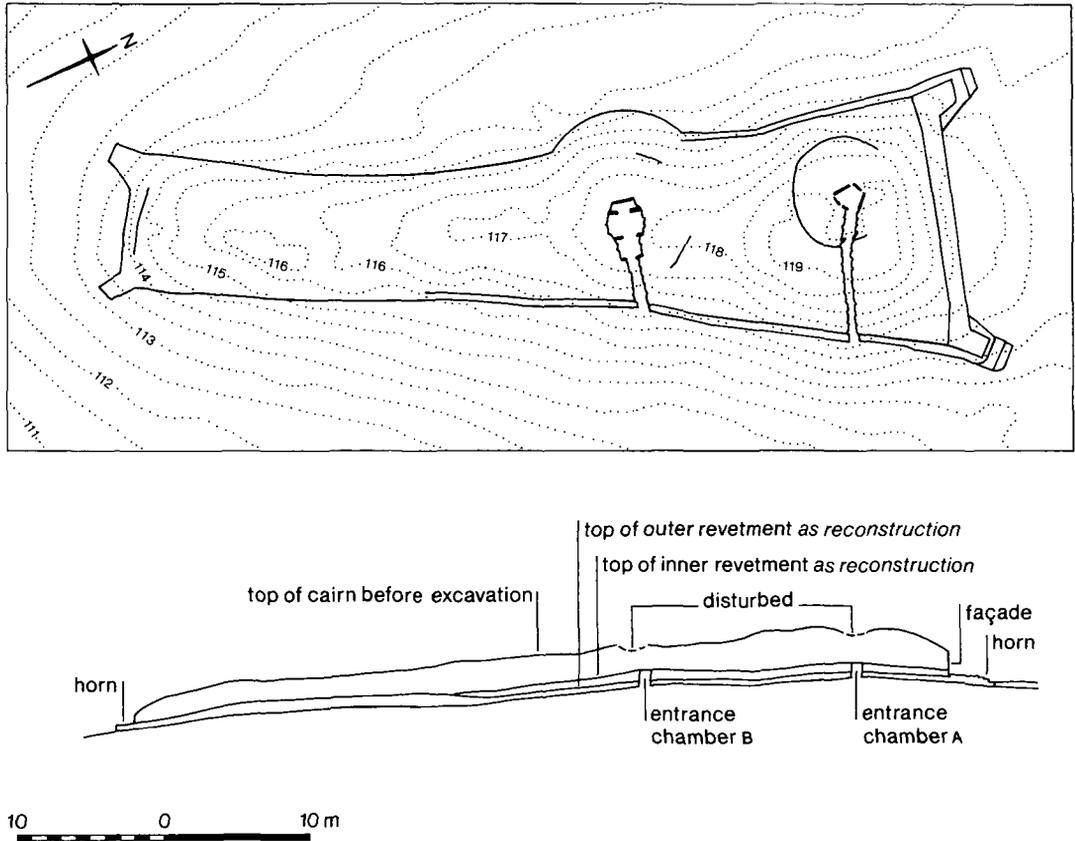
(Anderson 1866a, 245), also runs north/south between the cairns and the ridge. The peat cover is variable in depth, from less than 0.3 m in the vicinity of Camster Long, to over 2 m on the west bank of the Loch of Camster and up to 4 m further away. A detailed consideration of the site and its local setting is included in the soil report (prepared by Roland Golightly) which forms part of the archive of the project records at the National Monuments Record of Scotland.

The long cairn lies at the south end of a low north/south ridge at an elevation of OD 115 m (illus 2). With a major axis orientation of 25° east of True North, its alignment is close to NNE/SSW: for convenience of description, however, the axis will be taken as NE/SW. To the north of the site, the land rises slightly, but falls away moderately steeply to the south. The north-west side is almost level in the vicinity of the cairn, before falling away steeply to the valley of the Camster Burn. The site is at its most impressive when viewed from the south-east or east, having taken maximum advantage of the slightly higher altitude provided by the ridge. Camster Round lies some 200 m to the SSE of the long cairn and, in direct line, is separated from it by a shallow gully. The circular cairn, about 19 m in diameter, covers a long passage leading to a Camster-type tripartite chamber (Henshall 1963, 263–6; 1972, 548; Davidson & Henshall 1991, 102–4).

Some 300 m to the south of Camster Long are the disturbed remains of a Bronze Age cairn 8.5 m in diameter, situated on the eastern edge of a north/south ridge. Anderson (1866a, 250) records that the cist (which is still visible) had contained an inhumation burial until it was rifled not long before his excavations. A further 100 m or so south of this cairn are the scarcely discernible remains of a Caithness stone row. Situated in a shallow peat-covered hollow six rows can be made out, trending generally north/south with a convergence to the north (RCAHMS 1911, 187). The rows may well be associated with the Bronze Age cairn (cf Dirlot & Garrywhin: RCAHMS 1911, 46, 178).

HISTORY OF THE EXCAVATIONS

In 1865 and 1866 Joseph Anderson, with Robert Shearer, conducted a remarkable series of excavations at seven of the Caithness chambered cairns. His results brought into sharper focus



ILLUS 3 Contour plan and simplified longitudinal profile

the pioneering work of A H Rhind (1854, 100–8) at the Grey Cairns of Yarhouse, now known as the Warehouse group (Henshall 1963, 298–302; Davidson & Henshall 1991, 152–6). In 1865 Anderson explored the two South Yarrow sites, followed by the short horned cairn of Ormiegill (CAT 42) and Camster Round. In 1866, investigations were undertaken at a second short horned cairn at Garrywhin (CAT 26), the round cairn known as Kenny's Cairn (CAT 31) and Camster Long. Anderson (1866a, 232–49; 1866b) quickly published the results of his first year's work and offered further discussion of those sites and the ones investigated in 1866, in a second pair of papers (Anderson 1868; 1869a, 216–28). The record is completed by two general accounts (Anderson 1869b; 1886, 229–67).

The following general description is compiled from Anderson's two main publications regarding Camster Long (Anderson 1868, 485–7; 1869a, 221–5): these differ only in minor details. The cairn is described as being orientated NE/SW, with a length of 195 ft (59.44 m); 64 ft (19.5 m) wide at the north-east end and 32 ft (9.75 m) at the south-west end. The maximum height of the cairn occurred towards the north-east end, where it was 15 ft (4.57 m). The cairn had the appearance of a series of hummocks joined together along the spine (Anderson 1868, 484). Trenching along the south-east side of the cairn revealed the passage entrance to chamber A

(illus 3). Further trenching along the south-east side led to the discovery of the passage to chamber B, and both sets of passages and chambers were excavated. Anderson found the passage to chamber A to be almost intact, as was the chamber itself. Roofing survived over the passage and outer compartment of chamber B: the rest had collapsed. Apart from some human and animal bones, no other finds were made in the chambers.

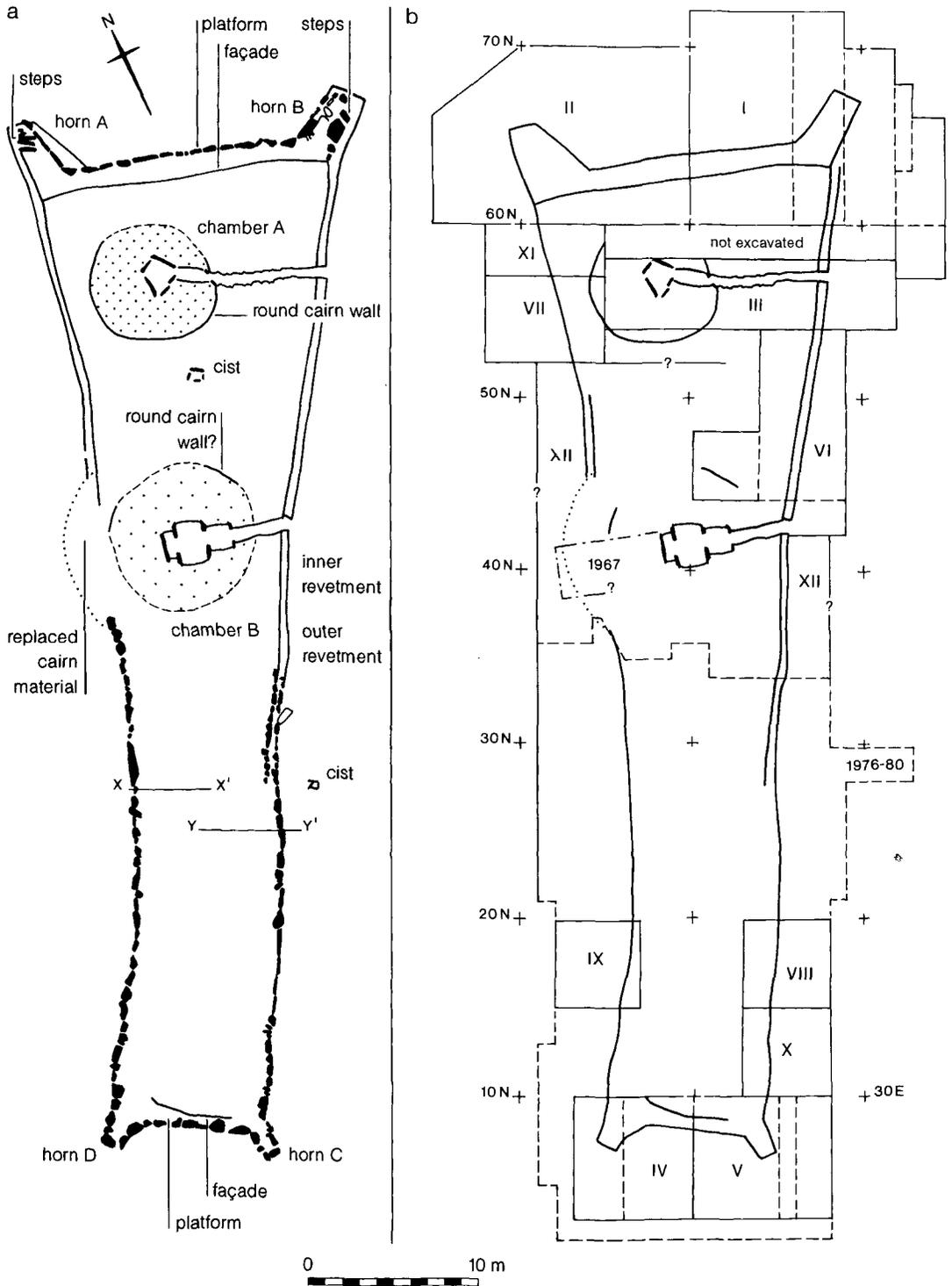
In his plan, Anderson (1868, 484) depicts a double revetment around the cairn. He uses two conventions for this, the first being stones drawn in outline, and the second, a broken line. It is possible that where Anderson shows stones in outline for the inner revetment, either he could see it or found it as a result of his trenching. The outer revetment is depicted throughout by stones in outline; the inner by stones in outline only to either side of the entrance to chamber B, and for a short distance to the south-west of the entrance to chamber A, the rest being suggested by the broken line symbol. The outline symbol is used to depict two revetments at either end of the cairn. A broken line is used to indicate a circular revetment around chamber B: evidence for this is nowhere mentioned in his texts apart from a passing reference to unspecified 'indications' (Anderson 1868, 493). Anderson suggested that there might be further chambers still to be found in the tail of the cairn and, in one report, mentioned that there were indeed 'indications of others' (Anderson 1869b, 268).

Camster Long was visited in 1910 by A O Curle, during fieldwork for the Caithness *Inventory*, when he found the passage to chamber A still open, but the chamber filled in. While the passage to chamber B was blocked, the chamber itself had only suffered minor collapse on the south-west side (RCAHMS 1911, 183). The discovery of .303 cartridge cases and part of an artillery shell in the cairn, and superficial disturbance in the tail of the cairn, may relate to activity in the Second World War.

During her survey of the chambered tombs of Scotland, Audrey Henshall visited Camster Long in 1955. She could add little to Anderson's account, but was able to see some indication of the circular revetment around chamber B and also drew attention to the possibility of a third chamber at the south-west end of the cairn (Henshall 1963, 262–3).

The excavations at Camster Round in 1966 and 1967 by P R Ritchie, for the then Ministry of Public Buildings and Works (MoPBW), were confined to the removal of cairn material above the passage roof and around the chamber to facilitate conservation. Excavation was also undertaken in front of the entrance, where a slightly cusped entrance area, defined by dry-stone walling, was revealed to either side of the entrance. Unfortunately, the drawings and notes made then cannot be located. Work in 1967 and 1968 at Camster Long was also supervised by Ritchie, and was confined to minor excavations at the entrances to both passages; the removal of the collapsed roofing and superincumbent cairn in chamber A; the consolidation of chamber B (which required the cutting of a major section from the north-west edge of the cairn to the back of the chamber); and some removal of stone in the north-east forecourt. Again, unfortunately, the records of this work cannot now be located.

In 1971, John X W P Corcoran, of the University of Glasgow, was invited by the Department of the Environment (formerly the MoPBW) to undertake a major programme of excavation. Corcoran worked for three seasons, a total of 23 weeks between 1971 and 1973, with a small team of volunteers and locally recruited workmen. In that time the north-east half of the cairn (comprising the two chambers, north-east forecourt and cairn revetments) were excavated and restored and a start was made on the excavation of the south-west forecourt and the revetment of the tail. Corcoran's prolonged illness during the early 1970s, leading to his tragic death in 1975, robbed the academic world of a distinguished scholar and excavator. As Corcoran died while the excavation was still in progress, none of the material had been prepared for



ILLUS 4 (a) Outline plan showing revetments as presently reconstructed.
 (b) Layout of trenches (1967 — P R Ritchie; Roman numerals — J X W P Corcoran; 1976-80 — L J Masters);
 cairn revetment as suggested by LJM

publication. Fortunately, the archive comprises a large collection of photographs and slides. Corcoran kept daybooks for his three seasons but these are sometimes deficient in crucial aspects of interpretation; that information was, no doubt, in Corcoran's mind. In 1971 detailed plans were made of the blocking in the north-east forecourt, and a start made on the plan and elevation of chamber A. Little detailed planning was undertaken in the later part of the excavation, resulting in complications in interpretation of the long cairn revetments on the north-west side, in the relationship of chamber A to its round cairn, and between the putative circular revetment around chamber B and its relationship to the long cairn revetment (illus 4).

The present writer was invited to complete the excavation, which was achieved in five seasons from 1976 to 1980. Work was concentrated entirely in the south-west half of the cairn, but the experience gained has enabled the writer to assess objectively the work undertaken by Corcoran elsewhere. From numerous conversations with John Corcoran, the writer hopes he can reflect his views fairly: where the writer has chosen to disagree with those views, it has had to be on the basis of an imperfect archive, supplemented by discussions with those who assisted with the excavation.

The excavation added little to our knowledge of the date and use of chambered tombs and the report is therefore a summary. A fuller report, examining in detail the body of the cairn and the reconstruction, is lodged with the National Monuments Record of Scotland (NMRS/RCAHMS).

Consolidation and restoration were finally completed in 1981.

EXCAVATION REPORT

This report is divided into a number of sections arranged very approximately to coincide with the likely sequence of events associated with the pre-cairn use of the land and the building of the monument. Thus, the buried soil under both the cairn and extra-revetment is considered first, followed by chambers A and B, their associated passages and circular revetments. The long cairn with its revetments (and their subsequent collapse) is followed by the two forecourts and their blockings. Finally, two cists conclude the prehistoric use of the monument.

Before beginning the report, it is necessary to define a few terms. As much of the excavation project was geared towards a final situation where the public would have safe access to the cairn, a great deal of restoration work was required. In this report, 'reconstruction' is used to describe work undertaken under archaeological supervision, where features were directly reassembled from collapsed remains; 'rebuilding' covers the work undertaken by the masons, which generally involved the taking down of archaeological reconstructions, after careful recording and photography, and a reassembly of the material (using the original stones wherever possible) into firm concrete supporting walls. 'Consolidation' is used for the preservation of *in situ* features where this was possible without reconstruction and/or rebuilding. Finally, 'restoration' is used when the exact nature of the measures taken was not recorded, and as a general term to cover the final presentation of the monument.

The site grid, which is used to describe the location of some features, has its point of origin to the south-west of the cairn and is divided into 1 m squares to north and east. The grid was established by Corcoran, and it must be noted that in measurement he gave Northings before Eastings, the reverse of a normal grid reference; the procedure was followed in the writer's excavation for the sake of consistency. Reference is also made to the series of cuttings established during Corcoran's excavation (illus 4).

THE PRE-CAIRN SOIL AND ASSOCIATED FEATURES

Soils

The opportunity to excavate just over 200 sq m of buried soil was afforded by the removal of the south-west half of the cairn, a further 90 sq m was directly covered by extra-revetment and 25 sq m was covered by the south-west forecourt blocking. Corcoran's limited records of the pre-cairn soil in the north-east part of the cairn do not contradict the findings of the investigation in the south-west.

The detailed analysis of the soils under the cairn and in the surrounding area is the subject of a specialist report lodged with the archive of the project records in the NMRS; it is only necessary here to summarize the main findings.

The pre-cairn soil is classified as a peaty podsol of the Camster series which, on excavation, was found to be very variable in colour, ranging from grey to brown, yellow/brown to orange. The presence of an iron pan was noted at the interface between the edge of the extra-revetment and the peaty iron podsol beyond. Some factors will have directly affected the upper soil horizons, particularly the A1 horizon: these include damage caused during cairn building, compression from the weight of the overlying stone burden, and further damage caused during excavation in the removal of the basal layer, despite measures adopted to counteract it.

Within the cairn there were vast amounts of shattered rock, here termed 'scree', mixed with fine granular crystals of quartz, both of which were derived from weathering of the cairn stones, mainly as a result of frost action. This mixture occurred vertically throughout the cairn, but was particularly noticeable and, indeed, more compact amongst the basal stones. A particular problem was, therefore, the ability to differentiate between the base of the scree mixture and any topsoil horizon immediately under the cairn. While a uniform picture was not available for every soil locality sampled, the following sequence may be proposed on the basis of cumulative evidence:

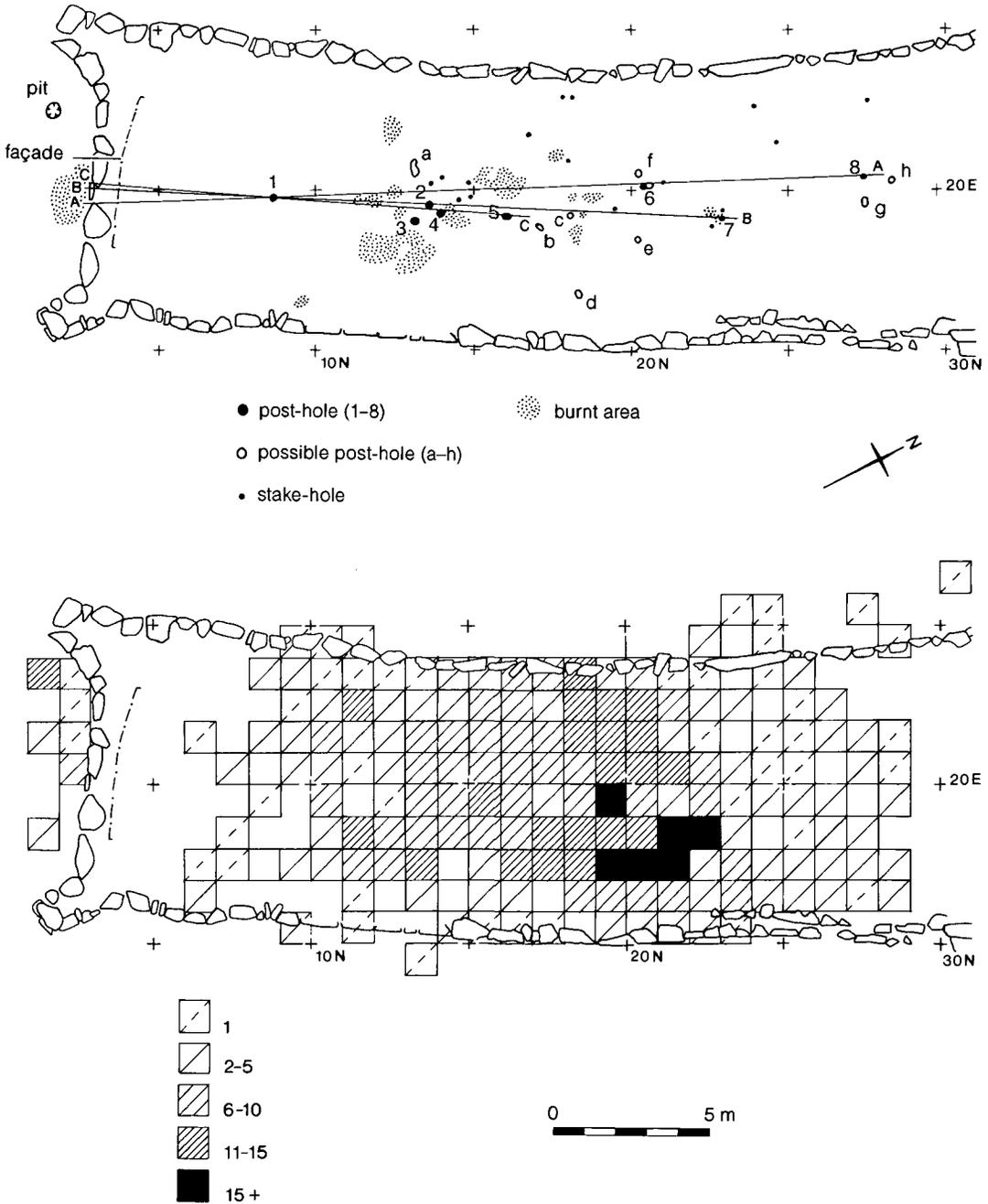
A1 horizon Between and under the sloping edges of basal cairn stones is a mixed soil layer comprising scree and a reddish brown 'granular' loam. It contained a few finds of pottery and flaked stone. The 'granular' nature of the soil is attributed to the burrowing activities of ants and beetles, and the reddish colour to iron in solution.

