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Excavation of a Bronze Age ring cairn at Cloburn Quarry, Cairngryffe Hill, Lanarkshire

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ABSTRACT

Excavation at Cloburn Quarry, Cairngryffe Hill, Lanarkshire, of a Bronze Age ring cairn in 1986-7 revealed a monument of considerable complexity. Its earlier phases appear to have consisted of timber and stone rings around a central cremation pit, with other cremations in small pits within the rings. The most intensive period of funerary activity followed the removal of these circular architectural elements and coincided with the deposition of felsite chips across the site. These later interments included a cremation accompanied by an entire Food Vessel Vase. The final phase saw the construction of the outer ring and an irregular platform cairn within it. A number of cremations were later put into the cairn. Radiocarbon dates of 3450 ±50 BP and 3460 + 60 BP (1890–1630 and 1910-1620 cal EC) suggest an Early Bronze Age date for the pre-cairn monument. The project was funded throughout by Historic Scotland and its predecessor department (SDD/HBM).

INTRODUCTION

This report is a result of Historic Scotland's backlog project, which aims to bring to publication reports on excavations which for a variety of reasons have until now not been published (Barclay & Owen 1995). The excavation reported here was carried out over two seasons in 1986-7 under the direction of Mary Kemp-Clarke. During the first season of work one of the authors (TP) worked on the nearby excavation at Blackshouse Burn (Lelong & Pollard, this vol) and during the second season took part in the cairn excavation.

SITE DISCOVERY AND PROGRAMME OF EXCAVATION

The ring cairn on the plateau of Cairngryffe Hill, in Pettinain parish, Lanarkshire (NGR: NS 947 414), was first identified during a survey of the hill carried out in 1985 under the direction of Peter Hill. This work was part of a wider landscape survey initiated during the investigation of the large enclosure at Blackshouse Burn, just over a kilometre to the south-east. The low, grass-covered platform, which lay at 310 m OD, was recorded along with several linear banks, one of which appeared to terminate at the platform (illus 1). As the site was clearly under threat from

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quarrying, Historic Scotland's predecessor department (SDD/HBM) provided funds for its excavation.

Quarrying had already destroyed a possible multivallate hillfort which formerly occupied the plateau just beneath the summit of Cairngryffe Hill, about half a kilometre to the south-west of the platform. What little we know of this site *is* the result of a limited rescue excavation carried out in 1939 (Childe 1941), prior to its total destruction by quarrying during the Second World War. The proximity of this possible Iron Age hillfort provided evidence for prehistoric settlement on the hill which, along with the presence of field boundaries, led to an initial interpretation of the platform as a house stance sitting within a contemporary field system.

The excavation of the site began in 1986, and was carried out in tandem with the second season of excavation at the Blackshouse Burn enclosure. It did not take long to establish that the site was not a house stance, but a fairly widely recognized form of Bronze Age funerary monument known as a ring cairn. A number of cairns are known in the area, but the only example of an excavated ring cairn in the vicinity is that at Limefield (NMRS: NS93SW 6), several kilometres to the south-west of Tinto Hill. This site is discussed later in this report, while a general summary of the environment and archaeology around Cloburn can be found in the report on the Blackshouse Burn enclosure (Lelong & Pollard, this vol).

The monument is built on indurated till, mainly derived from local felsite, on which a shallow, well-drained brown forest soil has developed (Macaulay Institute 1982). There was no evidence of buried soil beneath it, although the stones used in the platform come from the local soil.

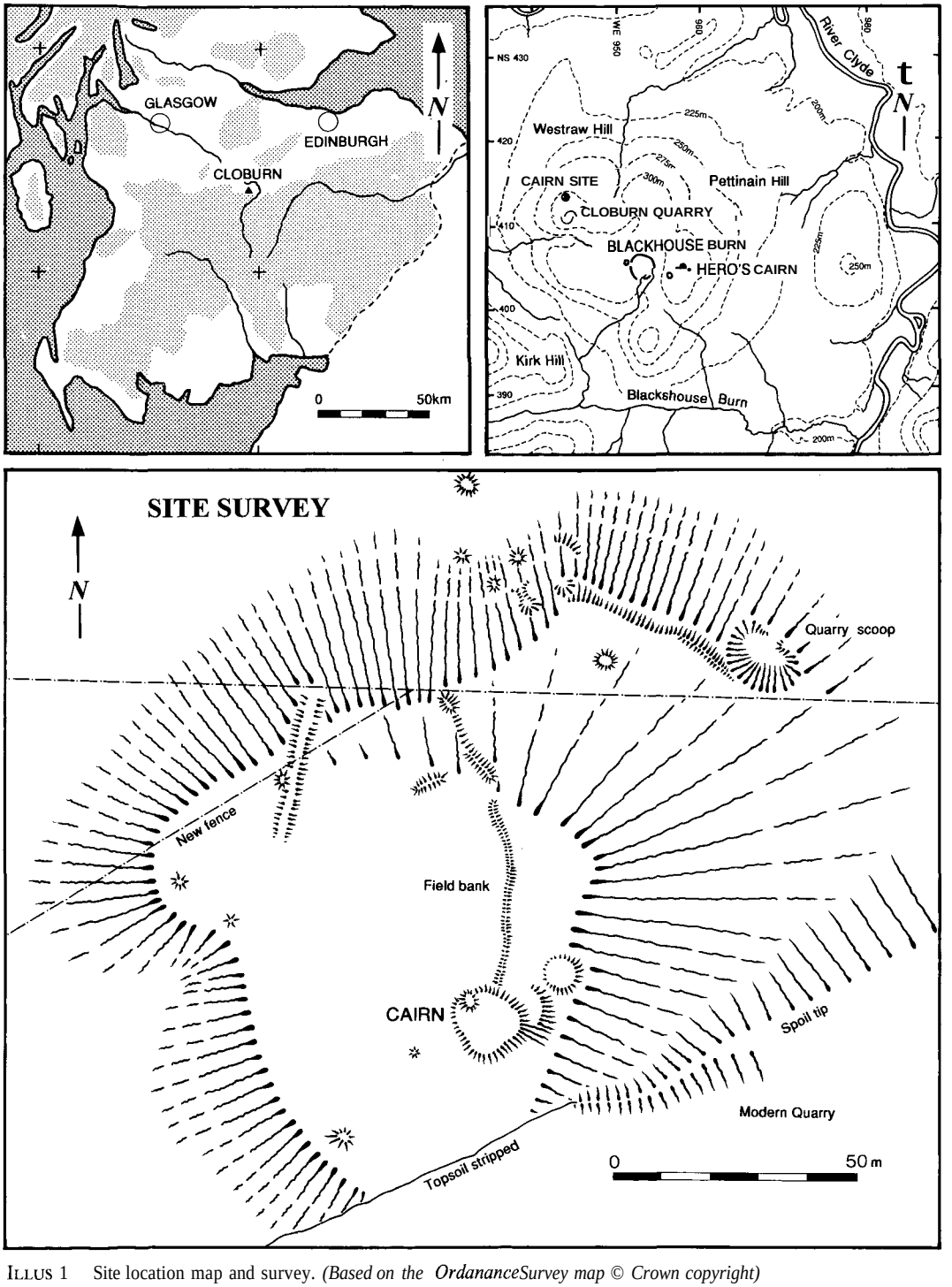
The cairn stood on a gentle, regular slope at the edge of a bench in the eastward descent from the hilltop, commanding extensive views from north-west to south. The site lies within the catchment of the Rae Burn. Cairngryffe Hill is formed of felsite intrusions separating basic sandstones and conglomerates of Lower Devonian age. Felsite underlies the cairn and is being actively extracted in the quarry around it. The felsite surface is scored by ice striations, trending on bearings between 47 and 58 degrees. A more detailed report on all soils from the site, by David Jordan, has been included in the project archive at the National Monuments Record of Scotland (RCAHMS).