An A2 horizon was present at some sampled localities: it differed from the A1 horizon mainly on the basis of its lower organic matter status. Again, a few small finds were made from this soil.

B horizon soils which comprise a number of textures (gritty, sandy, ashy) and considerable colour variation (yellow/brown, light brown, brown, orange/brown). With the exceptions of an ashy texture and colour variation produced by burning (red, black with charcoal), none of the other variations in texture or colour need have resulted from human activity. The majority of the small finds were made either at the interface between the A and B horizon soils, or just into the B horizon soils.

Burnt areas

A number of burnt areas were located both under the cairn and in both forecourts (illus 5). The majority lay close to the main axis of the cairn and varied in size from small spots, 0.3 m in diameter to much larger areas up to 2.3 m by 1 m. Colour varied from black to bright red and



ILLUS 5 The south-west part of the cairn: (top) pre-cairn features; (bottom) density of finds per sq m

flecks of charcoal were present throughout. None could be convincingly described as hearths, for they were irregular in plan and showed no evidence of deliberate stone settings. Although some were contained in slight hollows in the B horizon subsoil, none showed evidence of having been deliberately dug.

Post-holes and stake-holes

Evidence of other pre-cairn activity is provided by eight certain and a further eight possible post-holes detected with some difficulty in the subsoil (illus 5).

The eight post-holes (PH1–8) were both circular and oval, from 150 mm to 360 mm wide and between 80 mm and 200 mm deep. Packing stones were found in all eight. PH6 cut through what may have been an earlier post-hole. PH5 contained a flint inner flake in its packing (cat no 386) and a secondary flake in the post pipe (cat no 387). A further eight features ('a' to 'h') may also have been post-holes. Feature 'e' contained all the sherds found of pottery vessel P14; 'f' contained two featureless Neolithic sherds. (Detailed descriptions of individual features are given in the archive of the project records at the NMRS.)

In addition to the post-holes and possible post-holes, 19 stake-holes (SH1–19) were found. These varied from 40 mm to 70 mm in diameter and from 35 mm to 130 mm in depth. Only one (SH9) terminated in a clear pointed bottom; the rest were more gently rounded. Fills varied from brown to grey/brown and dark grey, frequently associated with flecks of charcoal. The fills do not seem to represent anything more than the overlying A horizon soils through which they were cut.

A single convincing pit was located within the south-west forecourt, clearly covered by the forecourt blocking. It was 450 mm in diameter and 150 mm deep. It contained a fill of black soil surrounded and underlain by grey soil which, in turn, was surrounded and underlain by red soil. Flecks of charcoal were present throughout. Although there were three rounded stones on the edge of the pit, these appeared to be *in situ* natural inclusions, and did not serve as the packing for a post.

Small finds

With the exceptions of a very small number of featureless Neolithic pot sherds found within the blockings of the two forecourts and a similar small number of flaked stone finds from below the extra-revetment, the vast majority of the small finds came from the areas under the cairn and below the forecourt blockings. There may be a special case for considering separately the small finds from the forecourts and those recovered by Corcoran from within chambers A and B; this is discussed further below. It has already been mentioned that some of the finds were clearly associated with the very thin A1 and A2 soil horizons, but the majority were found at the interface between the A and B horizons or just within the top of the B horizon. Because of the discontinuity of the A horizon soil and its lack of depth, it was not possible to consider any clear chronological separation for the small finds under the cairn. Details of the pottery and flaked stone assemblages are provided in the specialist reports below (Henshall; Wickham-Jones). Here it is only necessary to make some general comments.

It is apparent from a plotting of the find spots of both pottery and flaked stone that, while the vast majority occurred under the cairn, the distribution is not uniform (illus 5). Very few finds were made in the area between 10mN and 15mN, but there was then a substantial increase culminating in the area between 22mN and 28mN. Thereafter, the density of finds decreased until the end of the excavation at 34mN. The majority of finds were made along the spine of the ridge,

and there was a tendency for a decrease in density in proximity to the lines later taken by the cairn revetments.

An unfortunately large proportion of the pottery comprises rather small featureless body sherds, no more than 20 mm sq, rather heavily abraded. The pottery report distinguishes 15 different pots from under the cairn, represented by over 80 sherds in the case of vessel P1 and its possible variants, to single rim sherds in the cases of P15 and P16.

Concerning the 460 pieces which comprise the flaked stone assemblage, the vast majority again came from under the cairn. Activity on the ridge prior to cairn construction has been demonstrated both by the manufacture of tools and by the possible removal of finished products to areas outwith the excavation. This is in accord with the rest of the evidence which, it will be suggested below, is perhaps more indicative of temporary rather than permanent occupation on the ridge.

Radiocarbon dates

Three samples were submitted for radiocarbon assay, all being collected samples of charcoal flecks from the top of the B horizon subsoil under the tail of the cairn. It was not possible to provide sufficient charcoal from the discrete burnt areas for radiocarbon assay at the time of submission. The dates resulting from these collected samples are 4950 ± 80 BP (GU-1707), 4915 ± 60 BP (GU-1708) and 4920 ± 125 BP (GU-1709).

As the three dates are statistically indivisible at one sigma level, they may be considered together. Allowing for dendrochronological calibration using the MASCA curve, the burning on the ridge would relate to the early centuries of the fourth millennium BC. There is no persuasive argument against associating this burning with the pottery, flaked stone, post-holes and stake-holes, but it must still be a matter of judgement what interval of time elapsed before the cairn covered the traces of this activity. In the hope of obtaining some idea of the possible time interval, samples for radiocarbon assay were submitted from the burnt areas in both forecourts; that from the north-east forecourt was judged to be insufficient for assay. The date obtained for the burnt area in the south-west forecourt is 4780 ± 170 BP (GU-1706). While the mean is slightly later than the three dates from under the cairn, the large error at one sigma level (reflecting the small size of the sample) makes the forecourt date statistically indivisible from the others.

The implications of the activity under the tail of the cairn and its possible association with cairn building is discussed further.

CHAMBER A: PASSAGE AND ROUND CAIRN

After his abortive attempt to locate a passage in the centre of the north-east forecourt, the passage entrance to chamber A was eventually discovered by Anderson as a result of trenching along the south-east side. The following description is based on his two reports, which differ only in minor discrepancies in measurement (Anderson 1868, 485–6; 1869a, 222–3).

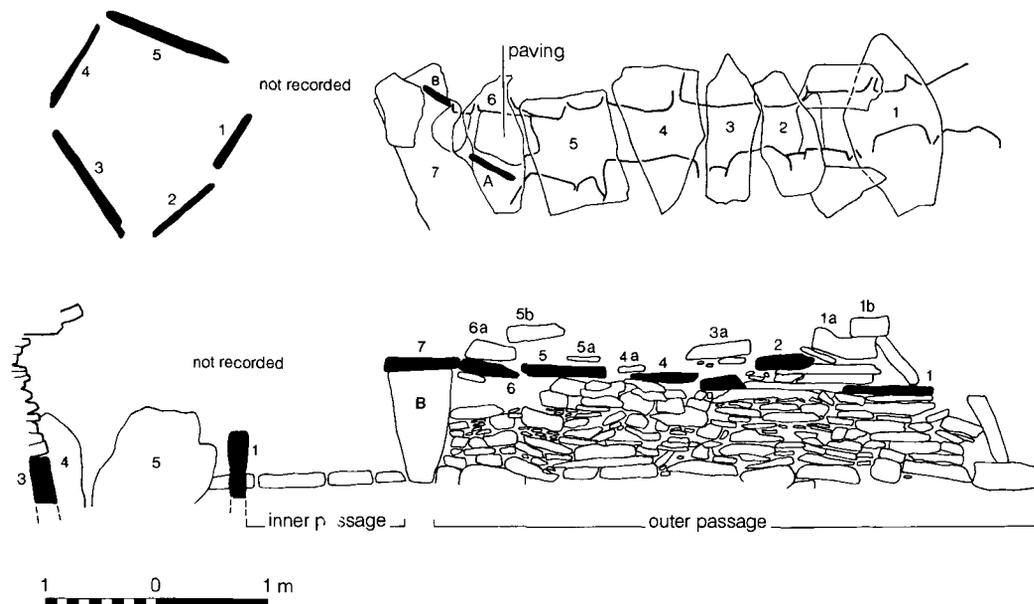
The passage entrance was located 30 ft (9.14 m) down from the end of the north-east horn, and was little more than 2 ft (0.61 m) high and wide (illus 4, 6 & 7). The first 17 ft (5.18 m) of the passage ran straight into the cairn, at the end of which the passage turned 45° or 50° towards the north-east end of the cairn between 'a flat stone set up on either side' (Anderson 1869a, 222). It then continued for a further 6–7 ft (1.83–2.13 m), where it entered the chamber by means of an irregularly arched doorway 18 in (0.46 m) wide. The outer part of the passage, as far as the two orthostats, was roofed by substantial lintels: the remainder of the passage was unroofed and



ILLUS 6 Passage to chamber A: passage lintels removed and chamber partly consolidated; from south-east

Anderson commented that he could not decide if the stones filling the passage were the result of total collapse or deliberate blocking. *The former is the more likely explanation, as he was unable to make out the passage walls with any degree of certainty.*

The chamber is described as being irregularly pentagonal in form, comprising five orthostats with dry-stone corbelling above. The chamber was found to be intact and, after clearing out the rubbish, the floor comprised two large and heavy overlapping slabs. The height of the chamber is given as 6 ft or 6 ft 6 in (1.83–1.98 m) and a single stone, 9 in (0.23 m) square, formed the apex of the roof. Apart from one large animal bone (since lost), nothing was found in the chamber. The two floor slabs were lifted, but the soil beneath (described as the undisturbed clay of the ridge) was similarly devoid of finds.



ILLUS 7 Plan and elevations of passage and chamber A

Corcoran's work in this area constituted one of the major parts of his excavation. As the needs of restoration required the removal of considerable areas of cairn around and above the chamber and passage, the opportunity was available for substantial excavation. Cutting III (illus 4 & 7) was designed to expose the line of the passage, and cuttings VII and XI to allow conservation of the chamber. Cuttings III and VII were eventually linked up, providing a staggered cross-section of the cairn, which was unfortunately not recorded. However, a plan and elevation drawing of the passage and chamber and a plan of the passage lintels were prepared.

It would seem that Corcoran found the outer part of the passage in much the same state as Anderson left it. Seven lintels were still present over a distance of 5.1 m. Removal of the cairn material above the line of the passage revealed a number of false lintels overlying the passage lintels (illus 7). In some cases (eg 5a) this may be no more than the fortuitous placing of flat slabs but, with the others the false lintels may have been placed to take the weight off the main lintels (eg 3a, 5b & 6a). A different explanation may be suggested for the false lintels 1a and 1b. There is clearly a gap between lintels 1 and 2, and lintel 2 is also set some 0.2 m higher than those in front and behind. The gap between lintels 1 and 2 is bridged by long slabs, laid parallel with and above the line of the passage walls; false lintel 1a rests on these long slabs and 1b rests above it.

The gap between lintels 1 and 2 is intriguing, resembling as it does the well-known roof-box at Newgrange (O'Kelly 1982, 93–6). Unfortunately, the considerably disturbed nature of the area makes further speculation difficult.

The outer part of the passage had survived remarkably well. The walls were built with long, thin slabs set with their long axes parallel to the wall-face, alternating with slabs set at right-angles, and, therefore, tongued back through the wall line to give greater stability. The eight or so courses of dry-stone walling rested on foundation blocks, generally between 0.5 m and 0.6 m long and up to 0.15 m thick. The height of the passage beneath lintel 1 was about 0.75 m; it increased to just over 1 m below lintel 2, fell again to 0.8 m under lintel 3 and then gradually increased until it was 1 m under lintel 7. Two paving slabs were found at the bend in the passage: otherwise the



ILLUS 8 Round cairn revetment of chamber A with single long cairn revetment in foreground; from north-west

floor comprised the natural pre-cairn soil, apart from a block set across the line of the passage directly below lintel 2.

The bend of the passage is of crucial importance in unravelling the history of this cairn. Unfortunately, few details were recorded and this description is largely based on photographs. The change in direction is marked by orthostats A and B (illus 7) both set at an angle of about 40° to the line of the outer passage. While the two orthostats are parallel, they are certainly not opposite each other. It is suggested that these orthostats mark the boundary between the original passage of the round cairn, and the extension of the passage (on a different alignment) to the edge of the later long cairn.

The only clue to the nature of this inner passage is provided by Anderson's comment that the passage entered the chamber by means of 'an irregularly arched doorway' (Anderson 1868, 486). If the rest of the inner part of the passage had been roofed in the same way, it would account for the collapse and the lack of any large lintel stones.

Corcoran re-excavated the area beneath the two paving slabs in the chamber, finding a few fragments of bone in front of orthostat 3 and in the interstices between orthostats 2 and 3, 3 and 4, and 4 and 5. A rim sherd also came from between orthostats 4 and 5, although this may have originated in pre-cairn activity.

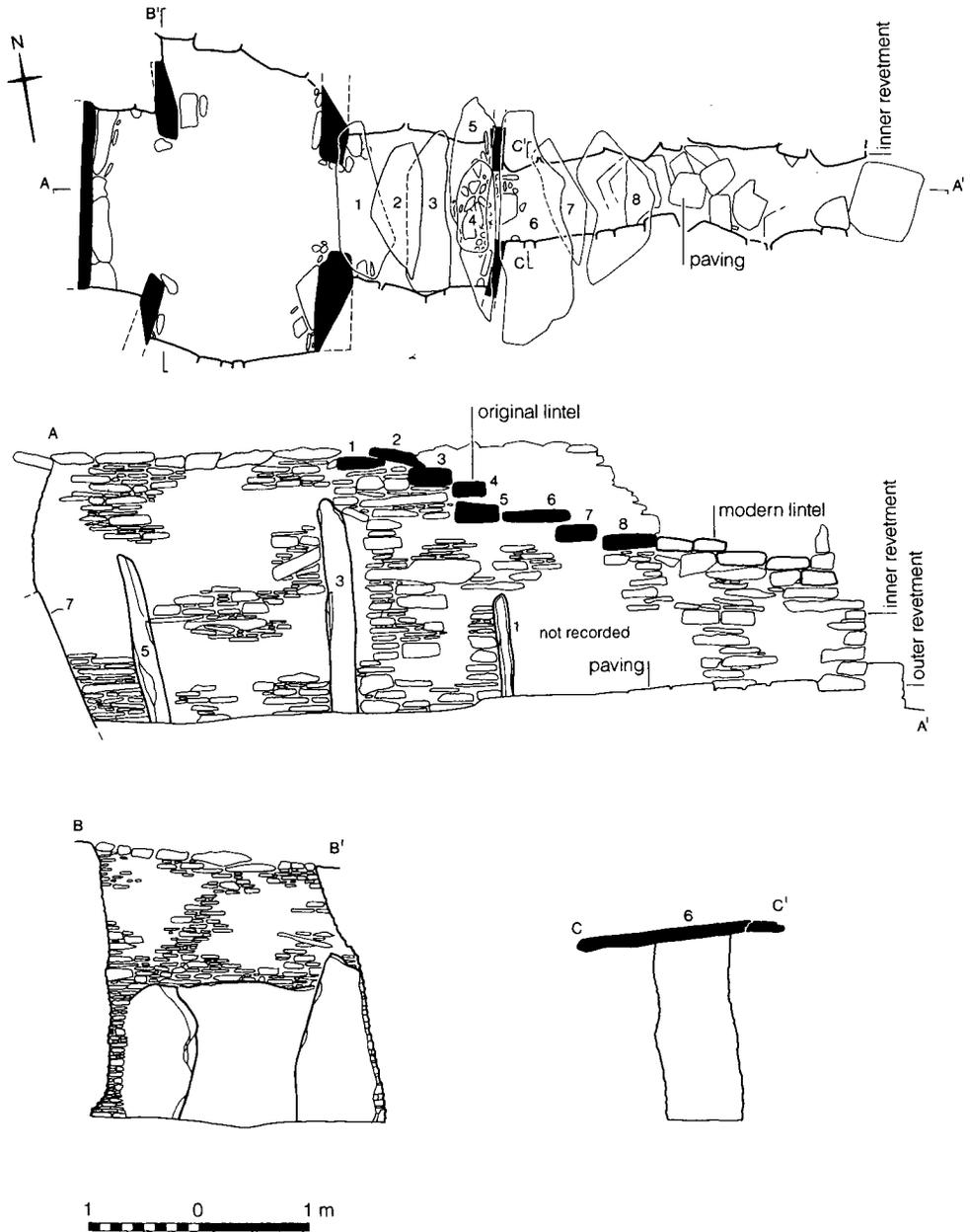
Corcoran's major new discovery here was of a round cairn enclosing chamber A and the innermost part of its passage (illus 4 & 8). The round cairn revetment was revealed in a number of cuttings: no large-scale plans appear to have been drawn, the line of the revetment being indicated only on the main 1:100 site plan, where its maximum diameter is shown as c 7.5 m. It appears that the cairn was not truly circular. For example, its south-west arc seems to be almost straight, as is the part of the north-west arc located in cutting XI. The revetment is composed of substantial blocks and slabs, laid with their long axes parallel to the revetment line. The blocks are generally less than 1 m in length, and some are as much as 0.3 m in thickness. Some of the blocks may have been tongued back into the cairn. The maximum height of the revetment is 1.2 m, comprising eight courses, with a batter to the upper courses. From the photographs there appears to have been little or no collapse of the revetment, but there was some slumping of the courses due to the cracking and decomposition of the thin slabs.

The build of the round cairn, in so far as it was exposed, seems to follow a radial pattern, the slabs employed in the upper part radiating from the corbelling of the chamber, contrasting with the direction and pitch of the long cairn stones. The overall impression is of a substantial round cairn which could well have had an existence independent of the long cairn. The apparent misalignment of the round cairn revetment at its junction with the passage orthostats casts some doubt on this impression, and the situation is discussed further below.

CHAMBER B: PASSAGE AND CIRCULAR REVETMENT

Having discovered the small, polygonal chamber A under the apex of the first hummock of the cairn, Anderson followed up the clue and discovered the entrance passage to chamber B (a tripartite Camster-type), under the second hummock, 50 ft (15.24 m) further down the cairn (Anderson 1869a, 222) (illus 4 & 9). As with chamber A, the descriptions and measurements given by Anderson in his two main reports hardly differ (Anderson 1868, 486–7; 1869a 224–5).

The first 5 ft (1.52 m) of the passage is described as being 1 ft 6 in (0.46 m) wide and rudely arched over by small flat slabs. Although no actual height is given, it was said to be higher than the passage further in. The remainder of the passage is described as being 2 ft 6 in (0.76 m) wide and 4 ft (1.22 m) high. It was lintelled by large slabs, each one placed higher than the last, so that they looked like the underside of a flight of steps. This method of roofing was carried over the first pair of divisional stones (orthostats 1 and 2) at a height of 4 ft 4 in (1.32 m), and terminated at a height of 6 ft 6 in (1.98 m) above the second pair of divisional stones (orthostats 3 and 4). The rest of the chamber was unroofed at the time of Anderson's excavation. Dimensions are then given for the various components of the chamber and for the heights of the divisional stones. Anderson commented that the dry-stone side walls of the chamber were slightly curved and, given the corbelling present in the inner part of the chamber, that this had been roofed with a barrel vault. The maximum height of the walling is given as 7 ft (2.13 m). Between orthostats 3 and 4, Anderson (1868, 486) describes a curious construction: the space between the orthostats was restricted by a pair of false jambs surmounted by a lintel and with a threshold slab on edge. This narrowed the gap between the two main orthostats from 2 ft 6 in (0.76 m) to less than 2 ft (0.61 m). Unfortunately, no further dimensions are given, and the construction collapsed in the course of Anderson's excavation.



ILLUS 9 Plan and elevations of passage and chamber B

The passage and chamber are aligned at a slight angle to the main axis of the long cairn, and the entrance corresponds with a directional change in the line of the double revetment of the long cairn. The entrance area had been somewhat disturbed, probably by MoPBW consolidation in 1967. Corcoran's excavation in the area indicated that the outer revetment ran across the front of the entrance; the presence of two straight joints, however, indicated the possibility of a later blocking inserted in line with the outer revetment. Photographs indicate that three courses of

outer revetment survived *in situ* to either side of the passage entrance, comprising very thin slabs to a height of no more than 0.15 m; the blocking consisted of four stones, one of which had been set transversely, and could well have been inserted at some time after the building of the outer revetment.

The outer part of the passage, 'rudely arched by overlapping stones' in Anderson's description (1868, 486), measures 1.7 m in length from the face of the inner long cairn revetment. Preparation for the restoration of the inner passage required the removal of superincumbent cairn material. This revealed eight lintels. They were, as Anderson described, arranged like a flight of steps, and covered the inner parts of the passage and first compartment of the chamber. The passage was dry-walled throughout.

While the side walls of the first compartment of the chamber are slightly concave, those of the second are more markedly so, giving a maximum width of 2.8 m and a length of 1.4 m. There is a void in the side wall of this compartment, adjacent to orthostat 4, for which the writer can offer no explanation. The back of the chamber is formed by a massive slab, inclined outwards, and measuring 1.6 m long by 1.2 m high. The side walls of the chamber still retained a considerable degree of corbelling on the north-east side over the second and third compartments and over orthostat 3 and the adjacent side wall of the second compartment; elsewhere, the corbelling had either collapsed into the chamber or, in the case of the backstone, may have collapsed back into the cairn. The maximum height of the corbelling, before restoration in 1967, was about 2.3 m. It is impossible to be precise about the form of the roof: while a barrel vault is a possibility, the inner part of the chamber could equally well have been roofed with a conical vault, similar to that at Camster Round.

Corcoran re-excavated the floor of both passage and chamber, revealing slabs within the outer part of the passage, which can be interpreted as paving, and parts of the sockets and/or packing stones for the orthostats. A few fragments of bone were noted as coming from the passage and, from the first clearing of the chamber floor, a scatter of charcoal, a few fragments of bone and three pieces of flint, the latter all coming from near the back of the chamber. Four more pieces of flint were found, including two very fine kite-shaped points, all coming from the south-west side of the third compartment. There are problems with Corcoran's interpretation of this context, which advises some caution in too readily associating the two kite-shaped points with deliberate deposition in the chamber; they could equally well be associated with pre-cairn activity.