Much of the first season's work was taken up with cleaning and planning the cairn, although several sections were also excavated and recorded, giving some idea of the complex nature of the monument. Work continued on the site over six weeks in 1987, under the direction of Mary Kemp-Clarke. Unfortunately, the second season of work was beset by heavy rain and the site remained only partly excavated at the end of it. However, further investigation was carried out by members of the Lanark & District Archaeological Society (LADAS) under the leadership of Ed Archer (1995). This work continued over several summers as the quarry crept ever closer, and provides a clear vindication, if any were needed, of the important role played by local amateur archaeologists. The preliminary results of LADAS's work have been incorporated into this report and the co-operation of Ed Archer in providing information is gratefully acknowledged here.

EXCAVATION RESULTS

THE CAIRN REVEALED

During the 1996 season, turf and shallow, peaty topsoil were removed from four quadrants over the platform (A,B,C & D; 2 & 4) with a cruciform baulk left in place to allow additional stratigraphic control. Trowel-cleaning uncovered an extensive spread of stones, while a number



ILLUS 1 Site location map and survey. *(Based on the OrdnanceSurvey map © Crown copyright)*

of artefacts, including pieces of struck stone and pottery sherds, were recovered from the topsoil above and between the stones. Cleaning of all four quadrants revealed a subcircular ring of stones (008; illus 2, 4 & 5) enclosing a partly robbed out platform of smaller stones (illus 2). The two combined elements had an overall diameter of about 22 m. By this time it was clear to the excavators that the freshly revealed features did not represent the remains of a house stance, as had been first thought, but a ring cairn: essentially a low platform cairn within an enclosing stone ring.

The monument's funerary function became obvious when fragments of cremated bone were found in some of the numerous voids between the stones. Exposed in several of these voids was a matrix of red felsite chips, the rock which characterizes much of the local geology and which is today still quarried from the hill. In other places, charcoal-rich soil was exposed.

During the first season of excavation, the cairn stones (007) were partly removed in quadrant A. In most places the cairn was found to be only one stone deep, and generally the stones lay in a matrix of dark humic soil (051) which also underlay them. Although this deposit was not recorded in the section drawn during the 1986 season (illus 5), from site records it appears that it partly consisted of organic material which had percolated down through the cairn, rather than having entirely built up before its construction.

In order to assess the nature of deposits apparently pre-dating the cairn, a section was cut along the west-facing section of the south baulk in quadrant A (illus 3 & 5). A *sondage* was also cut across the outer ring of stones in quadrant A, which were left in place after the inner cairn was removed (illus 3). This trench was set at an angle to the baulk section. The deposits exposed in this small cutting demonstrated that the site had a complex stratigraphy, probably resulting from a long history of activity, much of which preceded the construction of the cairn.

Both the baulk section and the *sondage* have played a vital role in illuminating the nature of the monument and its development through time. For this reason, much of the following description and basic interpretation is based on observations made from these recorded sections. In the second season, excavation was carried out in all four quadrants, with deposits generally taken down in plan, and the results of this work will be used to augment the reconstruction of the site's history suggested by the sections excavated during the first season.

The following is a summary of the main stratigraphic phases:

Phase 1 Early pits and Neolithic pot sherds
Phase 2 Pre-cairn features: central 'scoop', pits and stone rings
Phase 3 Embankments, pits and ash spreads
Phase 4 Red chip deposit with cremations
Phase 4/5 Outer cairn ring
Phase 5 Platform cairn

PHASE 1: EARLY PITS AND NEOLITHIC POT SHERDS

Among the apparently earliest features surviving were a number of pits and post-holes which penetrated the natural sandy subsoil (B horizon), which itself overlay the glacial till. The absence of a buried A horizon implies that the topsoil was removed across the site before these were cut. Unfortunately, due to time constraints placed on the excavation, the features encountered latest remain some of the most enigmatic. Even where features were fully excavated and recorded, their relative stratigraphic isolation makes phasing very difficult. However, it will be argued that these features are among the earliest on the site.

ILLUS 2 Pre-excavation plan (topsoil removed and cairn cleaned)

The oldest elements of the artefactual assemblage recovered in any quantity were 74 sherds of early Neolithic pottery from the lower pre-cairn deposits (Lelong, below). These were particularly numerous at the interface (065) between the surface of the truncated B horizon and the lowest of the accumulated (anthropogenic) layers; thus, they were apparently deposited after the topsoil had been stripped in prehistory. While this might have happened in the Neolithic period, the absence of any soil horizon between this thin, pot-rich layer and features related to the construction of the Bronze Age monument is puzzling. The early Neolithic character of the pottery suggests that much time passed between its deposition and the digging of cremation pits. A soil horizon may have been stripped away before these later features were dug, just as the topsoil seems to have been stripped before the pottery was deposited, but it seems unlikely that such widespread truncation would leave a thin Neolithic horizon in place. An alternative explanation for this apparent stratigraphic irregularity will be proposed later.

PHASE 2: CENTRAL 'SCOOP', PITS AND STONE RINGS

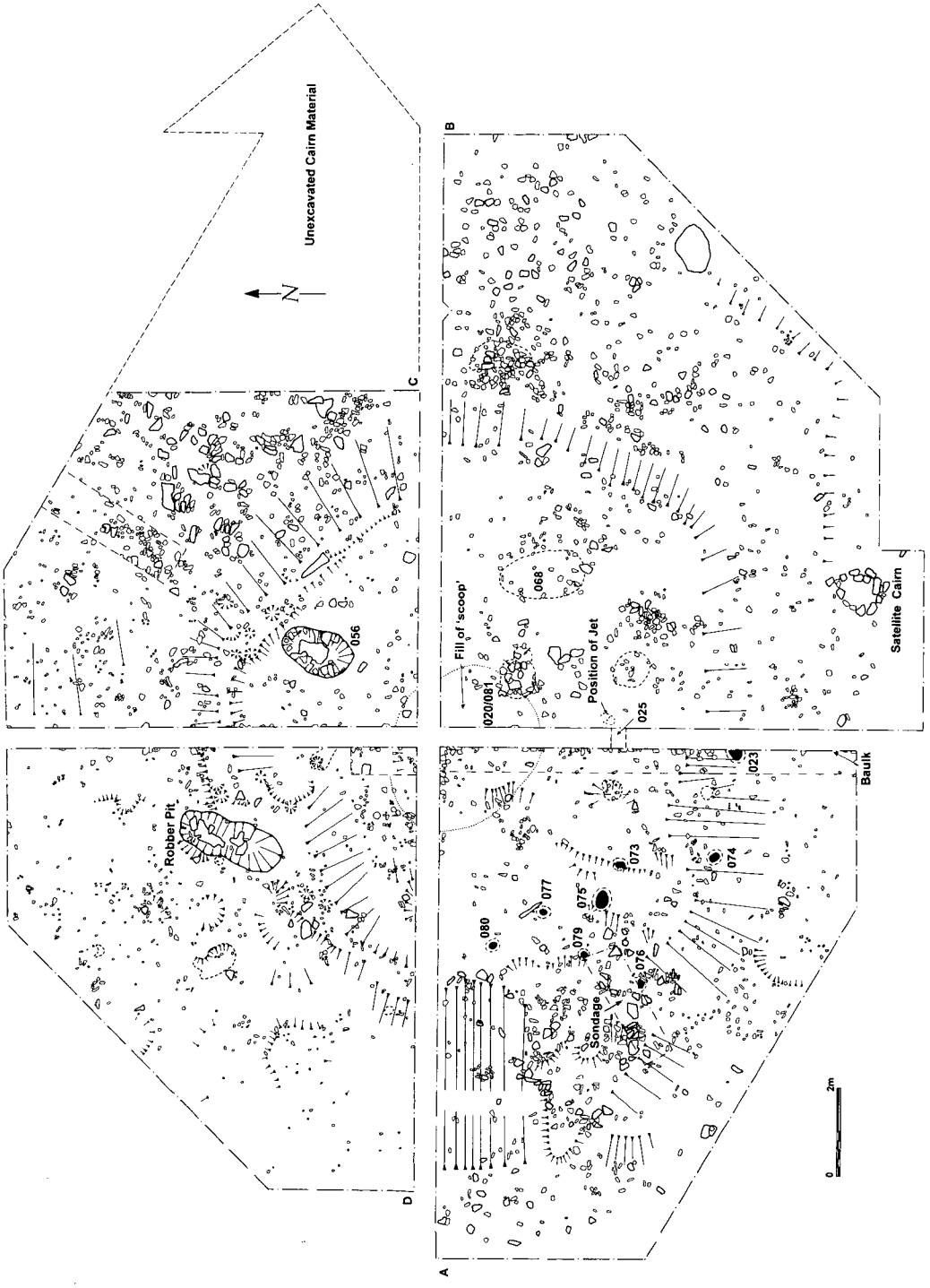
The features cut into the pot-rich layer (065) included a central 'scoop', a low stone wall, post-holes and an outer ring of stone. Together they can be interpreted as forming the early pre-cairn monument, with two rings of timber posts, each encircled with a ring of stone, and cremation pits within some of the rings.

Central scoop Lying roughly centrally beneath the cairn was a shallow circular scoop (081), approximately 0.1 m deep and 3 m in diameter. Although not visible as a roughly circular feature until late in the 1987 season, when all four quadrants were cleared, it first came to light in 1986, when it was exposed within the baulk section (illus 5). Here it appeared as a cut in the natural subsoil (022) filled with a crumbly, orange stony fill (020); the correlation of 081 with 020 was recognized late in the 1987 season.

Post-hole ring Removal of the stony fill (020/081) revealed a shallow, circular depression surrounded by what may have been a group of post-holes. Although apparently unrecognized at the time of its excavation (1986), one of these outlying features may have appeared in the baulk section. The section drawing does not show the edges of the post-hole (034), but Polaroids taken at the time clearly show it as a discrete feature containing tipping stones, possibly the packing for a post. A number of similar features are recorded in the site day books but no plans or sections, other than rough sketches, were found among the project archive. The overall impression, gleaned from sketches and photographs, is of a circle of post-holes defining the perimeter of the shallow scoop.

Cremation pit (085) Several features, including a cremation pit (085), were cut into the fill of the central scoop (020/081). This fill was not totally removed during the excavation and another, probably earlier cremation pit was found sealed beneath it during the later work carried out by the local archaeology society (Archer 1995). A number of abraded sherds of Neolithic pottery were recovered from the scoop fill, and these may have been redeposited from the general spread of material found elsewhere (Phase 1), disturbed here when the scoop was cut. The cremation pit (085) was a small, neatly dug, circular hole with vertical, clay-lined sides cut down onto the bedrock. This carefully prepared receptacle was filled with a loose brown deposit containing charcoal and cremated bone. Unfortunately, a sample of this deposit was not available for analysis and so nothing can be said about the nature of the bone and its origin.