As noted above Anderson indicates on his plan a circular revetment around chamber B, but gives no reason for this. Nevertheless, within cutting VIb, Corcoran found evidence of a possible circular revetment. Photographs indicate what look like a stretch of rough revetment, under 1 m in height, and composed of quite small blocks. The adjacent cairn is composed of the usual slabs and there does seem to be some radial pitching towards the revetment. Further stretches of this putative circular revetment were revealed in narrow trenches dug from the north-west edge of the cairn between approximately 42mN and 44mN, and between approximately 36mN and 38mN. Remains of a long cairn revetment, standing at least five courses (c 0.4 m high) can be clearly seen in photographs. It is built with long, relatively thin slabs, similar to those used elsewhere in the long cairn revetments. Lying some 0.8 to 0.9 m further in from the outer face of this revetment is what appears to be a second one. It was standing to a height of just under 1 m, and was composed of at least six courses of rather short, thick blocks, very similar in appearance to the circular revetment around chamber A. When these features were plotted, it could be seen that the outer revetment was beginning to curve outwards, and that the 1.7 m length of the revetment was distinctly curved (illus 3). In the absence of evidence to the contrary, the writer has assumed that the inner revetment described here cannot be part of the long cairn revetment. It lies too far into

the cairn to line up with the known course of even the inner revetment. This being so, it is certainly possible that it is part of a circular revetment around chamber B.

THE LONG CAIRN

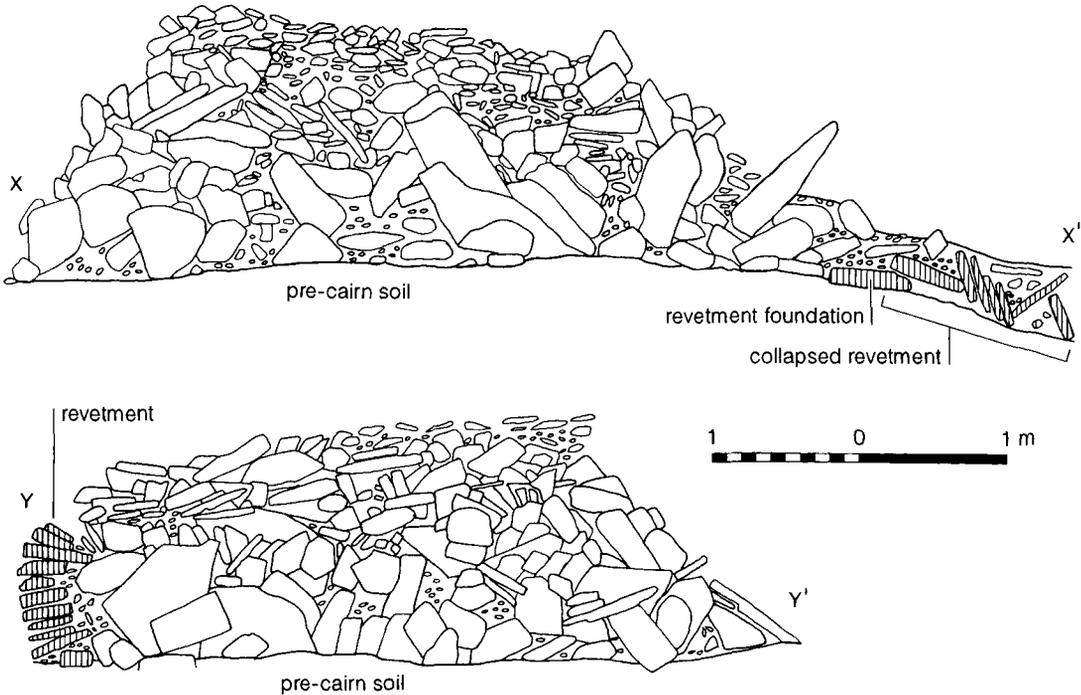
One of the main aims of the present writer's excavation was to ascertain if there were any further chambers in the tail of the long cairn. The mounding of the cairn over the two known chambers and its continuation as three more mounds is clearly indicated in Anderson's mid 19th-century woodcut and, less obviously but still distinctly, in the *Inventory* photograph (RCAHMS 1911, pl LVIII) and later photographs (illus 2). The mounding of the cairn, taken with the presence of a number of apparently earthfast orthostats immediately behind the south-west façade, was at least indicative of the possibility of a further chamber or chambers.

Corcoran investigated two arrangements of orthostats and other stones within the cairn but neither appeared to be a further chamber. One area where Corcoran was fairly certain he had found an additional chamber was immediately behind the south-west façade, opening from the south-east side of the cairn, and described as being oval on plan and constructed entirely of orthostats (Corcoran 1971, 52–3). The suggestion of a third chamber began to appear in the literature (Bramman 1972, 103; 1976, 6: subsequently corrected in Bramman *et al* 1982, 6–7; Masters 1989, 38). In 1976, the present writer re-opened and extended Corcoran's cuttings in the south-west forecourt, and demonstrated that Corcoran's possible chamber and entrance blocking could more plausibly be interpreted as collapsed revetment and cairn construction, partly associated with a rough revetment of near vertical, large slabs, built to take cairn pressure off the putative dry-stone south-west façade. It may be stated unequivocally that, apart from chambers A and B, no other chambers were built within the cairn.

Apart from a dozen granite and 22 quartz boulders, probably derived from the glacial till, the tail of the cairn was composed of the local Middle Old Red Sandstones. There was enormous variation in size, from quite small stones measuring 0.3 m by 0.3 m by 0.1 m, to some very large stones measuring 1.5 m by 1.1 m by 0.5 m, and weighing up to 2 tonnes.

Although the cairn appeared at first sight to have been built in a haphazard way, some structural patterns of building could be made out. While there was no regular or continuous spine to the cairn at the basal level, there was a detectable tendency to build outwards from the longitudinal axis (illus 10). This manifested itself in the pitching and overlapping of slabs, particularly in levels above the basal course. The pitching of the stones varied from 30° to over 60°, and the long axes tended to be placed pointing down towards the edge of the cairn. Such a method of construction poses problems for the stability of any revetment which is not bonded into the cairn. Elsewhere in the cairn, it may be suspected that once a particularly large stone had been manoeuvred into position, other slabs were simply piled up around it.

There were occasional vague lines of semi-upright large slabs running across the cairn. The most evident of these occurred at 10mN, where some of the stones were earthfast or were at least resting on the pre-cairn land surface; it is most likely that this line was designed to prevent cairn pressure on the dry-stone south-west façade. Other lines, which occurred between 13–14mN, 16mN, 26–27mN and 30mN, were not so clear: in many cases the vertical or near-vertical slabs were located in the upper part of the cairn, and did not penetrate to the pre-cairn land surface. These lines can in no way compare with regular gang divisions seen elsewhere. While no conclusive proof could be derived from the excavation of the cairn alone, it is the present writer's opinion that it was built in sections from chamber B to the south-west façade. This is suggested by the slightly radial pitching of the stones in the vicinity of the south-west arc of the putative

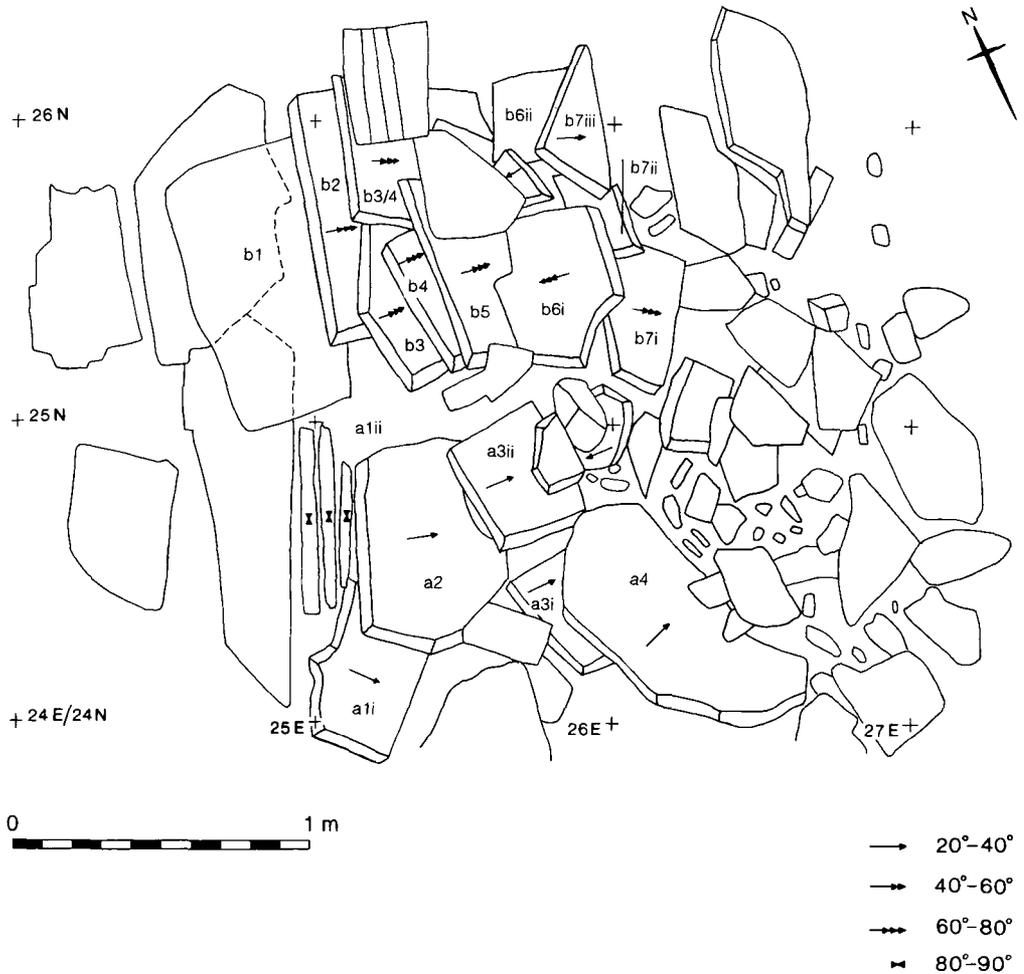


ILLUS 10 Partial cross-section of long cairn

circular revetment around chamber B, and perhaps by the changes in alignment of the revetment on the south-east side. It is also of significance that many of the semi-upright slabs, which defined the transverse lines across the cairn, were tilted towards the north-east. It is suggested that these lines may mark the completion of a season's building activity, requiring no more than a roughly built 'revetment' to prevent collapse of the cairn. It will be argued below that the post-holes located on the longitudinal axis of the cairn may also be indicators of changes in the alignment of the cairn, brought about by building in sections over a period of time.

Long cairn revetment and extra-revetment

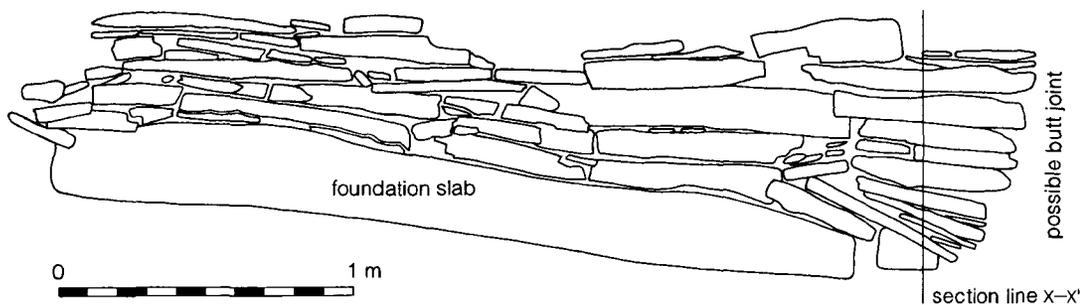
As it is presently restored, the long cairn is retained by a double revetment throughout its north-east half and by a single revetment in the south-west half, apart from a short continuation of the double revetment on the south-east side (illus 4). Where two revetments are present, the inner is higher than the outer and served as the main retainer of the cairn. By 1976 restoration of the cairn revetments on the south-east side was complete to a point 7 m south-west of the entrance to chamber B and a further 5 m stretch had been restored towards the end of the cairn in Corcoran's cutting VIII. On the north-west side restoration was complete from the end of horn A to a point behind chamber B, where the double revetment disappeared into the bulge of replaced cairn material covering chamber B. For reasons which are advanced below, the writer considers that the present restoration is incorrect for the north-west side in the north-east half of the cairn. With this in mind, the results of the writer's 1976–80 excavations are examined first. The experience gained in excavating and reconstructing over 40 m of revetment is then used to consider the results of Corcoran's excavation.



ILLUS 11 Plan of collapsed long cairn revetment between 24mN and 26mN

The reasons for the presence of extra-revetment have been frequently debated, with explanations ranging from deliberately placed masking stonework, platforms, the results of cairn and/or revetment collapse, to a combination of these explanations. Where special effort might have been made to procure suitable blocks or slabs for revetments when, for example, cairns are largely composed of rounded boulders, such material should be readily detectable even if the revetment had collapsed. Even as at Camster Long, where stones of similar appearance are used both for cairn building and revetment, foundations normally remain *in situ* and, so long as these can be disentangled from overlying cairn collapse and the mechanics of revetment collapse understood, direct reconstruction of revetments is possible, particularly with such a suitable building material as Caithness flagstones.

As a major objective of this excavation was the reconstruction of the external appearance of the cairn, it was most important that both the height and appearance of the revetments should be determined as accurately as possible. Clearing and cleaning of large areas on the margins of the tail of the cairn revealed a relatively undisturbed profile from the top of the cairn to the edge



ILLUS 12 Elevation of standing section of long cairn wall on north-west side between 22mN and 25mN

of the extra-revetment; there were no immediately obvious indications of any revetments, either single or double, apart from a stretch on the south-east side between the end of horn C and the start of the already restored revetment in cutting VIII.

In order to satisfy the twin aims of archaeological information and restoration, two strategies for excavation of the extra-revetment were attempted in 1976. The more successful was undertaken on a small area of extra-revetment on the south-east side near the end of the cairn, which had been left relatively undisturbed in cutting X. As the line of a single revetment was clearly visible, Corcoran having removed most of the surrounding extra-revetment, it was decided to replace the pitched and stacked stones of the extra-revetment directly onto the already visible foundations. Beginning with the first stone in contact with the foundation, each successive course was excavated and replaced on the preceding one. While it was not particularly difficult to achieve a direct estimate of revetment height, the interbedding of courses was more difficult. Nevertheless, this was possible in some cases when, as here, the revetment seemed to have collapsed as a complete unit. Thus reconstructed, the revetment stood to a height of 0.7 m and there was no indication of a second revetment either in front or behind. This method of working was found to be most satisfactory for revetment reconstruction, and also had the merit of forcing consideration of the position of virtually every stone. With only one or two small exceptions, this method was adopted for the excavation of the remaining extra-revetment. An example of the detailed planning is given in illus 11, and an elevation drawing of the only standing section of the revetment in the tail of the cairn in illus 12.

So far, the revetment reconstruction had been undertaken over small stretches. It was still not known where the double revetment on either side of the cairn ceased, given that only a single revetment had been found at either side of the end of the cairn. It was, therefore, particularly important to establish accurately the line of the revetment or revetments over as long a stretch as possible.

The area between 26mN and 33mN on the south-east side was crucial in covering the change from a double to a single revetment (illus 13). This section was divorced from the already restored north-east half of the cairn by an unrecorded area, probably dug in 1973. After the removal of loose surface stones, it became clear that the characteristic tilted stones of the extra-revetment lay further into the cairn than those visible to the south-west. The line of the inner revetment was first established by removing cairn material from behind it, and was found to be still standing to two or three courses in height (max height 0.36 m). As there were still a few slabs in contact with the *in situ* courses, these were slid back into position. Fortunately, this had the effect of revealing the bottom courses of the collapsed outer revetment which, again, had two to three courses more-or-less *in situ*, but only 0.15 m in height. The difference in height between the



ILLUS 13 South-east side of cairn between 20mN and 30mN including extra-revetment

inner and outer revetment could then be seen as the product of the use of different shaped stones. Those used for the inner revetment were of the usual fairly thick and light-coloured slabs encountered elsewhere in revetment reconstruction. In contrast, those used for the outer revetment were very much thinner, only some 20–30 mm in thickness, and very much darker in colour. This selective use of stones of different appearance enabled the reconstruction to proceed. The thicker, light-coloured stones were almost always found overlying the thinner, dark-coloured ones, so the former were first replaced on the inner revetment. While these stones were frequently not in direct contact with each other, their removal revealed that the thinner slabs were. These were then reconstructed onto the outer revetment. As with the previous section, most of the extra-revetment material was absorbed in the reconstruction.

The effect of this reconstruction was to produce an inner revetment around 0.8 m in height at 32mN, decreasing slightly to about 0.7 m at its termination at 28mN (illus 14). The outer revetment could be reconstructed to 0.4 m at 32mN but increased in height until it reached 0.9 m at 27mN. The visual effect, therefore, was for the inner revetment wall, consistently higher than the inner on this side in the north-east half of the cairn, gradually to disappear behind the increasingly higher outer revetment (illus 3). The visual effect was further enhanced by the different colours and thickness of the stones used. There was no positive archaeological evidence for the original appearance of the junction at 27.5mN between the outer revetment and its continuation as the only revetment. There must have been a marked visual contrast, in that the single revetment was built with thick, light-coloured slabs and blocks, whereas the outer revetment was composed of thinner, darker-coloured slabs. The difference in thickness suggests that it would not have been very practical to interleave the courses: accordingly, it has been



ILLUS 14 South-east side of cairn between 20mN and 30mN showing (*left*) reconstruction of single revetment and (*right*) partial reconstruction of inner and outer revetments; from south-east

restored as a butt joint. Some support for this might be given by a butt joint in the revetment, directly opposite on the north-west side of the cairn. The position of the foundation stones left no doubt that the outer revetment line was the one chosen for the continuation of the revetment to its termination with horn C.

The conclusion must be that the extra-revetment around the tail of Camster Long can be interpreted only as the remains of a collapsed revetment or revetments, with some additional stones resulting from the slumping of the outer edge of the cairn. Only a few artefacts were found under the revetment collapse and these are not appreciably different to those found under the cairn.

The detailed examination of the extra-revetment around the south-west half of the cairn has enabled the writer to examine the evidence for the rest of the cairn, as provided by the photographs taken during Corcoran's excavations. For the south-east side, the only point of disagreement which the writer has with the present restoration is the short stretch of outer revetment to horn B. From the north-east façade to the entrance to chamber A, there was considerable collapse but with sufficient evidence for a double revetment. Beyond the chamber A entrance, there was again considerable collapse for about 2 m, but there was then a stretch of about 3 m where the inner revetment was found still standing to perhaps its original height of just over 1 m. Another collapsed stretch of over 2 m was then followed by about 6 m to the junction



ILLUS 15 Inner and outer revetments on south-east side between chambers A and B; from north-west

with the entrance to chamber B, where the inner revetment was still standing up to 1 m high and with up to three courses of the outer revetment still in situ (illus 15). The restoration of the inner revetment at a height of 1 m and of the outer revetment at a height between 0.3 and 0.35 m seems satisfactory on the basis of the photographs. The final appearance of a strongly built inner revetment and a less substantial outer revetment, perhaps more decorative than functional, is substantially in accord with the archaeological evidence. Corcoran noted that there was no bonding of the outer with the inner revetment. This was confirmed by what remained of the double revetment between 28mN and 33mN.

For the north-west side, the picture is by no means so clear. As presently restored, it consists of a double revetment from the end of horn A to its disappearance into the start of the bulge of replaced cairn material behind chamber B, at 45mN (illus 4). The writer has even deeper reservations concerning the outer revetment to horn A, and the photographic and plan evidence may be interpreted to indicate that only a single revetment was built for half the distance between the north-east façade and the present disappearance of the double revetment into the bulge of cairn material behind chamber B (illus 4). It was unfortunate that most of the excavation of the revetments in this section seem to have taken place in some haste during 1973; this may partly have been due to the placing of the fibreglass domes (effectively skylights) over chambers A and B, the positioning of which would have required clearance of the extra-revetment to allow access for the crane. The writer's interpretation of the evidence is that from the north-east façade for a distance of about 8 m, there was only a single revetment, on the line presently taken by the

restored inner revetment. Between 51mN and 53mN, the original revetment kinked out slightly for 2 m, and then continued, on the line presently taken by the restored outer revetment, until it disappeared into the bulge of cairn material behind chamber B, at 45mN. A section of double revetment is clearly visible to the photographs, starting at 51mN and continuing to at least 44mN.

The arguments against the present restoration may now be given. These must, perforce, be based only on photographs, a few comments in Corcoran's notebooks and the 1:100 site plan. The only published record of the 1967 trench between 38mN and 41mN (illus 4) mentions a double revetment for the long cairn and no traces of a circular revetment around chamber B (Cruden 1967, 56). Nevertheless, when the approximate positions of the two revetments are plotted from photographs taken at the time of the excavation, the inner one appears to fall very close to the line of the circular revetment located in 1973 and is, in the writer's opinion, a continuation of it. In build it is similar to the circular revetment around chamber A.