Central pits (078, 084) Also cut into the scoop's fill was a larger, oval pit (078), filled with soil containing abundant charcoal and angular stones. The relationship between the charcoal in this pit and the cremated



ILLUS 3 Composite plan showing pre-cairn features

ILLUS 4 Pre-excavation photograph of cairn taken from the east

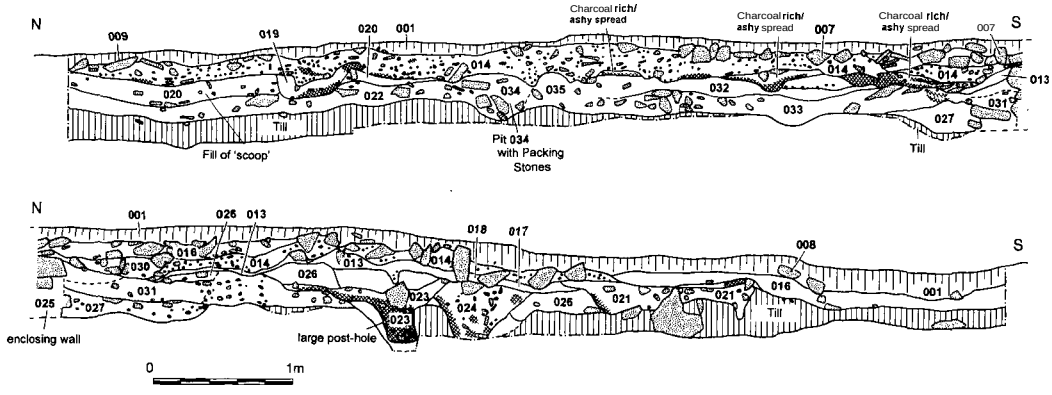
bone and charcoal recovered from the smaller pit (085) is uncertain, but both could be the sweepings of cremation pyres. The pit was later cut by a post-hole (084), which from field sketches appeared to be more substantial than those surrounding the scoop. The function of the post-hole remains uncertain, as it sat off centre in the ring defined by the encircling posts.

The time allotted for the second season expired before this central feature could be completely recorded. It will be argued below that it represents the earliest, embryonic phase of a monument which developed over time into a ring cairn. In any case, this group of features certainly represented an important focus for the disposal of the remains of the dead.

Stone-filled trench (025) A number of other negative features were identified beneath the cairn, some of which contained cremated bone and were perhaps created specifically to contain the remains of the dead, while others appear to have been created for rather different purposes. In the baulk section, the feature closest to the central area was an accumulation of large stones (025) lying some 2 m south of the possible post-hole (034) at the edge of the central scoop. The stones had been set into a shallow foundation trench, from which a single sherd of early Neolithic pottery (Vessel 6) was recovered. While this may indicate a Neolithic date for this feature, it is just as likely that the sherd was residual, redeposited into the fill of the trench from its original context, perhaps the pot-rich ground surface (065, Phase 1).

Providing an interpretation for the stone-filled feature is difficult, as it was only detected in the baulk section, where it was visible across the entire width of the section trench (c 0.5 m). It may represent a discrete feature of limited dimensions. However, it is also possible that it was much more extensive than this, perhaps forming a low, circular wall-like feature which enclosed the central scoop (020/081). That this feature was not detected elsewhere on the site may simply be due to the fact that excavation nowhere else reached the same depth as in the baulk section. There is certainly evidence from other sites for similar circular enclosing features; these will be discussed in the final section of this report.

Outer post-ring Several post-holes outside this putative inner stone ring described what may have been an arc or circle of timber posts. In the baulk section (illus 5), the most obvious of these was a large post-hole



ILLUS 5 Baulk section showing pre-cairn features

(023), containing a dark loam with flecks of charcoal and some cremated bone. A single sherd of early Neolithic pottery (Vessel 4) was recovered from its fill. The cut of this pit penetrated the friable bedrock beneath the subsoil. The prior removal of the A horizon had obviously reduced the depth of soil available and this, along with the size of the post they planned to erect (diameter < 0.2 m), may have left the builders with no option but to hack into the bedrock beneath the exposed subsoil.

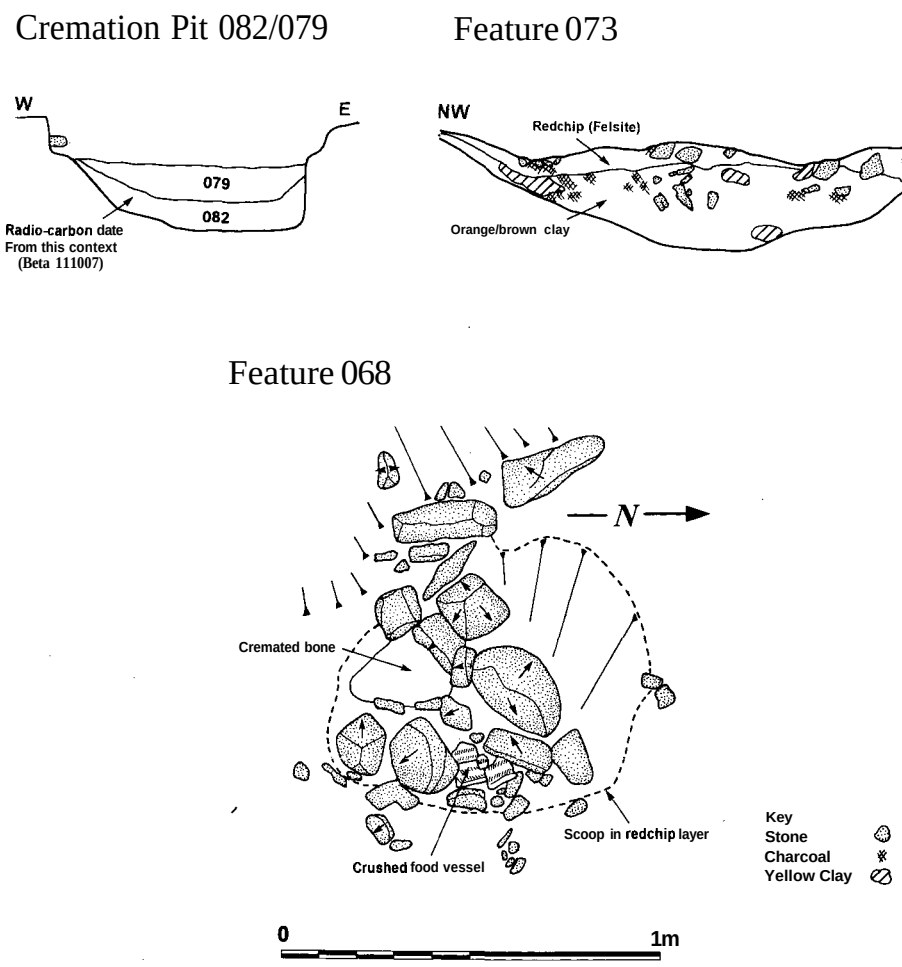
This post-hole may represent only one element of a much more extensive architectural feature. Further excavation of quadrant A during the second season revealed several more post-holes (023, 073-077), between 0.2-0.5 m in diameter. In plan (illus 3) they trace an arc which roughly echoed the central circular scoop (020/081) and its encircling post-holes, giving the early monument further circular definition. These features were identified only in quadrant A, but this may again reflect the deeper excavation achieved in this quadrant rather than the true distribution of post-holes across the site.