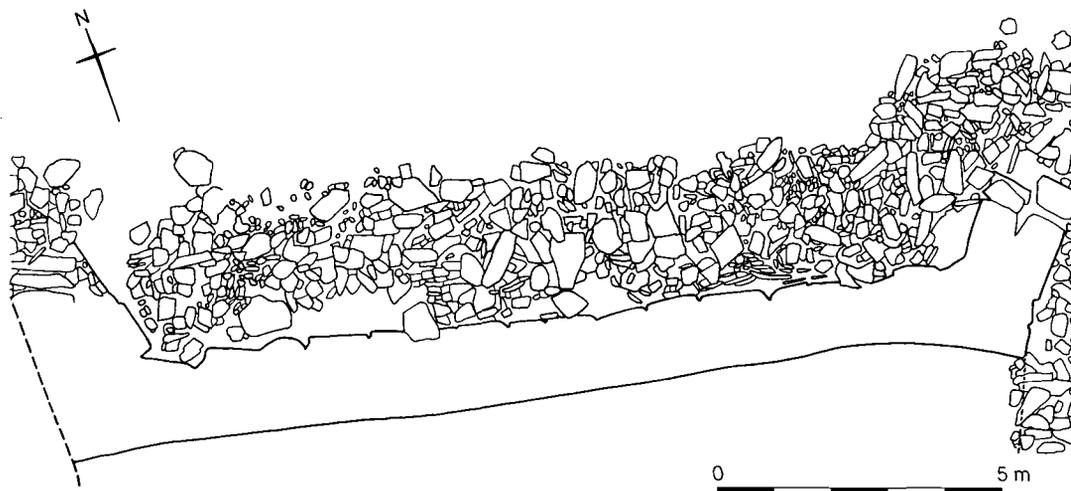
If the above hypothesis is accepted, it still leaves open the question of when the double revetment contracted to a single one. This would have to fall between 41mN and 45mN. Unfortunately, the 1973 photographic record is so poor here that it would be impossible to offer a single solution. Notwithstanding what appears to be a slight outward kink to the inner revetment at 43mN, the writer would suggest that the inner long cairn revetment may have stopped at about that point, with the outer revetment continuing as the only long cairn revetment to the south-west end of the cairn. This would be consistent with the situation on the south-east side, as well as with the situation on the north-west side between 50mN and 52mN. Other hypotheses could easily be advanced: the inner long cairn revetment could have continued and abutted the circular revetment, or it might really have kinked outwards at 43mN to become the only long cairn revetment, with the outer one merging with it. There is no way now of resolving these dilemmas and it is perhaps as well that the uncertainties are hidden by the present 'bulge' in cairn material.

THE NORTH-EAST FORECOURT

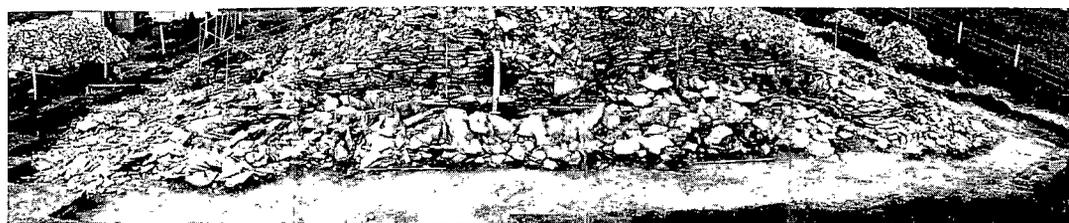
As now restored, the main features of this area comprise a shallow forecourt area, formerly filled with stones, defined by a low platform and short, stepped horns. An unbroken dry-stone façade was built roughly parallel with and behind the platform (illus 16 & 17). Apart from Anderson's initial excavation and some temporary preservation measures taken by the former MoPBW in 1967–8, the excavation and subsequent restoration was entirely the work of Corcoran in 1971.

Anderson (1869a, 221–2) describes how, following precedent established by his and Shearer's work at the South Yarrows long cairns, they drove 'an opening on the level of the ground a considerable way into the mass of the cairn, directly in the centre between the horns'. They had expected to find the entrance to a passage but, instead, encountered an outer dry-stone wall, built to a height of 5–6 ft (1.52–1.83 m) (Anderson 1869a, 222) or alternatively 7 ft (2.13 m) (Anderson 1868, 491). Surmising that this outer wall may have been a later addition, they broke through it and found an inner wall, running parallel with the outer, at a distance of 3½ ft (1.07 m) behind it.

Photographs of the façade taken during Corcoran's excavation clearly show a major disturbance in the centre (illus 17). Assuming this to be Anderson's trench, it was about 4 m wide at the top and 2 m wide at a level just above the platform. It is debatable whether Anderson's trench was dug 'on the level of the ground' as there appears to be no major disturbance of the stones in the forecourt, apart from a small area immediately in front of the platform. There is also



ILLUS 16 Plan of north-east forecourt and blocking

ILLUS 17 North-east forecourt with blocking *in situ*; from north-east

some difficulty in reconciling Anderson's account of an inner wall with the results from Corcoran's excavation (below).

Despite the considerable disturbance in its centre, the top of the façade could still be seen to rise in a smooth curve from the side revetments. The space between the horns was filled with slabs, generally tilted with the long axes perpendicular to the line of the platform and façade. This uniformity was broken in the areas immediately adjacent to the inner faces of the horns, particularly horn B, where the tilt of the stones ran parallel with the splayed line of the horns (illus 16 & 17).

Removal of the stones in the central area of the forecourt suggested to Corcoran that they represented a forecourt blocking, extending outwards from the outer edge of the platform for an average distance of 2.6 m. It was, in any case, unlikely to be the product of any collapsed structure as, apart from the disturbed central area, the façade was still standing. Many of the stones appear to have been tilted at angles of between 30° and 60°, the tilting becoming more pronounced as the outer edge of the platform was approached. Indeed, adjacent to the platform, a number of vertical stones was recorded. The situation adjacent to the inner faces of the horns was, however, much more complicated. From his site notebook, Corcoran appears to have considered the possibility of low walls immediately in front of the inner sides of horns A and B. Particularly with regard to horn B, the forecourt blocking took a different line with the stones being tilted parallel with the platform and curving round to follow the line of the inner face of the horn, between 0.6 m and 0.8 m in from it. The space between the blocking and the horn was not recorded in detail, but

Corcoran thought that a low wall had been built at an angle, from the tip of the horn to mid-way along the second foundation block of the platform. In the absence of plans and photographs, the evidence for this feature can not be conclusively demonstrated. Nevertheless, a similar feature was reconstructed for horn A which, on the evidence available, looks even less certain.

It is, unfortunately, not always clear from the finds record whether artefacts actually occurred within the forecourt blocking or on the underlying ground surface: the vast majority do, however, seem to have come from the latter context. A few pieces of flint were found, including an end scraper and two side scrapers. Rather more in the way of pottery was found including three (unfortunately undiagnostic) sherds from within the forecourt blocking.

Analysis of the pottery suggests that sherds from at least five pots were present in the forecourt area (Henshall, below). Vessel P2 is represented by over 100 sherds including, by Camster Long standards, a large number of rims. The majority of the sherds were found centrally positioned in the forecourt, close to the platform and probably in association with the burnt area mentioned, but not defined, in Corcoran's site notebook. In contrast, P3 is represented by only two rim sherds, one to either side of the forecourt and over 9 m apart. With the exception of one sherd, the assemblage of 25 sherds for P5 all came from the vicinity of horn A: the exception, which is positively associated by a join, came from the south-east side of the forecourt. A single rim sherd, which came from exactly the same location as the exceptional sherd in P5, is all that could be identified with P12; a fragment of a rim sherd is all that can be associated with P13.

Two decorated stones were recovered from the forecourt blocking. The first, located at the outer edge of the blocking has 26 vertical, or near vertical incised lines along one edge. The other was, it seems, recovered from the spoil heap but presumably came from the blocking. It has at least 46 similarly incised lines, but has been damaged near the centre.

The removal of the forecourt blocking laid bare the front edge of a low platform, built about 1.5 m out from the façade at its junction with horn A, but only 1 m in the corresponding position with horn B. The platform survived to a height of no more than 0.6 m. Unfortunately, the photographic record is unusually deficient; details, therefore, have had to be abstracted from photographs taken with the forecourt blocking *in situ* and during restoration.

The platform was clearly built on substantial foundation blocks, the stones in the centre smaller than those to either side. The rest of the height of the platform is made up of several courses of thin slabs, and there may have been some surviving traces of larger slabs used as a top surface. The platform was not bonded into the façade behind.

The ends of the platform curved out to form the short horns, which define the forecourt area giving it a maximum width of 16.5 m, and a depth which varied from 1.6 m at the south-east end to 2.10 m at the north-west end (illus 27). As presently reconstructed, the top of the platform sweeps out to either side to form the top surface of the horns. Three steps then descend to form the end of horn A, and four steps to form the end of horn B. The middle step of horn A is continued round to form the low wall within the forecourt area and, on the outer face of the horn, the present low, outer revetment wall of the long cairn. The same functions are fulfilled by the first step down from the platform in the case of horn B. Without the steps, horn B, the only one which can be measured with any accuracy, is 2.4 m in length from its junction with the outer edge of the façade.

With due deference to anything which may have been in Corcoran's mind at the time of the excavation, and which was not subsequently recorded in the site notebook, plans or photographs, the writer is unable to agree with the restoration of the steps and low, outer revetment wall on the information available to him. On the photographs of both horns, although not covering every stage of excavation, the writer can see no evidence for steps; the stones lying beyond the ends of

the horns look no different to those in the forecourt blocking. Above the foundation blocks of the inner face of the horn, the courses of dry-stone building of the platform curve round to the end of the horn. Again, there does not seem to be any indication of steps.

For reasons already argued above, it seems unlikely that the north-west side of the cairn was bounded by a double revetment throughout the north-east half. This brings into dispute the low revetment on the outer edge of horn A. What can be deduced from both photographs and plans suggests that there was no outer revetment to this horn.

The final element in the north-east forecourt is the dry-stone façade. Anderson's excavation in the centre has already been described. Nevertheless, the rest of the façade remained in a remarkably good state of preservation, although subject to some slumping of the courses and to collapse in the vicinity of Anderson's trench. Built with the long axes of the slabs placed parallel with the face of the façade, it included some quite long and thick stones, up to 0.9 m in length. The effect seems to have been to produce a smooth curve to the top of the façade, reflecting the profile of the cairn. Some large slabs, which formed the top course of the left-hand side of the façade (when viewed from the forecourt), may have acted as a coping. The maximum surviving height of the façade would seem to be about 1.5 m above the top of the platform: this would give a maximum height of around 2 m to the left of Anderson's trench. If the curve to the top of the façade continued, the maximum height above ground level at the centre would have been about 2.5 m. This would be a little higher than the maximum height of 7 ft (2.13 m) given by Anderson (1868, 491), but it may be strongly suspected that Anderson was not measuring from ground level. Its total length, measured from the faces of the inner revetments, is 17 m. Although described as straight, this is not strictly true, as it curves back slightly into the cairn at both ends. Corcoran records that the façade met the side revetment (presumably the inner one) at right-angles on the south-east side, and that horn B appeared to be butt-jointed against it. No details were recorded of the relationship between platform and façade, but it does not look as if the former was bonded into the latter. Similarly, no details were recorded of the lower courses of the façade behind the platform.

The remarkably fine state of preservation of the façade calls for some comment, particularly as it can be assumed that it was standing complete at the time of Anderson's excavation. The façade was, of course, subject to the same cairn pressure which caused the collapse of so much of the revetments. Anderson's account of finding a second wall behind and parallel to the façade may provide a clue. During rebuilding work on the north-west half of the façade, it was necessary to remove cairn material from behind. This was done after Corcoran had left the site at the end of the first season, but on a later visit he was told by the masons that there was a suggestion of an inner wall behind the façade. No further details are given, but Corcoran thought this might be the survival of the original cairn of chamber A. From what the writer can reconstruct from the photographs, it seems unlikely that the masons were working to any depth within the cairn in proximity to the projected line of the round cairn revetment. It is, therefore, very tentatively suggested that there might have been a second, perhaps rough-built, revetment behind the façade, which would have contained the pressure of the cairn from the façade itself. If this did indeed occur about 1m behind the façade, then it could well be Anderson's second wall.

To summarize the writer's views on the present restoration of the north-west forecourt, there is little conclusive evidence for either the steps at the ends of the horns and the outer revetment to horn A. There is a little more evidence for the continuation of the outer revetment to horn B but even here the position is uncertain. The restoration of low revetments between the ends of the horns and the platform seems reasonable in view of the curve taken by the forecourt blocking, but there is still doubt in the writer's mind on the basis of the evidence now available.

Detailed stone-by-stone arguments are presented in the full archive report lodged in the NMRS.

THE SOUTH-WEST FORECOURT

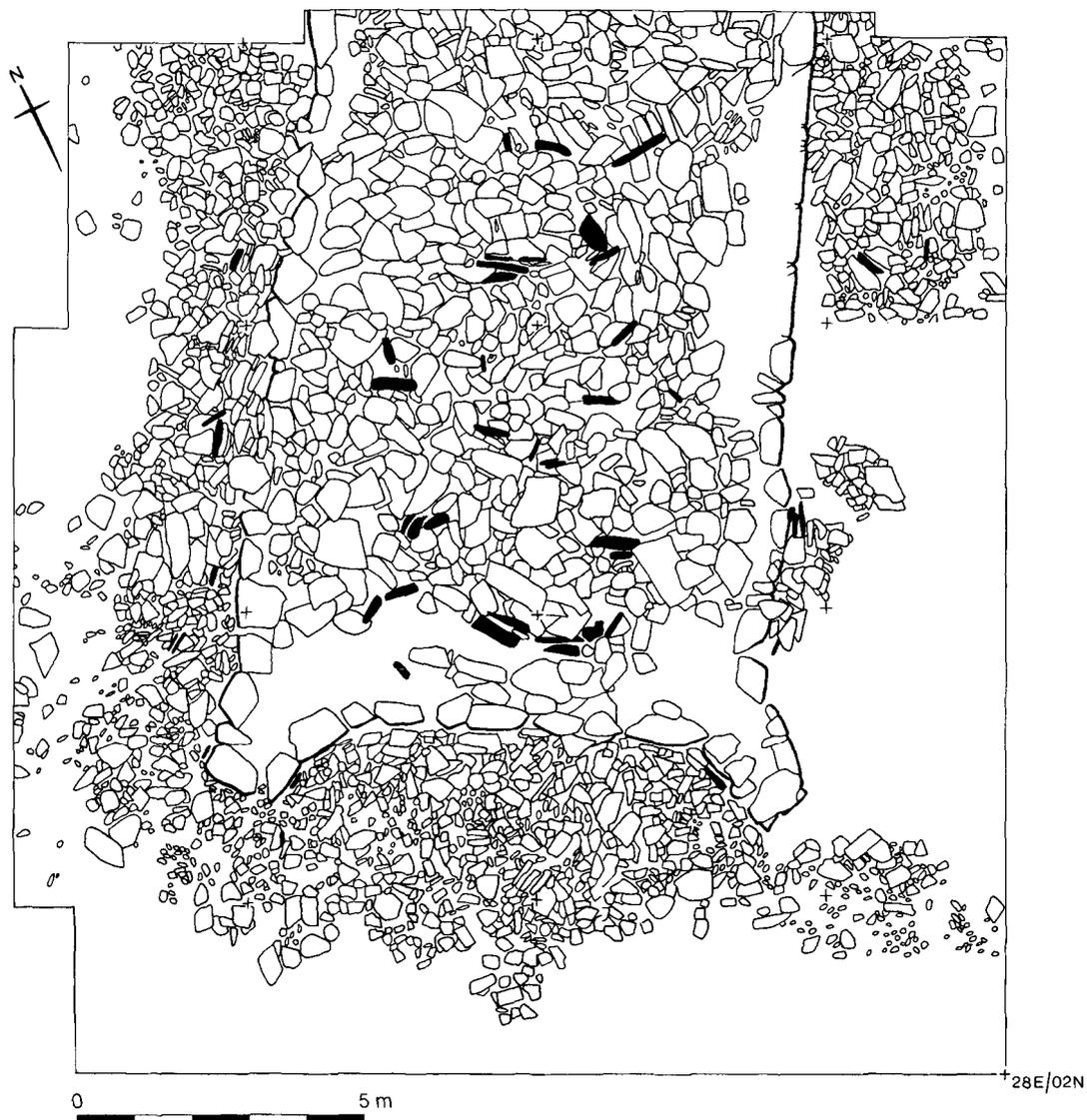
It seems certain that Anderson never undertook any excavation work at the south-west end of the cairn. Nevertheless, he was able to indicate a double revetment at this end, mirroring the situation he found and excavated at the north-east end. This is significant in view of the denuded state of the south-west end encountered in the recent excavations.

The forecourt area between and beyond the horns was completely filled with slabs, generally of small size (up to 0.6 m by 0.4 m), and a few blocks (illus 18 & 19). From the centre of the platform, the stones extended outwards for a distance of 5 m, considerably further than that recorded by Corcoran for the north-east forecourt. Adjacent to the platform and horns, the stones were steeply pitched at angles between 60° and 80° and, against the edges of horns C and D there were a few vertical stones. It was noticeable that the stones nearest the platform and horns were thinner (less than 0.1 m) than those elsewhere. The angle of pitching of the stones decreased with distance from the platform and horns, until at a distance of around 1.5 m from these features the majority of the stones were either horizontal or tilted at an angle consistent with the general fall of the ground surface. The stones were more densely packed, and up to five layers thick, in proximity to the platform and horns; they were more widely spaced and only one or two layers thick towards the extremity. The strong implication is that the stones lying between the horns and platform constitute a deliberately placed forecourt blocking, perhaps associated with some minimal collapse or deliberate destruction of dry-stone building from the top of the platform foundation blocks.

The removal of the forecourt blocking revealed a subsoil which varied in colour from yellow to brown. It was particularly variable beneath the outer edge of the forecourt stones at the interface with the encroaching peat cover. Some of the stones lying on the extremity of the forecourt were set on or in peaty soil. This would indicate post-Neolithic activity, some of it on the south-east side of comparatively recent date as the stones overlay peaty soil, up to 200 mm thick.

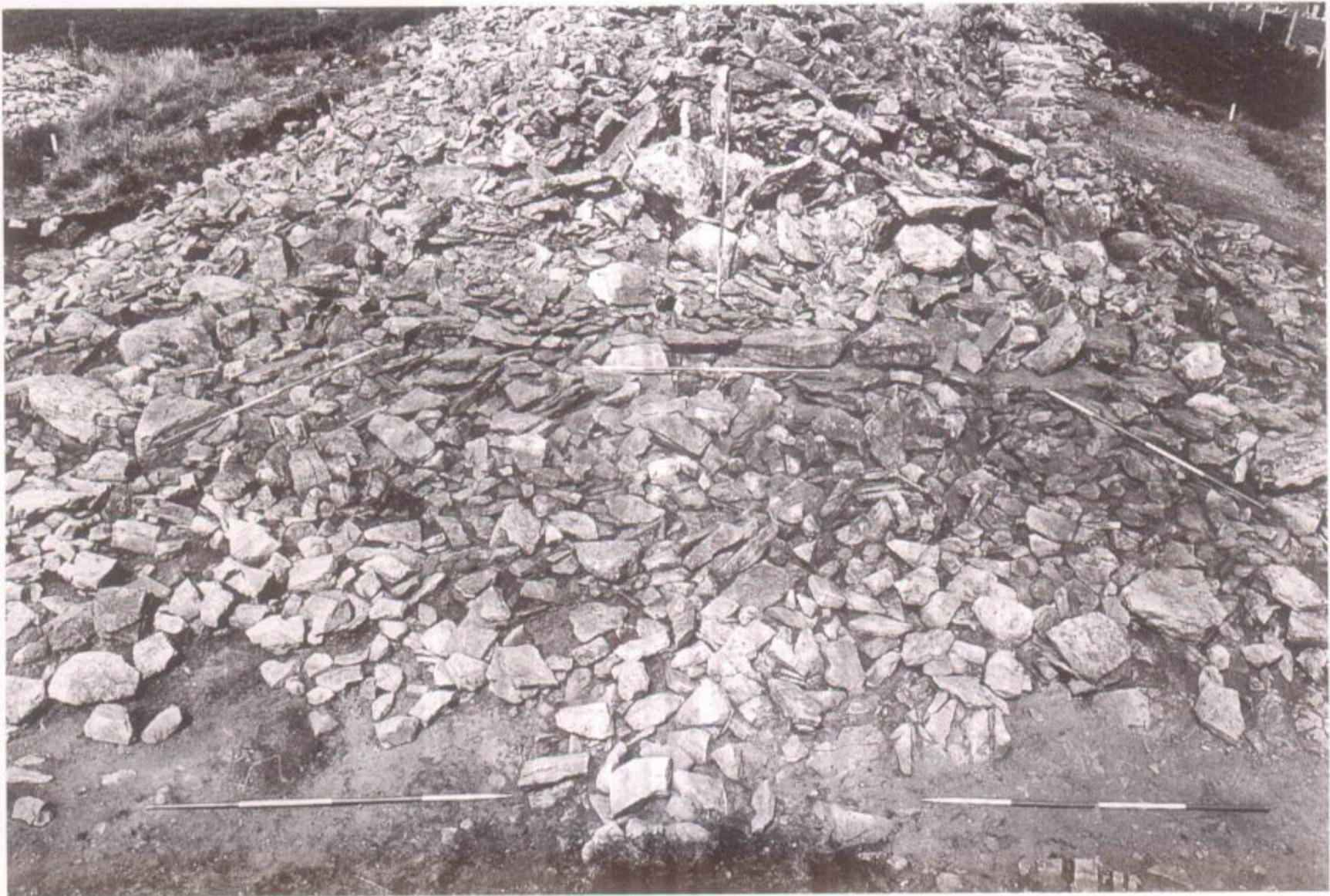
Within the forecourt there were two features: a centrally positioned burnt area adjacent to the edge of the platform and a small pit under the north-west half of the blocking (both have been discussed above). There were a few small finds. The pottery consisted of mostly small, undiagnostic sherds which, with the exception of one sherd which was between stones of the blocking, all came from below the forecourt blocking. The only diagnostic sherds belong to Vessel P21 (Henshall, below). Of the flaked stone, there was one end scraper of chalcedony and a nodule of the same substance. The rest consisted of flakes and two retouched pieces of flint (cat nos 437–45).

The forecourt measured 8.5 m wide between the inner ends of the horns and only 1.6 m in depth (illus 18 & 20). The outline, as defined by the foundation blocks of the horns and platform, ran from gently concave along the inner edge of horn D to fairly straight along the centre, but with a sharper angle join for the inner edge of horn C. The foundation blocks were variable in size, but generally large, ranging in length from 0.5 m to 1.4 m, and up to 0.5 m in thickness. The dry-stone walling had tilted forward so that it partially overhung the forecourt blocking, which provides a further indication that the stones in the forecourt were a deliberate blocking and not collapse.



ILLUS 18 Plan of basal layer of cairn between 02mN and 21mN, extra-revetment and south-west forecourt and blocking

The inner and outer edges of horns C and D were similarly defined by large blocks, although a little smaller than those used for the platform. Only at the end of horn C were there two courses of blocks. The spaces between the foundation blocks of the horns were filled with small slabs, blocks and rounded stones. So defined, the inner faces of both horns are just under 2 m in length. There was absolutely no indication whatsoever of any stepped construction of the kind reconstructed in the north-east forecourt. The ends of the horns do present one interesting architectural feature. When viewed from the south-west beyond the forecourt, the foundation block of horn D and the upper block of horn C are both inclined upwards from the forecourt to the outer edge. This produces quite a pleasing effect and seems to have been a deliberate feature.



ILLUS 19 South-west forecourt with blocking *in situ*; from south-west



ILLUS 20 South-west forecourt with blocking removed, platform, façade and cairn; from south-west

The outer edges of the horns are set slightly out from the line of the long cairn revetment. Apart from this, there does not appear to have been any break in construction.

The space behind the platform foundation blocks was filled with loose rubble, scree, soil and some large blocks and slabs. It was apparent that there were the foundations of a dry-stone revetment running at an angle behind the platform, at a distance of 0.9 m at the south-east end and 1.4 m at the north-west end, measured from the outer face of the platform. It will be recalled that Anderson indicated a second wall in this position, but it would have been unlikely that he could have seen it in his day, if it had been in its condition as found in 1976. It is assumed that this is the foundation of a façade, similar to that at the north-east end. It measures only 4.8 m in length and, while it is roughly parallel with the platform in its south-east half, the north-west half curves away from the platform into the cairn (illus 18). So far as could be detected (the area was not completely examined as it was decided not to move the foundation blocks of the platform) the foundations consisted of quite thin slabs, no more than 0.2 m thick, on top of which there were up to seven courses of dry-stone walling, giving a maximum recoverable height of just over 0.6 m. Two small vertical stones seem to have been placed as buttresses for the façade. The ground level rises from the outer edge of the platform to the outer edge of the façade, making the latter just visible above the platform. The façade was backed by a number of large vertical slabs, only two of which proved to be earth-fast. It was these slabs which were formerly considered to be a chamber but it is here suggested that they formed an irregular backing revetment to retain cairn pressure from an originally more substantial dry-stone façade.

An explanation for the disappearance of the façade was readily available. Just over 10 m south-east of horn C was a circular sheepfold. This was demolished in 1985 and replaced with a new one about 100 m to the north-east. It seems to the writer more than likely that the stones for the sheepfold would be taken from the nearest convenient source: the end of the cairn. The sheepfold is not shown on the Ordnance Survey map of 1871, although others in the vicinity of Camster Long are. This indicates that it was built after Anderson's excavations, and that the façade might well have been clearly visible in his day. Even allowing for robbing, it was quite clear that the foundations of the façade did not extend to the side revetments of the long cairn. At either end, the basal stones of the cairn continued uninterrupted through to the horns. This was particularly true of the north-west end, where the tilted base blocks precluded any continuation of the façade through to the long cairn revetment. There was just the suggestion that the façade might have turned at right-angles into the cairn at the north-west end, but the evidence was unclear and in any case must have stopped within 0.7 m of the turn.

Without direct evidence, the façade has been restored, on the basis of the profile of the north-east façade, to a height of 1.4 m above ground level at the centre.

CISTS

Two small cists were found during the course of the excavation (illus 4). The first, in 1972, was located on the longitudinal axis and just below the top of the cairn between chambers A and B. Corcoran gives few details, but it seems to have consisted of four slabs set vertically into the cairn, measuring internally 0.7 m by 0.5 m and was covered by a capstone. Although it appeared undisturbed, it contained nothing but loose stone, probably flaked off from the underside of the capstone.

The second cist was located at the edge of the collapsed long cairn revetment on the south-east side, interestingly in a line perpendicular from the end of the inner revetment of the long cairn. It was poorly built and, although three of the side stones were still vertical, the fourth had

been displaced inwards at one end. Allowing for this displacement, the cist measured 0.32 m by 0.28 m internally. It was still partly covered by its capstone but this had evidently been displaced as it was resting in part on peaty soil. The cist had been set in a shallow pit, the upcast from which could be detected in two small mounds on the south-east side. The contents of the cist consisted of black humic soil at the top, shading to dark brown above a flat stone which formed the floor. There were no finds from within the cist but one tiny sherd of undiagnostic Neolithic pottery was recovered from the backfill of the cist pit.

OUTLYING STONE BLOCK

A massive block, measuring up to 1.9 m and weighing in excess of 2 tonnes, was located some 4 m beyond the edge of the long cairn revetment on the north-west side, and at the edge of the revetment collapse. It was decided to raise the north-east end of this massive stone, using block and tackle. Beneath, there appeared to be an undisturbed soil profile. There was no evidence, in the form of a cut or pit, that the stone had once been erected. This still leaves open the question of why this massive block is where it is. If it was brought to the cairn by human agency, why was it not used? Perhaps this massive block represents a failure of Neolithic effort to create some spectacular feature in the tail of the cairn, just as the modern human effort involved in its excavation led to largely unspectacular results.

THE POTTERY

Audrey S Henshall

ASSEMBLAGE

A considerable quantity of pottery was found in the course of the excavations, about 4.5 kg in all from 569 recorded findspots. This report was prepared in 1983 and revised in 1987. Mostly the pottery was scattered on the pre-cairn surface below the structure and beyond its limits, but a few sherds came from the blocking of the south-west forecourt, and one tiny undiagnostic sherd from a cist pit. On the pre-cairn surface joining sherds were found some distance apart, and sherds of different pots were found together. As would be expected, no joins were found between sherds from the pre-cairn surface and those in the blocking. The whole assemblage has the appearance of a coherent group. Unfortunately, the material is very fragmentary, and the greater part consists of small featureless body sherds. It is clear that all the pots are very incomplete; only two can be reconstructed with confidence and another with reasonable probability (illus 21: P2, P14, P1). For the rest, the rim sherds are small and the angle and diameter generally uncertain, some pots being represented by only a single tiny distinctive sherd. In many cases the surface of the pottery has been damaged. Differences in rim profile and fabric indicate that at least 20 pots are present, and probably considerably more.

DESCRIPTION

It is certain that five pots were carinated (P1, P2, P5, P6 & P7) and the concave necks of four others suggest these were also (P4, P9, P11 & P17). One pot was certainly not carinated (P14). The necks of the carinated bowls seem to have been vertical or slightly everted (though in most cases the angle has been estimated), and there is only a slight change in the angle of the pot wall between the neck and the lower body. Of the surviving carinations, three are unemphasized, (P1,

P6 & P7), but two have added external fillets to form a prominent ridge (P2) or a ledge (P5), and it is likely that another (P4) was treated in the same way. On bowl P1 low ill-defined lugs have been formed by applied clay, the lugs being vertically perforated. On one sherd the perforations are 57 mm apart, but it is uncertain whether this spacing continued round the bowl, or the lugs were arranged in pairs, or irregularly. It may be noted that on this bowl the walls become very thin below the carination. One sherd of pot P11 has a puzzling feature inside, the wall being thinned by cutting back sharply in a position which seems to have been just above a carination.

There is a considerable variation in rim form, from simple rounded or slightly thickened and flattened profiles (P7, P17, P15, P6 & P9), to thickened rolled forms (P1, P8, P18, P4 & P14) in one or two cases projecting in a graceful outward curve (P10, ?P19), or external flanges (P5, P12 & P13), one being particularly heavy (P3). The rim form of P2 with a wide internal flange is most unusual. The measurable internal diameters vary from about 200 mm to 300 mm.

The only decoration, with one possible exception, is by fluting. This can be seen across the rims of four or five pots (P1, P6, P8, P9, ?P18). On another (P2) the rim bears similar but narrow interlocking grooves best described as rippling, and another rim (P3) has narrow transverse grooves. On bowl P1 there is faint fluting on the neck as well, and the vague slanting dimples on the neck of P2 may be an intentional feature. Sherd P16 is exceptional in that it appears to have an applied fillet just below the rim; it is unfortunate that no more survives to verify that this is not a curious local aberration.

The fabrics are dark and mainly of good quality, being hard, dense, with small or moderate amounts of fine grits. Pot 1 is of outstanding quality with a black highly burnished surface, and is notably thin below the carination. Traces of burnished surfaces survive on other pots (P2, P3, P8, P9, P18 & P19), but some, generally the less carefully formed, were left with the surface slip unburnished (P5, P6, P10, P14 & P17). A few pots are friable due to over gritting, but have a thick slip (P7 & P10). Two pots (P20 & P21) are exceptional in that some of the temper has decayed, leaving cavities in the fabric. Building joins can sometimes be detected, notably on P2 where the fabric has consistently broken along these lines of weakness. Besides the outstanding quality of P1, pots P4 and P11 were thin and delicate, and most carefully made.

PROVENANCE

The Camster pottery clearly belongs to the early Neolithic tradition termed 'Grimston/Lyles Hill' or 'Grimston' by recent writers (Smith 1974, 106–11; J G Scott 1978, 56–60). In the north and north-east of Scotland there are two significant assemblages of this pottery, from Boghead (Henshall 1984) and Easterton of Roseisle, both in Moray (Henshall 1983, 19–24, 24–7; 1984); there is also a smaller collection of sherds from Midtown of Pitglassie, Aberdeenshire, and a group of very fragmentary sherds from Tulloch of Assery B in Caithness (Shepherd 1996; Corcoran 1966, 42–4; Henshall 1972, 310, 556–7). In general terms the ceramics from these sites have such obvious similarities that they may be regarded as comprising a well-defined local style. All have produced hard black burnished sherds, much of it with fluting, together with some coarser and more friable fabrics. The forms are mainly carinated with everted or upright collars and (as far as can be seen) shallow bodies, but uncarinated bowls are also present. The range of rim profiles almost exactly match those at Camster. Other sherds which may be regarded as belonging to this style have come from scattered and diverse sites in the north-east, some being stray finds, some from cairns which either have not yet been fully published or properly investigated (Henshall 1983, 28–30, 37–43).

The pottery from Tulloch of Assery B was recovered from beneath a passage-grave 27 km north-west of Camster. The pottery includes fluted bowls, both slack and emphasized carinations, and tiny lugs. There are also features not found at Camster such as internal fluting and a heavy lug from a straight-sided bowl, but considering the small number of distinctive sherds from Tulloch of Assery and Camster it would be unwise to stress these dissimilarities.

A single fluted sherd found in the burial deposit in the chamber at Tulach an t'Sionnaich is the only other acceptable example of this pottery style from a Caithness chambered tomb (Henshall 1972, 551); the sherds from Kenny's Cairn are not closely comparable, and material from other chambers excavated last century has been lost.

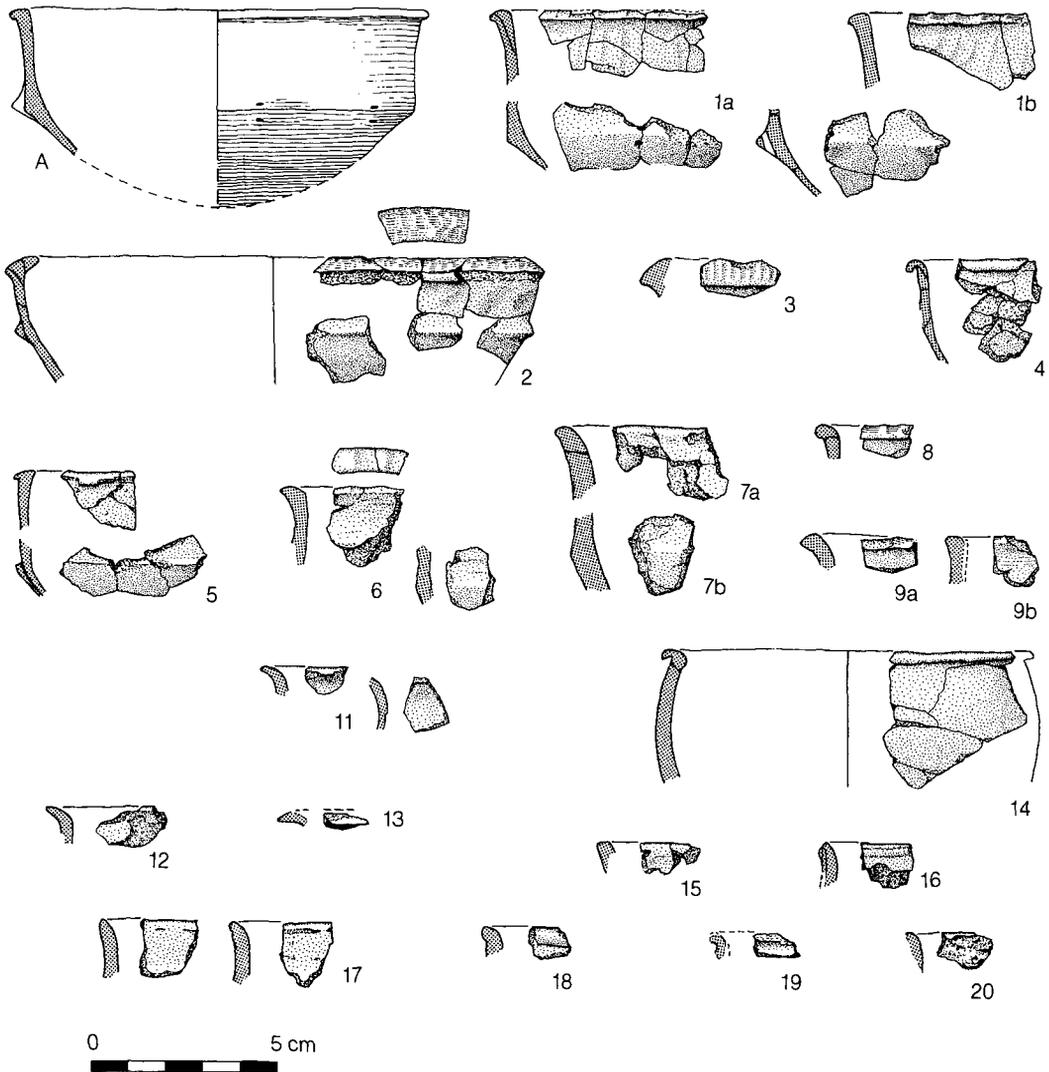
The fine-quality bowls from the two Moray sites differ from Camster in their graceful open forms and extensive use of fluting on the neck and sometimes also below the carination and inside. Lugs are rare, and are larger than the slight protuberances on Camster P1. But the curious thinning of the wall of several Easterton pots just above or just below the carination might be compared with similar features on Camster P1 and P11. The Boghead sherds were domestic debris partly found below a cairn (not chambered), and those from Easterton of Roseisle came from two pits.

Two features not known amongst the pottery from the north and north-east of Scotland are perforated lugs and internal rim flanges, as seen on Camster P1 and P2. Lugs on carinated bowls are unusual, though there is an example at both Boghead and Easterton; perforated lugs of any kind are very rare in Scotland. A small carinated bowl with such lugs and with fluting across the rim was found in the Clyde chamber at Cletraval, North Uist. This bowl (1B6) stands apart from the rest of the pottery in that chamber, which is typically Hebridean in form and decoration. The bowl came from above the lowest stratum in the chamber, but there had been disturbance in the area where it was found (Scott 1935, 494–7, 503; Henshall 1972, 308, 509). Another incomplete bowl even more closely resembling Camster P1 was found in the Clyde chamber at Cultoquhey, Perthshire (Henshall 1972, 306, 476). A third vessel with perforated lugs is represented by a sherd found on the old land surface beneath a barrow/cairn at Pitnacree, Perthshire, and may have been associated with a pair of massive posts similar to those found with mortuary structures. The form of this pot is not known, but other sherds from the site are not particularly close to the pottery style under discussion, though certainly they belong to the Grimston/Lyles Hill tradition (Coles & Simpson 1965, 42, 44). Otherwise perforated lugs appear spasmodically at southern English early or middle Neolithic sites remote both geographically and stylistically from the northern Scottish sites under consideration. The nearest parallels to the form of Camster P2, and only in general terms, are in the north of Ireland (eg Case 1961, fig 7, 24).

The radiocarbon dates from Camster — three from the buried soil beneath the cairn and one from the south-west forecourt — can be associated with the pottery. When calibrated the dates centre round 3700 BC. There are radiocarbon dates from Boghead and Midtown of Pitglassie which calibrate to around the same time (Burl 1984, 53; Shepherd 1996).

A single date from Pitnacree is a century or two later. All the Scottish pottery discussed above appears to be early in the local Neolithic sequence.

The burial structures with which some of the pottery is apparently associated are varied, including passage-graves, Clyde chambered cairns, cairns without stone chambers, and a pair of free-standing wooden posts. This variety of contexts is emphasized and extended by the pits at Easterton of Roseisle and the other sites in the north-east (listed by Henshall, 1983, 37–43). It cannot be proved that sherds underlying the cairns at Boghead, Pitnacree and Tulloch of Assery B were the products of the cairn builders, but the excavators considered this as probable. The association of the pottery with the cairn-builders is also probable at Camster. It is unfortunate



ILLUS 21 Pottery (A is a conjectural reconstruction of P1)

that only three of the sherds found in the area of the forecourt blocking only three are firmly recorded as coming from the blocking itself (nos 10, 34 & 35), and these are small undiagnostic sherds.

POTTERY CATALOGUE (ILLUS 21)

* indicates the angle of the rim can be established.

A stroke between finds numbers indicates the sherds join.

P1(a)* Sherds from the rim and carination of a pot; wide fluting across the rim, faint fluting on the neck; the gentle carination slightly expanded by applied clay to form low ill-defined lugs which are perforated vertically, four perforations surviving (on one sherd 57 mm apart); fine gritless grey

fabric, highly burnished black slip on the rim and outside, lightly burnished inside; internal rim diameter about 200 mm, the distance from rim to carination not established; nos 643/854, 737/718, 1044/1171, 1101/1284/1231, 1230.

- (b)* Rim sherd from a very similar pot except the diameter is about 150mm: possibly the same pot if the rim is irregular; nos 1069/1307
- (c) A number of small sherds from the rim, carination and body of the pot(s) represented by (a) and (b), or possibly some sherds from other similar pots; nos 653, 659, 687, 689, 690, 718, 733, 764, 840/902, 849, 939, 956, 1057, 1116, 1194, 1195/1277, 1202, 1218, 1230, 1284.
- P2* Numerous sherds from the rim and body of a carinated bowl; rippling across the rim, vague slanting depressions on the neck perhaps intentional; black sandy fabric with white grits, the slipped surface much worn but traces of burnishing, breaks along the building rings; internal rim diameter 250 mm; nos 8, 18, 21, 51.
- P3 Two small rim sherds distinguished by narrow fluting across the flange, the angle very uncertain; fine black fabric, one sherd with burnished surface, the other scorched brown; nos 13, 28.
- P4 Rim and body sherd; grey fabric, the temper including white grits and brown mica, fine buff-grey surface; the form and the damage below the rim suggest the pot was 'carinated' by an applied strip which has broken away; internal rim diameter about 250 mm; no 758, also possibly rim fragment 1153.
- P5 Sherds from the rim, carination and body, probably all from the same bowl; rather friable heavily gritted dark brown fabric; internal diameter at the carination about 200 mm; nos 18/49, 27, 35, 46.
- P6 Numerous sherds from the rim, neck, carination and body, probably all from one pot which varies somewhat in profile, the carination being slacker on some sherds and the neck less concave; wide flutes across the rim; hard fairly heavily gritted grey fabric, slip with tool marks outside, slip on the rim flange; nos 688, 698, 755/793, 758, 770/1096, 785, 792, 977, 1218, 1219, 1296, 1313, 1316, 1409.
- P7(a) Rim sherd; unusually friable heavily gritted brown fabric, the temper including mica, slipped surface, breaks along building rings; internal rim diameter about 300 mm; no 917.
- (b) Sherd from the carination angle, possibly from the same pot; no 1140.
- P8 Rim sherd; faint fluting across the edge; black fabric with sparse white grits, burnished surface; no 3.
- P9(a) Two rim sherds and some tiny body sherds all probably from the same pot; faint fluting across the rim; fine hard brown-black fabric, remains of black burnished surface; nos 439, 449.
- (b) Rim sherd possibly from the same pot; horizontal tool marks outside, the inner surface missing; no 1190; (a) and (b) drawn at different angles to indicate the range of possibilities.
- P10 Rim sherd; heavily gritted dark grey fabric, tool marks on the slipped surface; no 544. Also two tiny rim fragments possibly from this pot; nos 470, 1303. (not illustrated)
- P11 Three sherds from the rim and concave neck, almost certainly of a carinated bowl; distinctive harsh black fabric with very small grits, traces of black burnished slip; inside the neck sherd is a ledge, presumably from just above the missing carination angle; nos 1156, 1213, 1435. Also two small scorched rim sherds possibly of this pot; nos 728, 1431.
- P12 Rim sherd; rather soft dark grey fabric, slipped surface almost entirely flaked off; no 18.
- P13 Three rim fragments possibly from the same pot which probably had a thin wide projecting flange; hard dark grey fabric including sparse white grits; nos 21, 765, 838, 1020.
- P14* Rim sherd from an uncarinated bowl; black fabric with small white grits and mica, fine slip outside; charred material adhering; internal rim diameter 170 mm; no 1371.
- P15 Rim sherd; heavily gritted black fabric, uneven surface; no 1077.
- P16 Rim sherd which appears to have an applied fillet just below the edge outside; hard gritty grey-brown fabric; no 1104.
- P17 Six rim sherds, and some body sherds, all likely to be from the same large pot if this varied somewhat in profile, concavity below the rim suggests it was carinated; distinctive harsh grey fabric with buff surface; nos 1087, 1091, 1136, 1137, 1196, 1261, 1320.