A charcoal sample recovered from the fill of one of the outer post-holes (075), identified as *Alnus* (alder), produced a radiocarbon date range of 1890-1630 calBC (Beta–111006). That all of the charcoal recovered from the sample was of the same species would be consistent with its origin as a post. This date is not at odds with the interpretation of the feature offered above (Phase 2): a post erected as part of a complex Bronze Age funerary monument pre-dating the construction of the stone cairn.

The credibility of this is strengthened by a similar date of 1910-1620 cal BC (Beta–111007), from a nearby, well-sealed, cremation deposit (Phase 2, 082), this from *Betula* charcoal. These dates suggest the close chronological succession of the cremation ritual and deposition and the raising of the posts (it should be noted, however, that the standard deviations of the dates make it possible for this sequence to be reversed).

Stone kerb Finally, there is reasonable evidence to suggest that the monument's outer limit in this early phase was defined by a low ring of stones (021), about 0.8 m wide, set into earth deposited in a shallow foundation trench (as were the stones of the putative and possibly contemporary low, inner wall (025)). This outer feature was first detected in the *sondage* cut through the later stone ring (008; Phase 4) which circled the cairn. In the bottom of the *sondage* the lower, earlier stone feature (021) appeared to sit outside the perimeter defined by the upper, later ring (008), while in the baulk section the earlier ring appeared to sit inside the later ring. This off-setting of the earlier and later stone rings may reflect a desire to mirror and reinforce the earlier feature, but by the time this was attempted the earlier ring had been obscured beneath a bank of earth, so that the later stone ring, laid down over the bank's outer scarp, traced a slightly different circuit.

Outer cremations Cremation pits dug during this early phase of the monument's use lay within the sub-circular area defined by the outer stone ring, around the central scoop with its cremation deposits. Although



ILLUS 6 Cremation-related features

no direct dating evidence was available for most of the cremations, those outside the central scoop may post-date it, perhaps as the monument was expanded in order to accommodate them.

In quadrant B an oval pit (073; illus 3 & 6) with a diameter of 0.7 m and a bowl-shaped profile, 0.30 m deep, was filled with an orange/brown clay soil which contained lenses of yellow clay and fragments of charcoal; there was a small deposit of cremated bone at its base, from a probable adult of unknown sex (Roberts, below). Although no evidence for the outer timber ring suggested by the quadrant A post-holes was identified in quadrant B (perhaps, as already noted, because excavation did not extend to the same depth here), the location of this pit would be in keeping with a position immediately inside this ring.

Other evidence of cremations — both deliberately deposited and probably incorporated incidentally into pit and post-hole fills — was found outside the central space. Cremated bone was recovered from the large post-hole in the baulk section (023) and from one of the small post-holes (075). The bone from the former, larger post-hole, which was mixed with charcoal, may have been human but was far too fragmented to allow a positive identification. The bone from the smaller post-hole was positively identified as human, but the fragments were too small to allow further analysis, although their size suggests a child (Roberts, below).

In the space between the putative outer timber ring (023 etc) and the outer stone ring (021) was a small, circular pit into which was deposited a concentration of cremated bone (082; illus 6). Analysis of the bone in the pit's lower fill (Roberts, below) identified the remains of at least one human, possibly a middle adult male, and two animals, one of them a sheep or goat. Some time after these were deposited, the remains of a second cremated individual (079), again possibly a middle adult male, were put into the top of the same pit. A heavily iron-panned deposit (069) later formed over the pit's upper fill, and it was thereafter buried beneath the earth bank which was raised up around the outer edge of the monument (Phase 3, below).

A pit with sloping sides and filled with a stony soil rich in charcoal (024) was identified in the baulk section, where it appeared immediately south-east of the large post-hole (023). The origin of this charcoal is uncertain, but it could relate to the cremation rituals evidenced elsewhere, perhaps representing material collected from a pyre. The post-hole appears to be a later feature than the pit, as the former truncated its north-eastern edge.

PHASE 3: EMBANKMENTS, PITS AND ASH SPREADS

Some time after the digging and filling of these pits, the monument's appearance and the way it was used began to change. The central scoop (020/081) was backfilled, possibly long before its surrounding posts had decayed or been removed, and we know that a cremation pit (085) was cut through this fill. The putative inner low wall (025) was buried beneath an upcast earth bank (013, 030; illus 3 & 5), perhaps leaving only its uppermost stones visible. The posts which formed the outer timber ring around it had decayed or been removed, with the action of fire suggested by the presence of charcoal in a number of the post-holes. Finally, the post-holes of the putative outer timber ring were buried beneath another low earthen bank formed from mixed soils (017, 018 & 026: referred to generically as 087). The monument at this time appears to have been in a state of transformation, sitting low above the ground and now made up of earth rather than timber and stone.

Miscellaneous pits It is probable that pits continued to be cut into the earth during this phase of the site's history, and several of those described above may in fact have been dug at this time rather than during the monument's earlier phase. The most likely candidates are the larger pits which contained little or no cremated bone, including 073. The small pit (019) cut into the surface of the central scoop fill (020/081) may also have been created and filled at this time, as indeed might the cremation pit (085) and the large pit (078). Other small hollows and possible pits (eg 030 & 019) are also clearly visible at this level in the drawing of the baulk section, some of them containing concentrations of charcoal.

Ash and charcoal spreads Also deposited at this time, or at least quite soon after, were the ashy horizons containing pottery which were recorded throughout the baulk section (illus 5) but which appear only as quite isolated patches and lenses on the quadrant plans. While some of this material may have accumulated gradually as people walked over the monument, dropping sherds of pottery as they went, some may represent the actual sites of funerary pyres.

PHASE 4: RED CHIP (FELSITE) LAYER WITH CREMATED BONE

There is no unequivocal evidence for the large scale deposition of cremated human remains on the site during the phase described above, with the possible exceptions noted. However, the next phase of the monument's development witnessed a distinct upsurge in this practice. Cremated bone was interred during and after the deposition of red felsite chips in a sandy soil matrix (014), inside the area defined by the outer earthen bank (illus 5); this matrix was also recorded as 054, and its lower part was defined as 063.