- P18 Rim sherd and fragment from inside the rim; probably fluted on the inner edge of the rim; fabric and profile similar to 17 but distinguished by burnished grey surface inside; no 542.
- P19 Two sherds from the angle between the neck and projecting rim (the profile probably similar to 10); the fabric similar to 9 but much thinner, burnished inside; burnt material adhering; nos 560, 851.
- P20 Sherd from the inner edge of a rim: fine hard grey fabric; no 21.
- P21 Rim fragment with outer surface missing, and wall sherd; distinguished by the extremely friable brown fabric similar to 10 but with random impressions (of vegetable matter?) on the outer surface, the wall sherd thinner than 10; no 1113. (not illustrated)
- P22 Part of the lower wall of a round-based bowl; distinctive grey fabric, many of the larger grits having weathered out leaving cavities in the fabric and showing on the surface; nos 407, 408, 409. (not illustrated)

THE FLAKED STONE

Caroline Wickham-Jones

INTRODUCTION

The flaked stone assemblage from Camster Long cairn comprises 460 pieces. The majority is of flint, but quartzite, quartz, chalcedony, silicified sandstone and pitchstone are also present. Most of the assemblage was recovered from the old land surface beneath the cairn (PCS), other locations yielded small quantities of stone artefacts. This report was prepared in November 1982; a detailed catalogue of all lithics is given in the archive of the project records at the NMRS.

RAW MATERIALS

With the exception of the pitchstone each of the materials was probably collected locally. The flint was knapped from pebble nodules, available in either beach or river gravels. The surviving cortex is characteristically abraded and many thermal flaws are visible in both the cortex and the inner material. The sizes of the flakes and cores suggest that few of these pebbles were large; they occurred in several distinctive colours into which the assemblage can now be divided, but there was no evidence for the preferential selection of any colour. Much of the flint contains many fossils which, together with the flawing, must have affected the knapping. Each of the other materials is present in very small quantities, possibly representing the knapping of single nodules only. All, except for the pitchstone, could have been collected locally. The chalcedony is of fine quality, as is some of the quartz and quartzite. Only one flake of pitchstone was recovered (no 330). This must indicate long-distance transportation, probably from Arran, but it does not necessarily mean direct movement or even the knapping of the stone on site. No useful information can be drawn from such a single piece.

TECHNOLOGY I: PRIMARY KNAPPING PROCESSES

The flint alone has enough pieces from which to extract information about the knapping techniques used, so the following discussion will concentrate upon flint only. The existence of a core and debitage (for the purposes of this report debitage is defined as the small or irregular debris resulting from knapping) of chalcedony suggests that this material was also knapped on site. With the possible exception of the quartzite the sparse occurrence of the other lithic materials makes the on-site knapping of these stones doubtful. The information about the flint is taken

from the PCS pieces only, as these form a unified collection, although the detachment characteristics of the rest of the pieces indicate that they were knapped similarly.

Ten flint cores are present in the PCS assemblage (nos 5–11 & 13–15). These demonstrate the use of two major techniques of producing flakes, that of knapping from prepared platforms on platform cores (nos 5–13), and that of knapping directly onto a previous flake scar on scalar cores (nos 14–15). The use of platforms, both artificial and natural, is also indicated by many of the flakes and seems to have been the preferred method. It generally produces a more regular result while the use of scalar cores is better only where the knapping of very irregular, flawed, or small nodules is concerned. The platforms were carefully maintained by trimming and, in some cases, faceting.

Most of the platform cores (nos 5–9) were worked from a single platform although two with double platforms exist (nos 10 & 11). In most cases flakes were removed around one side of the core only. Exhaustion seems to have been dictated by size, once flakes of about 25mm in length could no longer be easily produced, although two cores at least (5 and 4 of chalcedony) were exhausted by the formation of a series of hinge fractures.

The surviving detachment characteristics suggest the predominant use of direct soft hammer percussion with some use of hard hammers as the knapping was varied to suit particular requirements. There is slight evidence for the use of some indirect percussion (eg nos 134, 147 & 148) and some bipolar flaking, (eg nos 8 & 203), both of which can aid the knapping of pebble nodules. In general, the cores seem to have had a soft support, for example in the hand or upon the thigh. The presence of hinge terminations upon several flakes may be a result of these generally low-powered knapping techniques. A few of the flakes were found to be conjoining but there were not enough to add to the picture of the flaking techniques in use.

TECHNOLOGY II: SECONDARY KNAPPING PROCESSES

Despite the disadvantages of knapping small pebbles of flawed, fossiliferous flint many regular and even blade-like flakes were produced. Many of these would be suitable for various tasks unaltered, but in some cases secondary knapping was necessary. This can have two aims, used either separately or together. One or more edges can be altered to suit particular working specifications, or the whole shape of the blank can be changed.

At Camster Long such work was carried out mainly on flint blanks; there is only one altered piece of other material (443) which is chalcedony. Although other methods of secondary work are possible, retouching only was used. Blanks were selected on a basis of the suitability of their size and shape for the desired tool. There is no evidence for selection by colour or particular type of flake (ie primary, secondary, inner). The type of retouching work and the sizes and depths of the flakes varies with the required effect, but it was probably carried out by pressure work although some abrupt retouch on an anvil (Tixier 1980, 86), or even direct percussion work may also be present. Although the retouch varies between tool types those pieces from locations outwith the PCS represent the same tradition of working as the PCS collection.

Scrapers (nos 351–64, 411, 417–18, 434–6 & 443) (illus 22 & 24) There are 21 scrapers within the assemblage, 14 from the PCS and seven, including one of chalcedony, from elsewhere. In most cases retouch has been used to alter a single edge only, usually the distal end, and the original shape of the blank is left unchanged. On two scrapers alone there is alteration besides that of the scraping edge (nos 417 & 443). The size and regularity of the retouch varies greatly according to the edge selected, in two cases inverse retouch was used (nos 357 & 359). Four of these single edge scrapers show further, unusual, alteration (nos 357, 361, 362 & 436). In each case the whole flake has been thinned by the removal of the dorsal surface so that the steep retouch is truncated across the top. It is possible that this was designed to produce a particular type of scraper but no waste from the truncation was identified. The surviving retouch is always heavily undercut by macroscopic edge damage and it could be that these pieces are the waste from a scraper rejuvenation process, the re-usable pieces of which were used elsewhere. One, more conventional, scraper resharpening flake was recovered from the PCS (no 364). Five of the scrapers involved the manufacture of working faces

upon more than one edge. Four of these (nos 351–4) reflect the pebble nature of the industry as predominantly primary flakes have been selected to make disc scrapers with little overall alteration. The fifth, however, involved shape as well as edge alteration as it has been laterally thinned and straightened (no 360).

Bifacially worked points (nos 365–8, 419 & 448–9) (illus 22) Four bifacially worked points were recovered, one from the PCS and three others. In addition the PCS yielded one broken tip and two unfinished points. On these the retouch has been used to alter the whole shape of the original blank, often so completely that the type of flake selected can no longer be identified. Where necessary, invasive retouch was used to thin the blank, but there are also instances where edge alteration only was needed (eg no 419). No attempt was made to achieve a fine finish to the retouch which is often quite irregular. Although their size varies greatly the four complete points are all of a similar lozenge or kite-shape type and it seems likely that both the broken tip and the two unfinished pieces represent the same type.

Beaked flakes (nos 369 & 370) (illus 25) Two beaked flakes exist, both from the PCS. In both cases abrupt edge retouch has been used along both right and left sides at the proximal end to emphasize a narrow ‘beak’. This splay towards a wide convex distal and it is likely that the blanks were chosen for their natural shape. Although the size of the completed tools varies greatly that of the ‘beak’ itself is quite comparable.

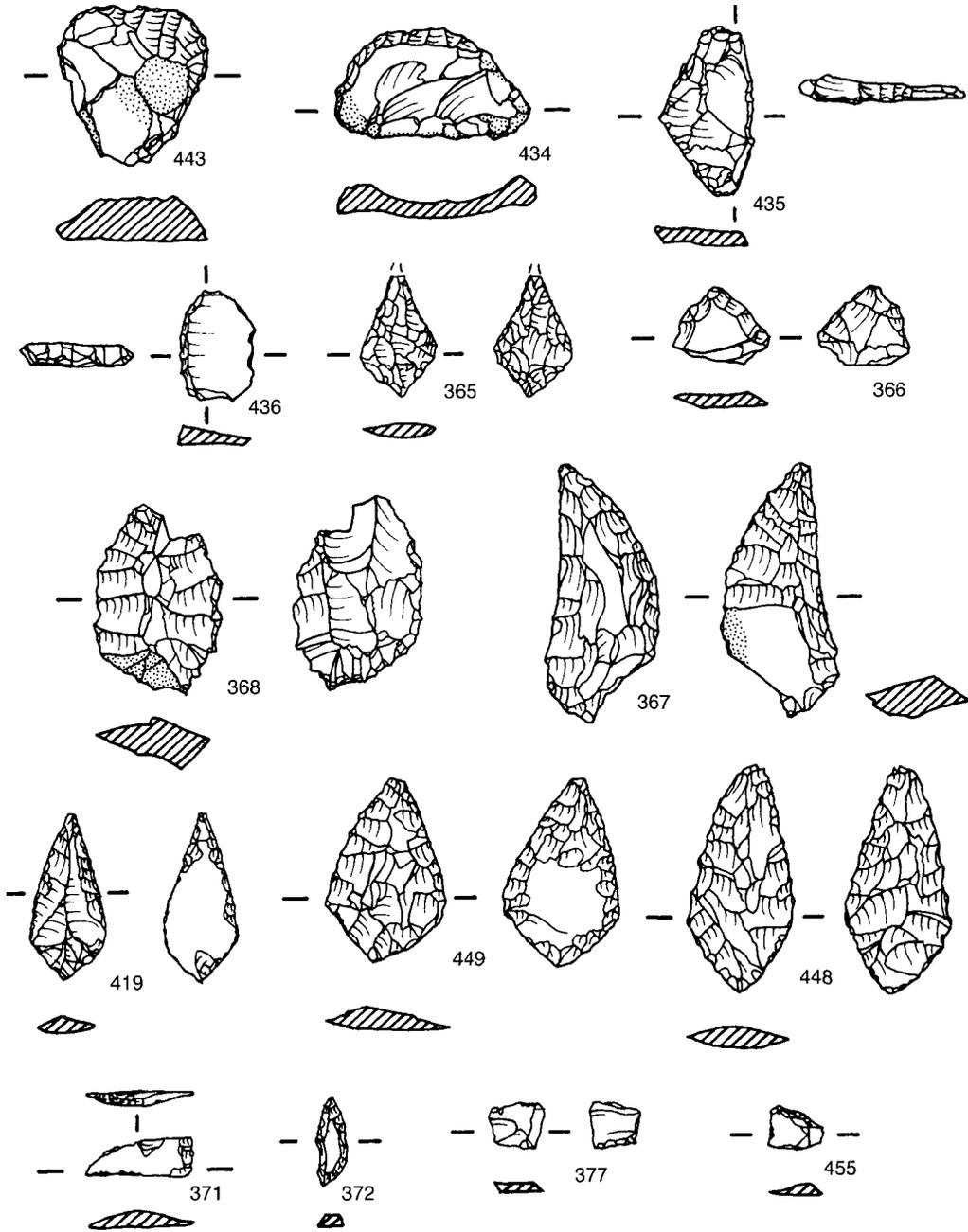
Microliths (nos 371–7 & 455) (illus 22) Eight microliths, of various types, were recovered. One, a trapezoidal piece, came from outside the PCS, to the west of the cairn. The other seven, two awls, four microburins and one trapezoidal microlith came from the PCS. The retouch is always tiny and abrupt. In the case of the awls it has been used to prepare a working edge, with little alteration of the flake shape, but in the case of the other pieces it has been used to alter the flake shape. Both awls are made upon fragments of larger flakes, but it is now impossible to say whether these were accidentally or artificially broken. None of the microburins or trapezoidal microliths refit; each has been formed upon a different flake, although the microburins probably represent the waste from the manufacture of pieces such as the trapezoidal microliths.

Other retouch (illus 25) In addition to the types outlined above there are eleven pieces with retouch. Five of these (nos 378–9, 390, 444 & 460) have lengths of retouch along one edge. The type of retouch used varies with the natural shape of the flake, which is never greatly altered. In one case (no 378), bifacial retouch was used, in another (no 379), inverse retouch.

One piece stands out from the rest. This is the rod, no 460 (see Saville 1981, 10), where a blank much larger than any other piece in the assemblage has been used. The retouch is large and irregular. Although this may demonstrate the adaptation of the secondary knapping to the particular blank the piece is of a pale flint not readily visible elsewhere in the assemblage. Indeed, the presence of such a large blank is in itself unusual. While it is, of course, possible that large nodules of flint were collected and used upon occasion the stratigraphic position is, at best, doubtful (see below), so that any association with the assemblage must remain uncertain. The tool is abraded at both ends and would seem to have had its use altered, possibly to that of a strike-a-light, at some stage in its life.

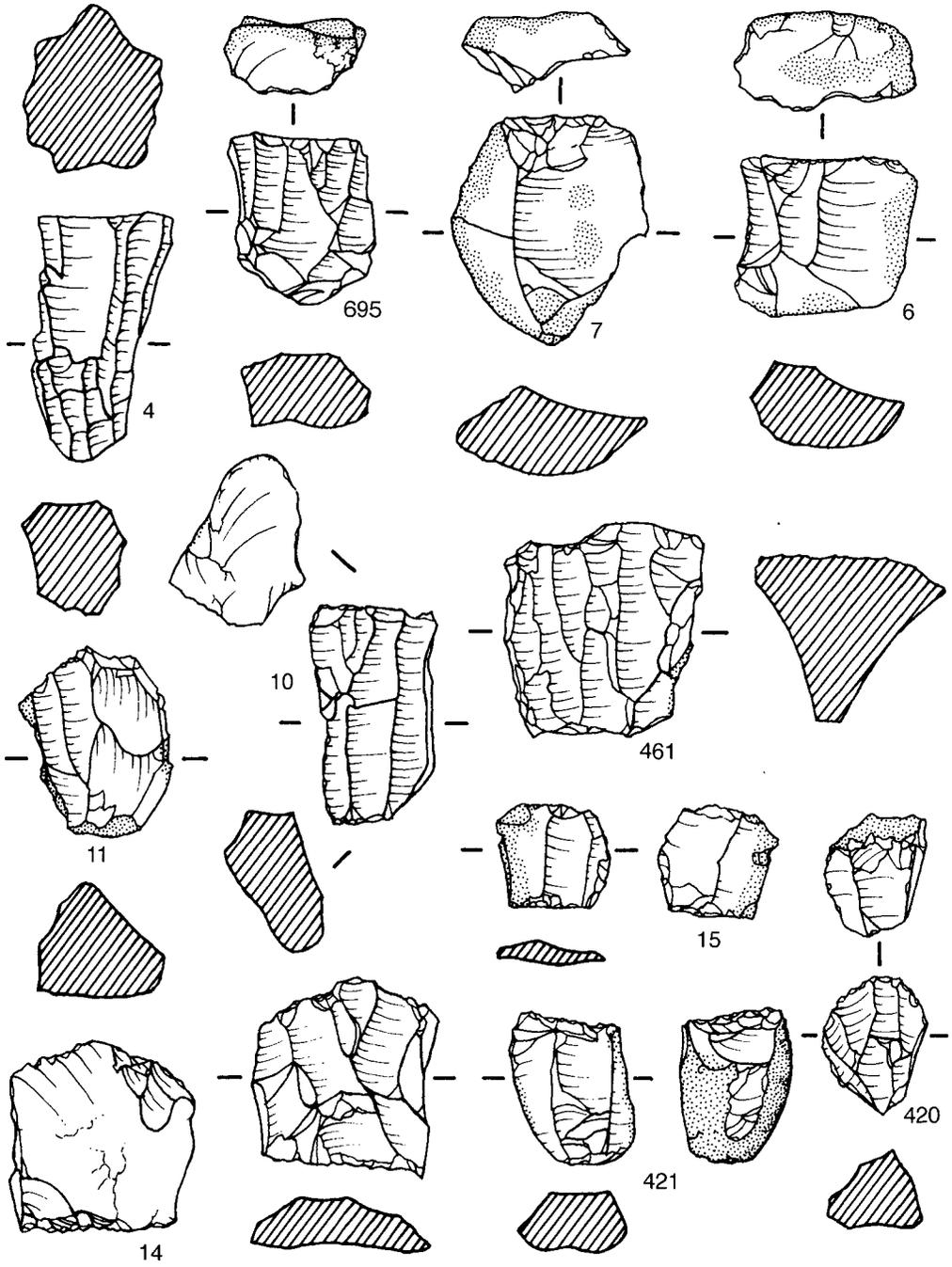
The retouch on the other six pieces is often sparse and coarse (nos 380–3, 445 & 453). In some cases unfinished tools may be present but breakage on all but one of the pieces (no 383) has obscured their interpretation.

Burin (no 404) (illus 25) One piece of secondary knapping remains, an inner flake that has been burinated by the removal of a long spall down the left side.



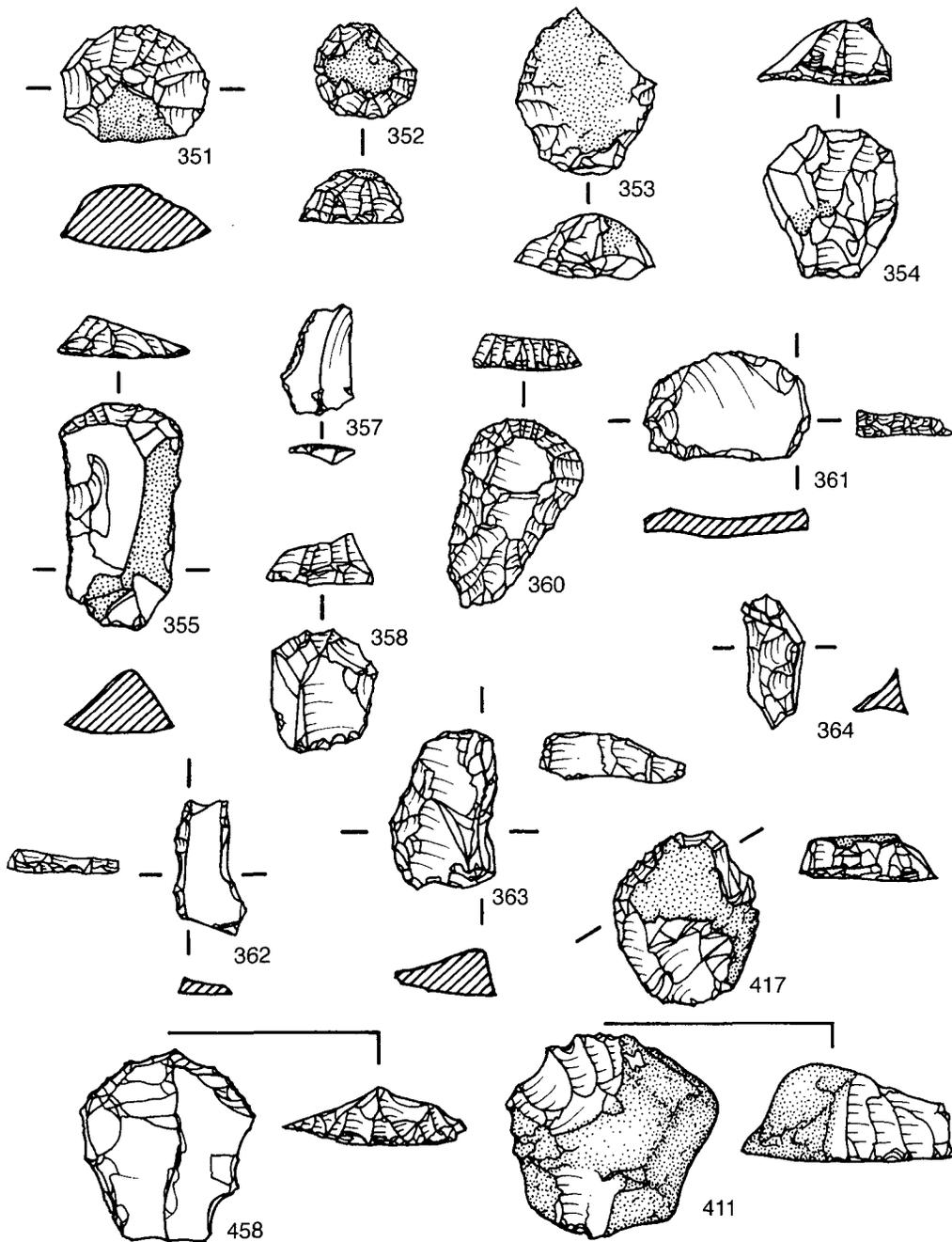
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ILLUS 22 Flaked stone objects

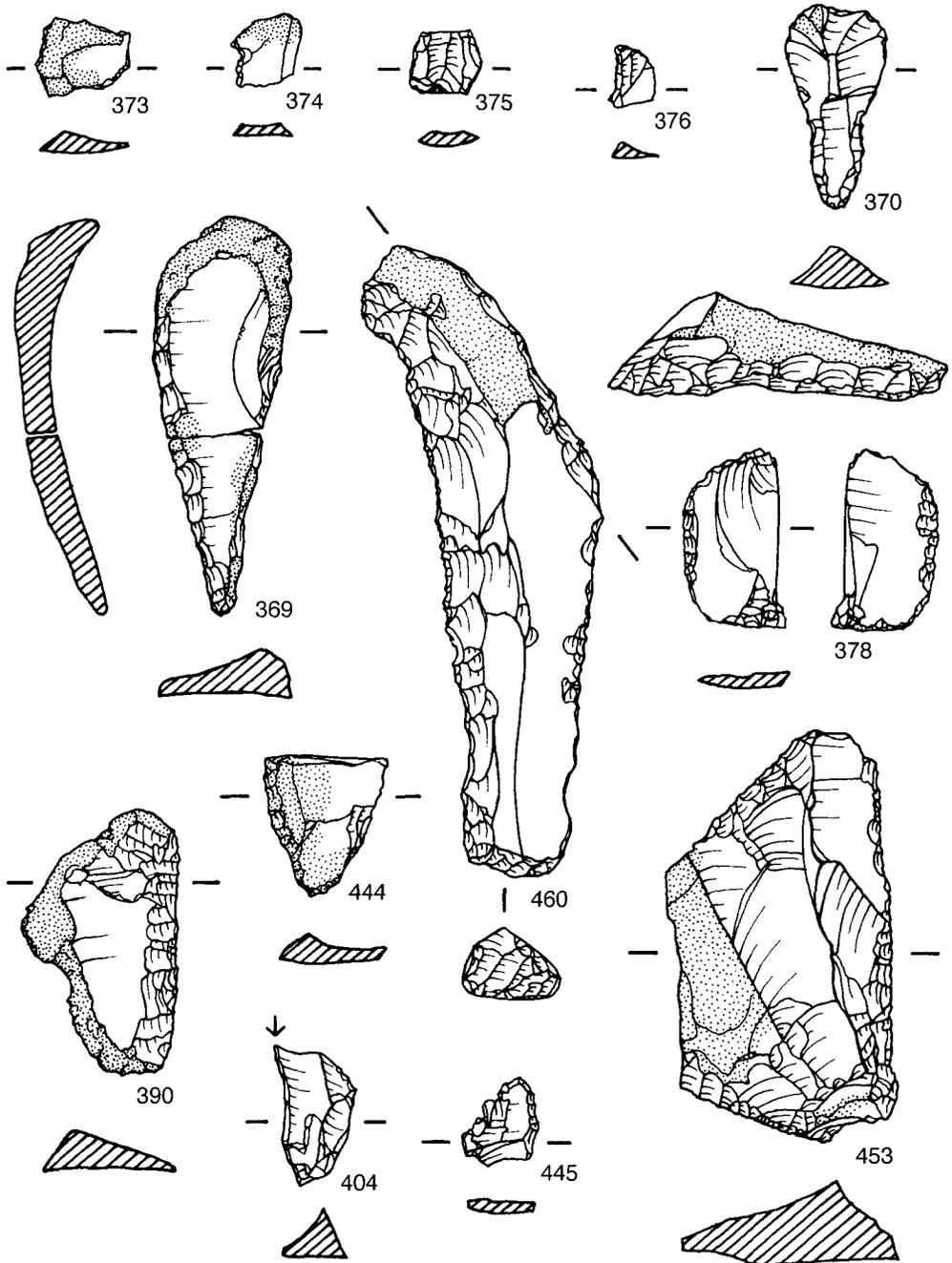


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ILLUS 23 Flaked stone objects



ILLUS 24 Flaked stone objects



ILLUS 25 Flaked stone objects

THE MORPHOLOGY OF THE ASSEMBLAGE

The assemblage has two major components: knapping debris and completed tools. Amongst the debris occur cores, flakes (a few of which are conjoining), microburins and debitage. Although this does appear to be waste from making tools, the debitage contains a surprisingly low percentage of identifiable retouching flakes (21%). This most probably reflects the quality of the retouching work, however, which is generally irregular and would render many retouching flakes difficult to identify. The retouched pieces form ready examples of the tools produced by the knappers, but it must not be forgotten that unretouched flakes can also form efficient tools. As noted above, the knappers were producing fine, regular flakes, many of which should more probably be associated with the tools rather than with the debris. The assemblage is composed predominantly of flint which is represented amongst both the waste and its end products. Other stones are represented mainly by debris, usually with a high percentage of debitage. Only in the case of the quartzite and chalcedony, however, is the surviving evidence at all suggestive of on site knapping. Tools of these materials, whether retouched or not, must have been used outwith the excavated area.

THE CONDITION OF THE ASSEMBLAGE

To reach its present state the assemblage has undergone several post-depositional changes and there are also some pre-depositional alterations which should be examined.

Six per cent of the assemblage is burnt. The majority of these pieces come from the PCS and most are debitage. They are distributed mainly in the north-east half of the excavated area, to the north-east of the central cluster. Within this area the distribution is random and would seem to reflect the chance association of pieces with fire and their subsequent scattering. Both of the burnt pieces from outwith the PCS come from below the blocking of the north-east forecourt.

Forty-two per cent of the assemblage is broken. This is a high proportion and may result from many causes but here it is likely that the pressures of the subsequent cairn material, both during and after construction, helped to increase its effect. Another important factor may be the use and consequent breakage of tools. Amongst the broken pieces, however, 91% show lateral breakage, losing one or both ends. As this is a flake's most vulnerable axis it might argue for a pattern of natural breakage rather than breakage due to use, where other factors, such as the nature of the tool and manner of use, come into force. Support is lent to this view by the fact that 50% of the broken pieces are debitage.

Edge damage is visible on many pieces. This has been divided into two types. The first is macroscopic edge damage, evident as lengths of tiny, often stepped, scarring which appears on 12% of the assemblage. This is often associated with retouched edges and may be due to use. The second is random edge damage, evident as tiny irregularly shaped scars which usually cut through any cortication or patination on the surface of the flint. This does not usually occur in such coherent lengths as the macroscopic edge damage. It is present on 12% of the pieces. Although it is sometimes difficult to distinguish between the two, random edge damage has not been noted by the present author to any extent upon other flaked stone assemblages. It is felt that it may be a result of the burial of the present pieces under a large amount of cairn debris.

A further possible effect of the weight of cairn material upon the assemblage was recorded. This is the existence of patches of extremely high gloss upon 20% of the flint. The glossy areas are irregularly shaped, often quite tiny and fragmented. Gloss is not confined to the higher spots, it also occurs in cavities, sometimes upon a single surface, sometimes more. Although it appears to sit upon the surface of the flint, microscopic examination reveals that it is, in fact, an alteration of the surface which is often so sheer that the microscope tends to focus through it. In some cases an element of directionality is present in the form of gentle striations but generally the surface is quite smooth. There are no apparent instances of the pitted hollows produced in wind gloss.

Friction gloss such as this occurs upon flint artefacts from a variety of sites, often lacking the superimposition of heavy cairn material, and it can be caused in many ways. At Camster Long some may be produced by actual friction with the overlying stones but this cannot account for all of it as it is unlikely to produce the shear surface often observed, (R Bradley pers comm). Other possible causes recorded elsewhere include a very fine wind gloss or a silica gloss produced during deposition in vegetation, (Duff-Dunbar 1934; Shepherd 1972, 120–2). Unfortunately, such activity is as yet imperfectly understood but the gloss does have important implications for it may indicate the exposure of the assemblage for a period before the construction of the cairn.

Finally, 51% of the assemblage is corticated and 40% is patinated, 12% is both corticated and patinated. In addition, many of the pieces have been affected by localized iron deposition. These conditions, however, are all post-depositional and would not have affected the assemblage when knapped. They occur on many sites and are not related to the construction of the cairn.

DISTRIBUTION OF THE ASSEMBLAGE

The majority of the assemblage was recovered from the PCS but the pieces were not randomly spread across this area. Cores, microburins and debitage occurred in a cluster across the narrowest part of the tail area, together with many of the flakes. Two areas of higher density existed within this cluster, one to either side of the tail. The presence of most of the conjoining flakes at little distance from each other within these areas emphasized the nodality of the distribution. Outwith this main area a thin scatter covered most of the rest of the tail although very little was located immediately behind the south-west forecourt or to the south-west of chamber B. Within this scatter were found most of the retouched pieces and there was a much lower percentage of debitage than in the more densely clustered area.

The distributions of the separate colours of flint were also plotted, but each colour is represented amongst both the knapping debris and the tools so that a fairly random spread of individual colours occurred. Only amongst the yellow flint (colour 2) did a localized distribution occur in the south-east half of the central cluster.

Fourteen per cent of the assemblage comes from locations outside the PCS. Each separate location has too few pieces to produce a meaningful distribution; a thin scatter is all that is present, particularly to either side of the long cairn revetment. Even within the more restricted areas of the two forecourts there are too few pieces to provide detailed information, although a concentration of activity in the west half of each area is suggested. Generally, these pieces represent the same knapping tradition as that of the PCS. The flint is of the same coloured pebble nodules and there is the same presence of other supplementary materials. The retouched pieces also reflect those within the PCS, but there is one important difference in the composition of this part of the assemblage. It has a much higher percentage of retouched pieces and a much lower percentage of debitage. Although cores are present, no area contains the same density of knapping debris as exists upon the PCS.

THE FUNCTION OF THE ASSEMBLAGE

The assemblage appears to contain a number of tools, both retouched and otherwise. It is impossible, however, to draw definite functional information from individual pieces without a microwear analysis. The macroscopic examination involved with the present study did reveal developed sickle gloss upon some of the pieces (eg nos 99 & 390), so it is to be hoped that a full scale microscopic examination might be possible in the future.

Material resulting from the manufacture of flaked stone tools

At Camster Long the evidence suggests that flint knapping took place on site, probably in two localized centres of activity, one to either side of a central flint cluster. The concentration of cores and conjoining flakes within these areas, together with the localized distribution of flakes from a yellow nodule, suggest that the surviving debitage has moved little. Flint knapping characteristically produces large quantities of waste, however, and some material must be missing from the area. A proportion of this will be due to the removal of finished pieces for use elsewhere but, in addition, sieving was not possible during excavation so that although much tiny debitage was collected some, at least, will not have been recorded.

Material resulting from the use of flaked stone tools

The evidence for the use of stone tools may be divided into two parts, that for on-site use and that for off-site use. On site, upon both the PCS and in other areas, there are a number of unretouched flakes with steep natural edges heavily undercut by macroscopic edge damage that is highly suggestive of their use as scrapers (nos 69, 113 & 252). In this context it is interesting to note that each of the completed kite-shaped points had lost its tip, although this is the most vulnerable part.

It is likely that some maintenance of working pieces took place outwith the main knapping areas and this may account for the small amount of debitage on site. Evidence for the rejuvenation of scrapers has already been suggested. Unfortunately, none of the retouched pieces clusters enough to suggest specific activity areas.

The use of stone tools outside the excavated area is suggested by the absence of pieces from the assemblage. The most notable of these are pieces of the other knapped materials. Only one retouched piece exists (no 443 of chalcedony) together with a few non-debitage flakes. Also, although the quantities present are small, an analysis of the flint debris by colour suggests that larger flakes as well as debitage are missing. This absence could be due to the removal of exhausted tools but there is little other evidence for the cleaning of stone debris from the site. It seems more likely that the area exploited by the tool users exceeded that of the excavations. It should not be forgotten that the present assemblage is drawn from excavations across part of the cairn only.

Finally, the presence of other lithic materials should be considered. These — quartz, pitchstone and silicified sandstone — are represented by a very few pieces only and although a core of silicified sandstone exists there is no other evidence that they were worked on site. These pieces may indicate the use of such stones to supplement the flint on occasion, but many other things could account for their presence on site. Collection as a rarity or for experiment, for example, may have taken place.

THE STRATIGRAPHY OF THE ASSEMBLAGE

The continuity of knapping techniques and materials across the site suggests that the stratigraphical distinction between different locations may be small. The two forecourt areas provide the only secure separation. Although seven pieces (nos 446–52) were found within chamber B they include debitage as well as the two kite-shaped points and, as the chamber has been examined upon several occasions, the possibility that excavation penetrated the underlying PCS must not be overlooked. Any association with the use of the chamber remains doubtful.

One piece is of very tenuous association (no 460), being recovered from the backfill of the 1973 excavation trench. Material and technological reasons for its separation from the assemblage have been noted above.

THE CULTURAL AND CHRONOLOGICAL ASSOCIATIONS OF THE ASSEMBLAGE

In Scottish prehistory styles of flint knapping are rarely culturally diagnostic as they were usually influenced more by incidental factors such as the quality and quantity of raw material available. The use of other materials to supplement flint as seen at Camster Long is common upon many Scottish prehistoric sites, for example Morton, Fife (Coles 1971, 294–8). The morphology of the pieces produced, however, is often used to provide cultural and, by implication, chronological information. The relationship between the two is rarely straightforward though and, in addition, even morphology is subject to outside influences such as the raw material in use or the tasks for which pieces were designed. Such information must therefore be used with care. At Camster Long there are a few pieces, however, that might be regarded as culturally diagnostic: the microliths, the scrapers and the kite-shaped points.

Microliths are commonly regarded as an indication of Mesolithic activity upon a site, as indeed they may be at Camster. They may also, however, represent a maximization of the usefulness of a weak resource. At Camster the size of many of the nodules locally available would make some microlithic working almost inevitable. The tiny awls included amongst their number are present on other, later sites and must, no doubt, have formed efficient tools. The microburins may well reflect the manufacture of these awls although the two trapezoidal pieces are harder to envisage in a later context. In any case, the presence of microburins does indicate that microlithic knapping took place at Camster Long. As there is nothing else to suggest that this was in a Mesolithic context it would seem likely that it reflects later use of the techniques, probably including the manufacture of the trapezoidal pieces, although these could occur from a chance Mesolithic survival.

Scrapers, of various types, occur in large numbers throughout the Neolithic and Bronze Age. They are a multi-purpose tool and their particular shapes and edge morphology may reflect many things, *the most influential factor at Camster Long being the nature of the raw material*, hence the appearance of the disc scrapers.

Kite-shaped points, however, have a more restricted occurrence. They are included in Green's discussion of leaf-shaped points (1980, vol 1, 74–5 & 97), where, although he did not cover Scotland in any great depth, he concludes that they tend to have a northern British distribution and to be of a generally later Neolithic date. They are not common in Scottish chambered tombs although they are associated with Irish court cairns such as Audleystown and Clontygora Large and Small, where they tend to be larger than the present examples (*ibid*). Other funerary associations exist such as Ty Isaf, Calais Wold and Duggleby Howe (Green 1980, vol 1, 97), although it is important to note that there is no definite evidence to associate those from Camster Long with the funerary chambers in the cairn.

CONCLUSIONS

The bulk of the assemblage represents activity on the ridge prior to the construction of the cairn. Unfortunately, it is impossible at present to define the interval between this activity and cairn construction, although the presence of friction gloss upon some of the pieces may indicate their exposure for some time. Not all of the pieces were recovered from the PCS but the same tradition

of knapping and use of stone is reflected throughout so that the importance of any division into separate stratigraphical locations is doubtful. This is particularly important with regard to the pieces from chamber B. These are not securely stratified within the chamber and may result from collection from the underlying PCS.

The activity involved may be divided into two parts. First of all, locally collected flint nodules of various colours were supplemented by other, coarser stones and knapped into a diverse tool kit. This took place within a restricted area across the highest part of the ridge. Secondly, the finished tools, some of them retouched, were removed and used elsewhere along the ridge, both within and outwith the area of excavation. Alongside this use a certain amount of tool maintenance was carried out. The existence of sickle gloss suggests the nature of some of the tasks but it is impossible to examine the variety involved without a detailed microwear analysis. The surviving condition of the pieces suggests that such an analysis would be most rewarding.

As the formation of the assemblage was strongly influenced not only by the skills and desires of the knappers but also by the nature of the raw material, it can provide little cultural information. Those pieces which might be regarded as culturally diagnostic suggest a late Neolithic/early Bronze Age date, although microlithic knapping techniques were also present.

Finally, it is interesting to note the effect upon the assemblage of its burial under the weight of cairn material. An unusually high number of pieces are broken and many have damaged edges. Some of the friction gloss may also be accounted for by the movement of material above.

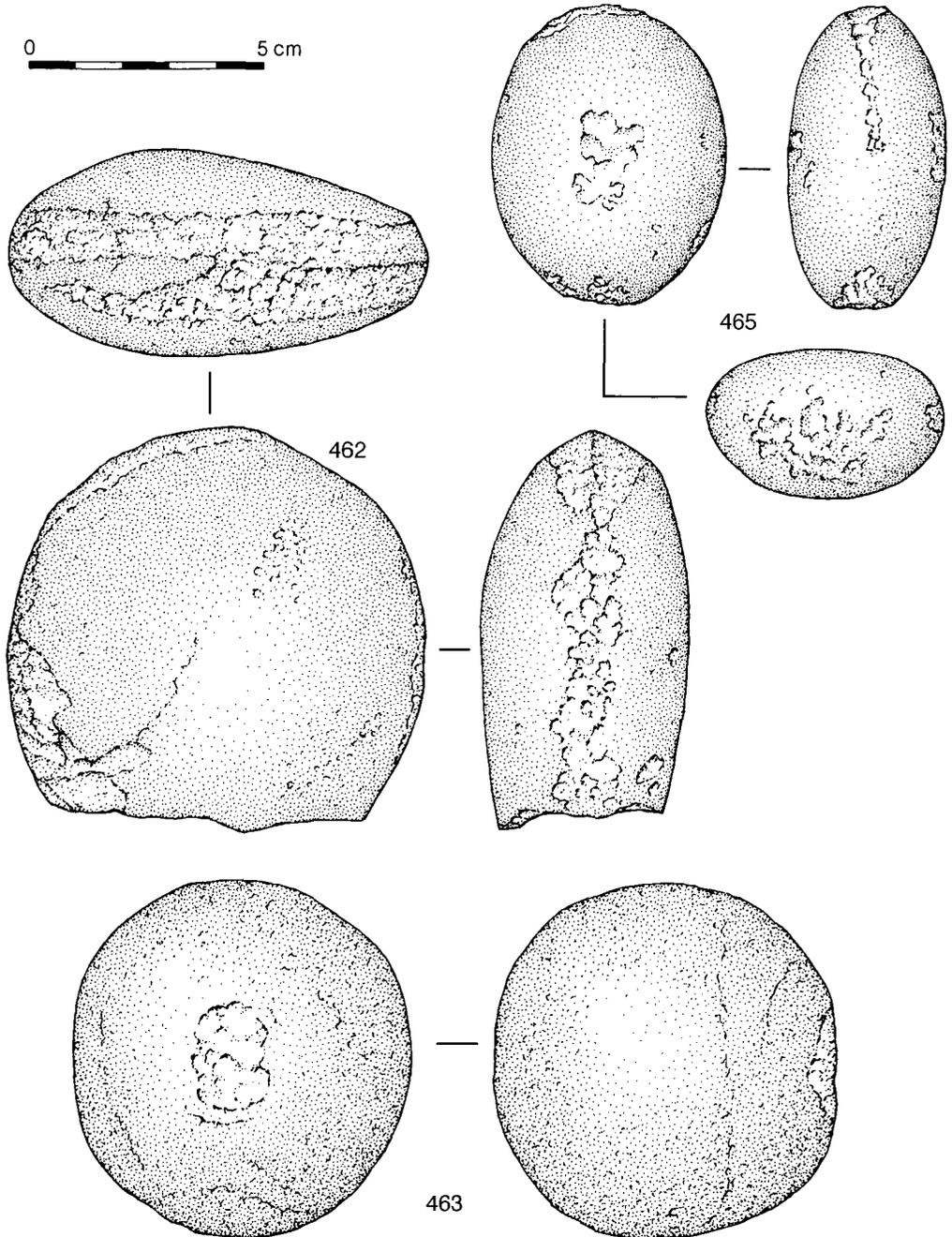
THE COARSE STONE ASSEMBLAGE

In addition to the flaked stone, five artefacts of coarse stone were recovered during the excavations (illus 26). These were collected from dispersed locations. Two (nos 462 & 465) show damage indicative of their use as hammer stones. One (no 463) has little damage but appears to have been artificially rounded, and the other two (nos 464 & 466) have slight areas of abrasion which might suggest their use, no 464 as a rubbing stone and no 466 as an anvil. All could have been collected locally. With the exception of 463, little artificial alteration of shape has taken place.

THE RESTORATION OF THE CAIRN

Some details of the restoration work at Camster Long have already been given in the excavation section of this report. It now remains to add the rest of the details, and to offer some comments on the ethics of monument restoration, as this was a principal consideration of the project (illus 27).

Much of the work of revetment restoration during Corcoran's excavation seems to have been undertaken without previous archaeological reconstruction. This does not seem to have affected the visual appearance of the two revetments on the south-east side, where sections of the revetment were, in any case, still standing and were probably consolidated *in situ*. The rest, however, seems to have been rebuilt using whatever foundation stones remained in place, and levelling up, using any convenient stones, to a predetermined height. The same process was probably adopted for the north-west side, but there is insufficient photographic evidence for a before-and-after comparison. The foundations of the horns, platform and façade of the north-east forecourt seem to have been treated in the same way as the south-west forecourt, the foundation being consolidated *in situ*. The upper courses were, in some cases, the original stones, but the present top surfaces of both platform and horns are completely modern. The two flat, thin slabs used as the steps for horn A appear to be those visible on excavation photographs; those



ILLUS 26 Coarse stone objects

used for horn B are not visible and their provenance is unknown. So far as the writer is aware, most of the north-east façade was taken down and rebuilt. The sides do not differ markedly in their appearance now from photographs taken during excavation; it was, of course, necessary to rebuild the centre without any possibility of direct reconstruction. The tops of the platforms, horns and the outer revetment — where two are present — have been covered with turf, partly to act as a preservation measure and partly ‘to “mute” the over-hard certainty of the pavement [platform] and the wallhead’ (MacIvor, pers comm). The latter point is important and is commented on further below.