Not only did the number of cremations increase with the deposition of the red chip layer, but their character changed markedly. No longer were cremated remains discretely and exclusively placed in pits; instead, many were integrated within the red chip matrix. The felsite chips were probably quarried from somewhere close by; a number of depressions and possible quarry scoops were identified during the pre-excavation survey of the site (illus 1). Even so, moving the material to the monument would have required considerable labour.

During excavation, the cremation deposits were encountered in spreads and lenses as the red chip layer (014) was trowelled away. In most cases no pit cuts were discernible, implying that spreads of cremated bone and charcoal were tipped on top of this layer and then sealed beneath a fresh load of red chips. The presence of numerous cremation deposits suggests that the red chip layer accumulated over a relatively long period of time and, as will be seen below, several post-dated the layer, or at least were deposited on its surface. It is probable that the number of cremations recorded from this context are greatly under represented, with some individual unrecorded cremations represented by low densities of bone fragments which could easily have been overlooked during the relatively rapid removal of the red chip layer during the excavation.

Overlapping the edge of the red chip deposit was a thick (c 6-8 cm), halo-like layer of charcoal-rich, humic soil (052). The thickness of the deposit, along with its organic nature, could suggest it was redeposited turf, perhaps used to contain the red chip layer as it spilled over the sides of the basin created by the bank during its continued accumulation. However, patches of ashy charcoal, clay and cremated bone within it suggest that it built up through repeated deposition and trampling, perhaps as people congregated around the monument. The layer contained four pottery sherds (two from Food Vessel and Encrusted Urns), all very abraded and all showing signs of having been reused, in sherd form, to polish some surface. That act of polishing — of skins, perhaps, or leather-hard pots — might have been carried out around the edges of the monument, and been relevant to whatever else took place there.

Cremations within the red chip layer

Cremations incorporated within the red chip matrix included:

059 Roughly rectangular patch of red sandy loam containing cremated bone and lenses of charcoal and ash. Middle adult of possible male sex.

067 Large patch of black ashy material with charcoal; probable adult of possible female sex. Very near Food Vessel interment.

065 Below 014, young middle adult of unknown sex.

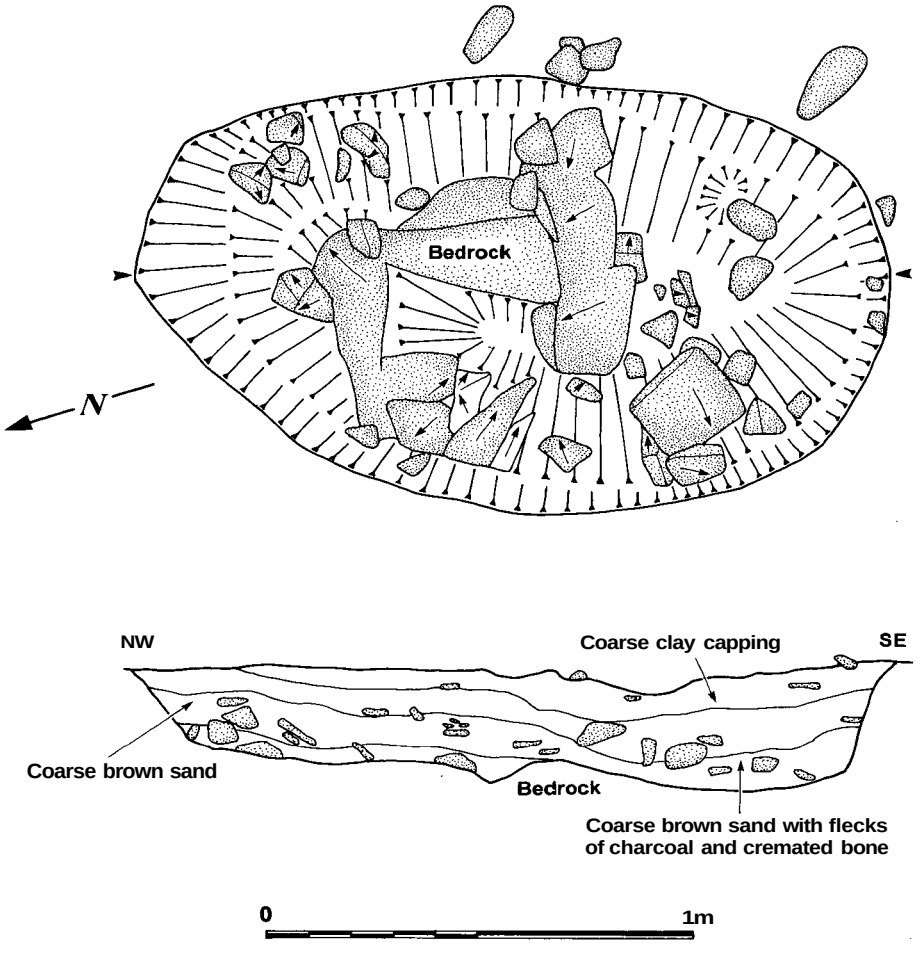
060 Patch of grey brown soil with sparse cremated bone, lens within 014. Probable adult of unknown sex.

000/C Interface of red chip and old ground surface — two fragments only; probably human.

064 Black fill — thought at first to be small pit. Shallow hollow in red chip.

Cremations post-dating the red chip layer

068 The most notable funerary deposit in the red chip layer, and indeed anywhere on the site, was discovered in quadrant B, where an entire crushed Food Vessel Vase was found accompanying a cremation.



ILLUS 7 Plan and section of pit 056

The vessel had been placed in a hollow (068; illus 3 & 6) defined by a roughly circular arrangement of stones and the cremated bone placed in a small pit cut into its base. Analysis of the cremated bone identified the remains of a possible middle adult female and a foetus or neonate; they might have been mother and child. This cremation deposit had been cut through the surface of the red chip material (014), apparently after it had ceased being deposited.

056 Another cremation post-dating the red chip's deposition was in an oval pit (056) in quadrant C (illus 7), which penetrated the red chip down into the subsoil beneath; bedrock was exposed in its base. This pit contained several fills, the lowest of which was a coarse brown sand with flecks of charcoal and cremated bone mixed through it. Above this was more coarse brown sand, similar in texture and colour to that which formed the matrix for the red felsite chips. Coarse clay had been placed in the top of the pit, possibly in an attempt to seal it.