The major problems for restoration were posed by the two chambers and their passages. Both were without their original roofing and, while the lintels covering part of the passage and chamber B were still in very good condition, the passage lintels to chamber A were most definitely not. For chamber A, the first 2 m of the passage, both walls and roof, are completely modern. Thereafter, the passage walls were consolidated *in situ* as far as the orthostats A and B. Trenches were dug behind the passage walls on both sides, and roughly built, mortared backing walls being raised to support them. The seven roof lintels were retained, using metal rods to support and strengthen them. Above the lintels, a false roof was constructed using reinforced concrete lintels, resting on the backing walls. In the chamber, orthostats 1, 4 and 5 had to be restored to a vertical position: this seems to have been achieved with very little disturbance to the corbelling, and only minor additions seem to have been necessary to the top courses. It was originally intended to cover the chambers with concrete domes, but a more convenient substitute was found in fibreglass. Two domes, equipped with roof-lights, were manufactured and eventually transported to Camster. They were then transported across the bog and put in position using a crane. For financial reasons, the same mould had to be used for both chambers: while this works very well for chamber B (the chamber for which the mould was designed), the effect in chamber A is to create more space than it could ever have had. It also posed problems in reinstatement of the overlying cairn material, making the present height of the cairn slightly more than it was likely to have been originally. The large dome did, however, have the beneficial effect of solving part of the roofing problem over the innermost part of the passage. Corcoran could hardly trace the line of the passage from orthostats A and B to the chamber entrance between orthostats 1 and 5. Therefore, completely new walls were built and, while that on the north-east side probably follows fairly closely the line of the original passage, that on the other side was built off the presumed original line, increasing the passage width from an original 0.5 m or so to a little over 0.6 m. This has had the effect of leaving the edge of orthostat 1 projecting into the line of the passage, for which of course there is really no evidence either way. With visitor access in mind, however, a passage of around 0.5 m wide could well have proved difficult for some individuals to negotiate.

Chamber B posed fewer problems: much of the walling of the passage and that of the chamber was in good condition. Some rebuilding work took place in 1967 to the corbelling above orthostat 7 and between orthostats 3 and 5. As with chamber A, concrete lintels were placed above the originals, and the fibreglass dome positioned on a foundation of engineering bricks. The outermost part of the passage, which Anderson described as being roughly arched over, is now covered by replacement stone lintels with concrete lintels above, and the north-east side is almost entirely a modern wall.

There can be no doubt that the visitor today will see in Camster Long a monument which is strikingly impressive. The change from a tumbled mass of stones with vegetation growing up the edges to, it is hoped, a pristine monument complete with forecourts, revetments and chambers, coupled with a visually distinctive hummocky cairn profile, now forms a dramatic feature rising



ILLUS 27 North-east forecourt and entrance to chamber A after rebuilding; from north-east

out of the bleak moorland landscape, although recent afforestation will soften this dramatic effect through time. The writer is convinced of the wisdom of the decision, by MoPBW and its successors, to restore the external appearance of the cairn. The practice of conserving only the remains of those features surviving *in situ* would have led, at Camster, to a visual appearance more likely to confuse than instruct the visitor.

A hierarchy of reliability for the reconstruction work may be given for Camster Long. The restoration of the revetments in the south-west half of the cairn seems certain, providing that the interpretation of the extra-revetment as revetment collapse is accepted. The restoration of the centre of the north-east façade, although lacking direct evidence as a result of Anderson's excavation, is surely legitimate, both in terms of what remained and what is known of Anderson's excavation. The south-west façade is, however, a more difficult problem. Again, direct evidence was lacking, but a plausible explanation can surely be made on the presence of foundations, the strong possibility of robbing for the sheepfold and by analogy with the north-east façade. Restoration of the passages and chambers was a necessity if visitors were to gain access: such liberties as have been taken hardly detract from the appreciation of either specialist or visitor. Where more contentious features are suspected, such as the steps to the horns in the north-east forecourt, great care must be taken to ensure that such features really did exist. Unlike the revetments, there is obviously less opportunity for checking doubtful data. The covering of turf here is a wise precaution against 'the overhard certainty of the reconstruction'. The turf covering is, perhaps, not quite so appropriate on the platforms: there does appear to be some slight evidence for paving, and in any case, these surely formed two of the major dramatic foci of the cairn.

Two lessons may be learnt from this. The first is really self-evident but perhaps needs stating: restoration should only take place when there is good archaeological evidence for it. The second is that restoration work should be undertaken only under continuous archaeological supervision, a requirement which must override expediency in the completion of elements of the

work. This is particularly important when it involves the removal of undisturbed material. Because of the time-tabling at Camster, this involved work on the revetments and in the cairn at times when Corcoran could not be present. From his notebook it is clear that this led to occasional difficulties in establishing the revetment line, and the presence of features within the cairn, such as the putative round cairn revetment to chamber B. Such working methods are now, it is to be hoped, unthinkable.

One point which did emerge from conversations with visitors to the excavation, from all over the world, was their varying perceptions of how much of the cairn was still original. This, it must be confessed, ranged from a very few visitors who thought that the fibreglass domes were part of the original structure, to those who would have liked some indication of what was original and what was modern restoration in such features as the revetments and façades. Given the amount of reconstruction, rebuilding and consolidation at Camster Long, this would be difficult to achieve. There might have been a case for distinguishing in some way — perhaps by means of a slate course — original from restored revetments and chamber walls. This would not have detracted from the visual appearance and, suitably indicated, would have satisfied those visitors who considered it important.

DISCUSSION

It will be obvious from the excavation report that an imperfect record has led to considerable problems of interpretation especially for the more interesting north-east half of the cairn. The problems involve not only the interpretation of the site's history, but also its external appearance. Some of the present problems would, no doubt, have been resolved if Corcoran had lived to publish the work; and the present writer must admit that he himself may have created problems where none actually existed. With these caveats in mind, an attempt is now made to present a picture of the sequence of events at Camster Long. So far as is possible, this is undertaken in the same order as that adopted for the excavation report.

THE PRE-CAIRN SOIL

The first indications of activity at Camster Long are provided by the evidence in the buried soil beneath the tail of the long cairn. This comprises the bulk of the pottery and flaked stone assemblages, together with a number of post-holes, possible post-holes, stake-holes and burnt areas. The three radiocarbon dates indicate that this activity took place in the early centuries of the fourth millennium BC. Despite a careful search, no evidence was forthcoming for any indication of farming activity. It was, unfortunately, not possible within the resources available to undertake soil flotation for plant remains, so evidence may have been lost. Although found in the basal layer of the long cairn, a large granite saddle quern does hint at agricultural activities.

What was found invites comment as to whether the features and small finds are indicative of permanent settlement at one extreme, or temporary occupation at the other. It is quite clear that all the features and the vast majority of the small finds occurred along the top of the ridge, within the area later to be occupied by the tail of the cairn. Excavation well beyond the limits of the collapsed revetments failed to produce any finds and even under the collapsed revetments, there were only a few finds of flaked stone. The flat top of the ridge could have provided perhaps the driest surface in the immediate locality for settlement. Nevertheless, when the post-holes, possible post-holes and stake-holes are considered, they do not provide convincing evidence for domestic structures. Even including the possible post-holes, the distribution remains essentially

linear, confined to a narrow band on the eventual centre line of the cairn. The stake holes are more widely dispersed; despite the small cluster to the north of post-holes 2,3 and 4 and ringed, to some extent, by the burnt areas, there appears to be no regular arrangement which could be interpreted as a structure (illus 5).

Much of the burning is also confined to the centre line of the later cairn. In some cases the burning has been quite intense, sufficient to alter the colour of the B horizon subsoil to either black or red. The burnt areas are, however, quite irregular and are not convincing as the remains of permanent hearths. There was no indication of any kerbing to them and, while some were contained in slight hollows in the subsoil, these hollows were probably no more than natural undulations. The occurrence of charcoal in what remained of the A horizon soils, and generally throughout the top surface of the B horizon, may represent nothing more than a general burning of the land surface; the burnt areas would then reflect intense local burning.

The suggestion in the flaked stone assemblage report that tools were manufactured within the excavation area but the products taken elsewhere (Wickham-Jones, above), is another indication of temporary occupation. This is reflected in the high percentage of debitage when compared to actual tools. If a significant proportion of the flaked stone can be accounted for as waste, the same explanation can hardly account for the large number of Neolithic pottery sherds. A large proportion are of small size, abraded and featureless. Without further work, they cannot readily be attributed to the minimum of 15 pots defined above (Henshall). Nevertheless, it may be of some significance that the majority of the sherds which can be attributed to particular pots came from the area between 20mN and 28mN, falling within the densest concentration of post-holes and stake-holes.

A deduction which may be drawn from this is that the features and small finds do not add up to any significant long-term occupation. It must be remembered that under half of the ridge was excavated thoroughly, but even from under those parts of the north-east half of the cairn where Corcoran was able to excavate to the pre-cairn land surface, no features or small finds were found, apart from small finds from within the chambers.

There has been a tendency, particularly when excavation has been restricted to chamber and forecourt, to assume that finds from these areas are indicative of the use of the features, and not ascribable to the sort of pre-cairn activity found at Camster Long. In such circumstances, finds from chambers may belong to pre-cairn activity, unless there are special features, such as floor levels within a chamber, above which the finds are made. Much the same may be said for forecourt areas: if finds are confined to these areas, this needs to be demonstrated by excavation beneath the cairn. Thus, some doubt has already been expressed as to whether the finds of pottery from chamber A and the flints from chamber B are genuinely chamber deposits and not simply survivals from the pre-cairn land surface. It is not possible to resolve these doubts now. None of the forecourt finds from Camster Long would have been out of place with those made under the cairn. Nevertheless, the majority of the pottery from the south-west forecourt can be attributed to a single pot (P21) and came from close to the pit. This may indicate some activity after the construction of the forecourt, but it cannot be separated on stratigraphic evidence from activity beneath the cairn. Perhaps the large number of sherds, which comprise P2, may provide similar evidence for forecourt activity at the north-east end. The sherds seem to have been found close together, unlike the situation under the cairn where sherds were more widely distributed. Although both forecourts possessed centrally positioned burnt areas, which it would be tempting to associate with forecourt activity, the burnt areas along the spine of the ridge should not be forgotten. Because of the small size of the sample, the radiocarbon date obtained from charcoal

in the burnt area of the south-west forecourt is statistically indistinguishable at one sigma level from those obtained under the cairn.

Returning to the problems posed by the post-holes and stake-holes, the linear distribution of the former has already been commented upon. Perhaps in this lies a clue to their possible purpose. It must be admitted that no traces of standing posts (ie post-pipes) were detected in the excavation of the cairn. It would, in any case, have been a particularly difficult task, given the potential for the movement of stones within the cairn and the ubiquitous filling of scree and quartz grains. Within the limits of accuracy of planning of the basal course of the cairn, it is unlikely that any timbers in post-holes 1, 2, 3, 5, 6 or 7 could have been standing at the time of cairn construction, for these holes are covered entirely or in part by basal cairn stones. For the remaining two, it must remain an open question as to whether posts were incorporated into cairn building.

Ignoring the obvious straight line between any two points, it is possible to show that three groups of post-holes are colinear, and it is worth considering the extrapolation of these lines to the south-west forecourt (illus 5). The lines may be tabulated as follows:

- 1 From post-hole 8 to 6 to 1 to a point south of the eventual centre of the forecourt platform.
- 2 From post-hole 7 to 2 to 1 to a point central on the forecourt platform.
- 3 From post-hole 5 to 4 to 1 to a point central on the forecourt platform.

Of the eight post-holes this leaves only one (no 3) unaccounted for. If the possible post-holes are included, two further lines may be added:

- 4 From h to 6 to 1 to just south of the platform centre.
- 5 From 7 to c to 5 to south of the platform centre.

It can be suggested that the post-holes held posts employed in the laying out of the construction lines of the tail of the cairn. Possible extrapolation of the lines in this way is suggested in illus 5.

It is interesting that only one of the stake-holes (no 13) actually falls on any of the lines. The rest do not seem to have played any part in the laying out of the cairn, nor can they be taken as the gang divisions suggested for linear arrangements of stake- and post-holes beneath some long barrows in the south of England (Ashbee *et al* 1979, 228–75). Their purpose must, for the moment, remain undefined.

The three radiocarbon dates cluster particularly well together and, after calibration, indicate activity in the earlier half of the fourth millennium BC. There is no firm evidence as to what interval of time elapsed between the burning of the pre-cairn land surface and the building of the cairn. Two factors suggest a considerable time interval: the abraded condition of many of the pot sherds and the friction gloss appearing on 20% of the flaked stone assemblage. It is, of course, always possible that the sherds were 'imported' to the site in an already abraded condition; and it is also possible that the friction gloss was produced by processes not associated with long exposure to the elements. The general indications of only temporary occupation, for burning of the ground surface, and the explanation offered for the post-holes, all suggest to the writer that no great interval of time elapsed between the burning and the building of the cairn. On this hypothesis, long cairn building was underway in the second quarter of the fourth millennium BC.

THE CHAMBERED CAIRN

Corcoran had been one of the main proponents of the hypothesis of multi-period development for some chambered tombs, the implication being that the builders of one part of a composite monument may have worked with no knowledge of developments which subsequently took place

at the same site. Following the work of Powell (1973, 1–49) at Dyffryn Ardudwy (MER 3), Corcoran was to demonstrate multi-period development at a number of sites, most notably in Scotland at Tulach an t' Sionnaich (CAT 58), and the two Mid Gleniron cairns (WIG 1,2) (Corcoran 1966, 1–75; 1969, 29–90). This evidence, together with that from other excavations and field work, has been reviewed by several authors (Corcoran 1972, 31–63; Henshall 1972, 198–286 *passim*; Masters 1983, 97–112). If, as at Mid Gleniron A and Tulach an t' Sionnaich, there is reliable evidence for the closing of chambers and the construction of enclosing cairns, then it might be inferred that this evidence indicates multi-period development. However, enclosing revetments to chambers, for example, may not be indications of multi-period development if they are simply used as constructional devices to support chamber walls and roofs as part of an ongoing construction programme. In this case it would be more appropriate to describe this as 'multi-phased' development.

With these thoughts in mind, it is possible to present a picture of development at Camster Long, in which the monument began as the simple polygonal chamber A with its short passage and round cairn. This could have been followed by the building of the more elaborate Camster-type chamber B and its probable enclosing revetment. The final stage would see the incorporation of these two monuments into the long cairn, with its forecourts and revetments. As continued access was required to the two chambers, it was necessary to lengthen the passages to both of them. The orientation of the long cairn would, on this basis, be largely dictated by the direction of the existing passages. Initially this is a plausible interpretation, but some modification to the hypothesis can be suggested by incorporating chamber B into the long cairn period. It is also possible that Camster Long was a single period monument, in which the circular revetments were merely constructional devices to support the chamber construction and the archaeological evidence interpreted as multi-phased.

Chamber A

It is as well to begin with chamber A and its round cairn, for this is both the most likely indicator of multi-period development and the more difficult to interpret. The early monument would comprise the polygonal chamber with its short passage extending from the two orthostats A and B, which would mark the entrance, and the more or less circular cairn. The cairn revetment is certainly substantial and there can be little doubt that it would have provided sufficient support for a free-standing monument. Corcoran may not have been able to section the revetment in the time available. No details of the appearance of the revetment were recorded, nor whether there was a greater accumulation of scree at the base of the revetment. Such information could have aided an assessment of the interval of time between the building of the round and long cairns. Perhaps the most important piece of evidence available is that the revetment shows no sign of outward collapse. The round cairn seems to be built in the same way as the long, with the slabs angled down towards the revetment. In the case of the long cairn this appears to have led to early collapse of the revetment, particularly in the tail of the cairn. The absence of collapse in the round cairn revetment may be an indication of its rapid enclosure within the long cairn or, as the writer would prefer to think, an indication of its superior build quality. This seems to have been achieved by tonguing back some of the revetment stones into the cairn, thus producing a greater stability and resistance to collapse.

The putative early entrance between the two orthostats could provide the most telling evidence for there being multi-period construction, but it is here that there is some ambiguity with regard to the evidence. Situated as they are with their front edges in line with the round cairn

revetment, they may plausibly be considered as portal stones. However, there are problems with the apparent misalignment of the revetment, the fact that the orthostats (while parallel) are not opposite each other, and the roofing of the supposed later extension of the passage actually continuing into the round cairn, apparently without a break.

The displacement of the revetment line, by as much as 0.6 m is clearly associated with the staggering of the two orthostats. Corcoran was able to section through the passage wall at its junction with the round cairn revetment and orthostat A. So far as the writer can see from the photographs, excavation on the other side did not go down to the pre-cairn land surface. It is just possible that the short stretch of revetment adjacent to orthostat B may only have been seen at a high level: if this is so, the true line of the basal course may have lain further forward, allowing for the batter to the revetment know elsewhere. This would not solve the problem of the staggered orthostats, but would go some way towards a more symmetrical entrance.

More serious problems are encountered with the roofing. Lintels 6 and 7 above the supposed earlier passage are clearly supported at one end or other by orthostats A and B respectively. This requires the existence of the innermost part of the putative later extension of the passage on the north-east side, or at least the cairn behind it, to support the other end of lintel 6. In the case of lintel 7, its other side appears to rest on cairn material within the round cairn. The implication of all this could be that the round cairn was no more than a constructional device to support the chamber; the staggered entrance would hardly matter as the intention was to build the passage to its full length and enclose it within the long cairn within a single, though multi-phased, building period. There is no evidence of a butt joint in the north-east side of the passage wall below the front edge of lintel 6, to allow this lintel to be supported without the presence of the whole passage wall.

It should be remembered that multi-period construction might involve demolition or renovation, as well as addition. In order to sustain the multi-period hypothesis for chamber A, it may be suggested that the roof over the entrance was remodelled at the time of long cairn construction. There is no way of proving this hypothesis from the excavation archive and it would almost certainly have been difficult to detect in excavation.

Accepting the ambiguity of the evidence, the writer still believes that a reasonable case may still be made for the round cairn as a free-standing monument until its incorporation into the long cairn, necessitating the extension of the passage to allow continued access and resulting in the slight change in passage alignment.

Chamber B

Less is known of the circumstances surrounding chamber B. The putative circular revetment has only been traced in two short stretches and cannot be demonstrated with total conviction. The passage does provide some indication of possible multi-period development, in both roofing and butt joints. In contrast with chamber A, the inner part of the passage to B is lintelled, while the outer 1.5 m, from the butt joints to the inner long cairn revetment was, according to Anderson (1868, 486), 'rudely arched by overlapping stones, instead of lintelled'. The projected course of the circular revetment could meet the passage at the butt joints, from the evidence which has been provided by excavation. Evidence for the rest of the revetment might still be found, particularly for the south-west half which has not been excavated. It would be particularly interesting to find out if that revetment had been subject to collapse. Unfortunately, what was exposed in 1967 and 1973 at the back of chamber B is so bedevilled with ambiguity that it is not possible to draw any

firm conclusions as to whether the revetment had collapsed or not. All that can be said is that there is some evidence that could imply either multi-period or multi-phased development.

The long cairn, forecourts and revetment

Despite its initial promise, no further chambers were found in the long cairn. The lesson to be learnt, particularly for field work, is that apparently earth-fast orthostats are not always indicators of chambers. Corcoran (1966, 18) had already shown this with his excavation at Tulach an t'Sionnaich. Apart from some details of possible construction phases within the long cairn, the excavation of Camster Long was singularly unrewarding. More interesting were the changes in the line of the revetment which, when taken with the transverse lines of semi-upright slabs and the explanation offered for the post-holes, suggests that the tail of the cairn was built in stages from north-east to south-west. It may well be that the builders had intended to terminate the cairn at the end of the double revetment at the south-east side, but some other factor came into play which caused them to extend it as far as they did. It may be noted that the end is situated just at the point where the ground begins to drop away to the valley of the Camster Burn.

The monumental nature of the north-east forecourt cannot be denied: whether it was originally as it now appears is another matter. The writer has already argued above that the evidence for steps at the ends of the horns is not convincing, nor is the evidence for a double revetment on the outer sides of the horns. The remainder of the restoration is based on sound evidence. Such a setting provides an obvious focus for ceremonies, the platform in fact acting as a stage. It may well be that the double revetments in forecourts of other Caithness chambered cairns might have had a similar feature. A good example could be provided by the east forecourt of South Yarrows North, where the inner wall stood 5 ft (1.52 m) high according to Anderson (1866a, 241).

Whatever the Camster Long building sequence, it is quite probable that the side revetments collapsed quite early in the site's history. Nothing but a few pieces of flint were found under the revetment collapse and the final prehistoric events at Camster seem to have been the construction of the two small cists, one on the spine of the cairn, and the other just possibly dug into the edge of the collapsed revetment on the south-east side.

It is disappointing that the chambers were so singularly devoid of finds at the time of Anderson's excavations, and that those made in Corcoran's re-examination cannot clearly be associated with chamber use. In the absence of the skeletal material recovered by Anderson, it is not possible to offer any explanation of burial ritual.

In writing this report the writer has been aware of the many gaps in the excavation record. This report has, therefore, been more speculative than would otherwise have been the case, if Corcoran had lived to publish his part in the work. The concentration on the minutiae of Camster Long has been the inevitable result and must serve as the apologia for this report.

It is not proposed to discuss the wider relationships of Camster Long to the other chambered cairns of northern Scotland, for which there has been substantial previous publication (Henshall 1963, 1972; Davidson & Henshall 1991). Nor, in the absence of records, can anything be said of the relationship of Camster Long to its near neighbour Camster Round, other than to repeat what has already been said regarding its structure. The plan of Camster Long is decidedly odd, even amongst the wide variety of plans exhibited among the Caithness cairns. The closest comparison could well turn out to be South Yarrows South, where there is good evidence for a passage opening from the south side of the cairn as well as a passage and chamber opening from the east forecourt (Davidson & Henshall 1991, 142–4). Excavation here could be rewarding to

decide if the passage from the side of the cairn is an earlier monument (perhaps enclosed in its own cairn), or an intrusive feature of later date (RCAHMS 1911, 173).

In concluding, it seems appropriate to return to the work of Joseph Anderson. In writing about the Caithness cairns, he commented: 'Their uninviting exterior, and the apparent magnitude of the undertaking, would seem to have deterred amateurs and scientific explorers alike from meddling with them.' (Anderson 1866a, 234). And on Camster Long 'the great height of the cairn and the enormous labour of clearing out the chambers from the top . . . obliged us to content ourselves with the exploration of these two chambers, and, as we were not stimulated to further examination by finding a single relic in either, we did not try the lower part of the cairn, in which it is probable that there may be two or three more chambers still unexplored' (Anderson 1869a, 222). For the writer, both quotations have considerable significance.

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