Artefacts in the red chip layer

Also deposited in the red chip layer were a number of artefacts, including pot sherds, stone tools and jet beads. Some of these may have found their way into the layer as the result of casual acts;

however, some can be more readily associated with ritual acts related to funerary practice (see Discussion, below). The recovery of a number of jet beads, found close together (illus 3) within the red chip layer, may indicate the deposition of a string of beads. Their fine condition, however, suggests that they were manufactured specifically for deposition without ever having been strung (Shepherd, below). It is not uncommon to find jet beads within funerary contexts, although they are most commonly found along with Beakers. Several sherds of Beaker pottery were recovered from the red chip layer, but these pre-date the majority of recovered pottery types from this context. The recovery of earlier and later ceramic forms from a context relatively late in the site's history may appear somewhat problematic, but this juxtaposition may have played an important role in the rituals represented by these artefacts, and will be discussed below.

PHASE 4/5(?): THE OUTER CAIRN RING

The stone ring (008) which formed the outer perimeter of the monument's latest incarnation, composed of irregular fragments of felsite, was laid down on top of the organic deposit (052) described above, but in places appeared to rest against the outside edge of the earth bank (illus 2). In appearance it had much in common with the earlier stone ring (Phase 2, 021) which at some points it overlay. The pre-existence of a similar feature (021), independent of any kind of stone cairn, could be cited to argue that this later feature need not have been constructed at the same time as the platform cairn, which was laid down within the area enclosed by the ring.

Several sherds of Food Vessel were recovered from the matrix of the ring, which suggests that it is broadly contemporary with the red chip layer (Phase 4, 014) in which Food Vessel sherds had also been incorporated. However, given the stratigraphic relationship between the organic layer (052) and the red chip layer, it is more likely that the stone ring post-dated the deposition of the latter.

PHASE 5: CAIRN

In the final act of monument building, the numerous stones (of felsite) constituting the central platform cairn were laid. The stones used to build the cairn were in general slightly smaller than those which made up the stone ring encircling it. It has already been proposed that the stone ring was constructed before much of the enclosed area was infilled by the cairn stones. A ragged gap between the cairn and the enclosing ring preserved the integrity of the latter. A thin deposit of dark humic soil beneath the cairn stones (051) had formed over the red chip layer before the stones were laid and may indicate a period when the red chip layer was actually obscured and perhaps the monument itself unused. However, the presence of dense root matter within this horizon suggests percolation of later material between the stones was at least partly responsible for its formation.

The 'platform' cairn was for the most part built from a single layer of stones, in places closely packed, in others thinly spread. The cairn's irregular, almost haphazard appearance is evident on the pre-excavation plan of the site (illus 2), but it is possible to see a number of patterns within this superficial chaos. This may be due to later robbing of the cairn, perhaps to build field walls, one of which is actually integrated into the outer ring on the cairn's northern side. The most diffuse part of the cairn was that closest to the wall terminal, which adds further credence to the stone-robbing hypothesis. Further evidence of later interference with the monument took the form of a rectangular pit, apparently a robber trench, cut through all of the

deposits in quadrant D; whether this event marked the removal of artefacts or burials we will never know.

However, not all of the voids in the stone matrix can be written off as the result of later robbing. Several are quite circular in plan and some appear to have been edged with deliberately set stones. Cremated bone was observed in exposed patches of dark soil in the voids, which appeared to represent the upper fills of pits cut through the red chip layer beneath. The more regular voids in the cairn may have resulted from the removal of stones to allow pits to be dug, indicating that the monument continued to function as a place of interment for some time after the construction of the cairn.

The cairn's appearance and siting seem to have been influenced at least in part by the natural topography of the site. Removal of the cairn stones in the northern part of the monument, particularly in quadrant C, revealed sub-angular blocks of felsite bedrock protruding through the soils beneath. These exposed bedrock blocks were prominent enough for the builders to integrate them into the matrix of the cairn itself, in places using the bedrock instead of importing stones.

The presence of numerous worked stone objects in the soil covering the cairn could suggest that the site remained a focus for activity following its construction.

Satellite cairn

Although the central cairn and the outer ring appear to have been the most important elements of the site at this last phase (5), one other intriguing feature was identified. This was a very small satellite cairn (011), less than a metre in diameter, lying immediately outside the outer ring on the cairn's southern edge (illus 3). Such features have been found in association with larger platform cairns; two discovered close to the cairn at Stoneyburn, Crawford, both covered small cremation pits (Banks 1995). However, excavation of this feature found no cremations, only the skeleton of a recently deceased rabbit.

RADIOCARBON DATES

Two radiocarbon dates were obtained from charcoal wet-sieved from bulk samples collected during the excavations. The charcoal was identified to species by Susan Ramsay of GUARD and submitted to Beta Analytic Inc, Florida, for radiocarbon assay. The results (below) were calibrated using the Pretoria calibration curve for short-lived samples (Vogel *et al* 1993).

Lab no	Material dated	yrs BP	Cal range (2 sigma)
Beta-111006	*Alms* (alder) charcoal in Phase 2 post-hole 075	3450 ± 50	1890-1630 cal BC
Beta-111007	*Betula* (birch) charcoal in lower fill 082 of Phase 2 cremation pit	3460 ± 60	1910-1620 cal BC

SPECIALIST CONTRIBUTIONS

THE CREMATED BONE

Julie A Roberts

A total of 24 deposits from 17 different contexts were examined. An assessment of the state of preservation of each individual deposit was made based upon the completeness of elements, fragment size and surface erosion. The deposits ranged in weight from 0.2 g (context 075) to 763.1 g (context 082). The fragment sizes ranged from less than 2 mm to 85.5 mm maximum diameter,

although the average maximum fragment size was 32.8 mm in diameter. Generally speaking, the preservation of the remains was poor, with the exception of contexts 068, 082, 014 and 079. The aims and objectives of skeletal analysis were: (a) to identify the species and minimum number of individuals present in each deposit; (b) to determine the age at death and sex of those individuals; (c) to identify any non-metric traits (skeletal variants) and pathological conditions present; (d) to gain some insight into the mortuary rituals practised by the people who buried their dead at Cloburn.

Results

Minimum number of individuals A minimum number of 18 individuals from a total of 17 different contexts were identified. All were single burials with the exception of context 068, which contained one middle adult of probable female sex, and one foetus/neonate. The sub adult bones which were identified in context 068 were very small and fragmentary and no juvenile dentition was identified. It is possible, if the two were related, that this foetus/neonate was still *in utero*.

Age at death Only one immature individual was identified, the foetus/neonate from context 068. No deciduous dentition was present, but the few fragments of cranium and long bone present were comparable in size to those of a foetus or neonate. Four individuals were identified as young to middle adults (082, 079, 059, 065), one as a middle adult (068) and one as a middle to mature adult (014). Six individuals could only be described as adult (049, 052, 073, 067, 060, 28), and three as probable adults (056, bone from the interface of the red chip layer and the old ground surface, and bone retrieved in 1994 by the local archaeology society (Archer 1995)). Preservation of the bone from contexts 075 and 023 was so poor that no age could be assigned.

Sex Two probable males (082, 079), one probable female (068), two possible males (059, 052), and one possible female (067) were identified. The sex of the remaining individuals could not be determined due to poor preservation and a lack of diagnostic elements, or ambiguous post-cranial metrics.

TABLE 1

Summary of MNI, age and sex data; plus identification of faunal species

Context	MNI	Age	Sex	Animal Bone
068	2	Middle adult Foetus/neonate	?Female	Sheep/goat
082	1	Young — middle adult	?Male	Sheep/goat, also a larger animal present
079	1	Young — middle adult	?Male	
023	1	Unknown	Unknown	(poss. faunal)
014	1	Middle — mature adult	Unknown	
049	1	Adult	Unknown	
?[28]	1	Adult	Unknown	
056	1	?Adult	Unknown	Sheep/goat
075	1	Unknown	Unknown	
052	1	Adult	?Male	
059	1	Young — middle adult	?Male	
073	1	Adult	Unknown	
067	1	Adult	?Female	
065	1	Young — middle adult	Unknown	
060	1	Adult	Unknown	
000/C	1	?Adult	Unknown	
1994	1	?Adult	Unknown	?

Young adult 18–25 yrs; middle adult 26-45 yrs; (mature) adult 45 yrs +

Mortuary practice The predominant colour of almost all the fragments was white, indicating that they had been heated to temperatures in excess of 700°C. The most notable exceptions to this were fragments from three vertebrae in context 014, a fragment of an articular facet and a costal facet from vertebrae in context 082, a distal phalanx and animal occipital condyle from that same deposit and a fragment of greater trochanter from context 049. The incomplete cremation of the vertebrae may be related to the position of the body on the pyre. If the individual had been lain supine on the ground with the pyre built over him or her, oxygen circulation to the spine would have been reduced and combustion of this region would have been less effective. This same principle would have applied to the greater trochanter. This was thought to have been the case at Kirkton in Fife, where the posterior aspects of the calcaneii and the occipital bones were also dark grey (Roberts 1996a). Unfortunately, these elements were not sufficiently well preserved in any of the deposits from Cloburn, and so there is really insufficient evidence to support this theory.

The distal phalanx, which was light grey in colour, may have been lying toward the edge of the pyre, away from the hottest part, although the other phalanges in the deposit were completely calcined. In order to ensure that the body was properly cremated the pyre would have required tending throughout the whole process, as maintenance of the correct temperature and adequate circulation of oxygen would have been necessary. Complete cremation of the majority of the fragments in the Cloburn assemblage implies a consistently efficient system of cremation, which may have developed from a long tradition of use. The transverse curved cracking and warpage of the larger fragments indicates that the bodies were fleshed at the time of cremation.

Surface erosion of some of the fragments was evident (056, 067 & 079). This would suggest that the bones had been left above the ground for some time, exposed to the wind and the rain. This may represent a period of time after the bones were cremated but before they were buried (ie a deliberate delay in burial) or be a consequence of disturbance by later burials or burrowing animals. The inclusion of black ashy material in context 082 implies that these bones were lifted straight from the pyre and buried immediately in the pit. Several of the fragments, however, not only displayed evidence of surface erosion, but also the effects of some kind of fungal growth, characterised by lytic lesions occurring on the outer cortex of the bone, surrounded by greenish-brown discolouration. It is possible that these remains were exposed prior to the deposition of 079 (the upper fill of the pit), and it may have been during this period that certain skeletal elements were removed or lost. Alternatively, they may have been deliberately picked out before the bones were placed in the ground.

Two of the contexts which contained bone were post-holes (023 & 075). Unfortunately, these remains were so degraded it was not possible to be certain of species. Whether they were human or animal, they may have been deliberate burials which formed part of the mortuary ritual.

The vertebrae and phalanges are amongst the most frequently found elements in human cremation deposits, together with fragments from the shafts of long bones (Hoick 1986). In the Bronze Age cremations from Kirkton in Fife and Benderloch in Argyll all skeletal elements were well represented (Roberts 1996a; 1997), as they were at Ratho, Midlothian (McSweeney 1995). At Cloburn, however, the situation was different. While it might be expected that long bone would be the most frequently occurring element, there did appear to be a disproportionate amount of these in comparison to the other types of skeletal element. Fragments of vertebra, pelvis and rib were particularly under represented.

The four largest deposits (068, 082, 014 & 079) and the smaller deposits (052 & soil sample 028), all had roughly the same ratio of long bone to cranium, although the other elements (with the exception of teeth) were consistently under represented. In contexts 073, 056 and 049, cranial fragments were also under represented, although this may be due in part to the poor preservation of the deposits as a whole. Determining whether or not the lack of certain elements is due to differential preservation or selective burial practices is problematic. The remains were not contained in urns and therefore more susceptible to damage. Also, differential preservation may be related to bone type, as cortical and long bone are more resilient than trabecular bone (Roberts 1995). It does seem unusual, though, that in the larger deposits (eg 082), where there was particularly good preservation of the cranial fragments, there were only three small fragments of vertebra. Given these results, the possibility that only selected skeletal elements were being buried should be considered.

With the exception of the cremated animal bone (below), no additional material or grave goods were identified in the burials. However, pale blue/green speckles were evident on a fragment of fibula, mandible and long bone from context 068 and on a fragment of long bone from context 056. This type of discoloration has been observed at other sites where it has been attributed to staining from copper-alloy body adornments worn during cremation (Kuhl 1983; McKinley 1994; Roberts 1997).

Pathology and non-metric traits Only one pathological condition was identified: degenerative joint disease of the elbow and one of only two surviving vertebrae, in context 014. In the elbow, the disorder was characterised by marked grooving of the trochlea, which could signify quite advanced osteoarthritis. Unfortunately, the other elements which together comprise the elbow joint were not preserved for assessment. The affected vertebra was probably cervical, although it was difficult to be certain, as only part of the superior and posterior aspects of the body were preserved. There was evidence of porosity on the superior surface, and osteophytes around the superior joint margin of the body. Degenerative joint disease is one of the most commonly identified conditions in archaeological populations (Ortner & Putschar 1981) and the lack of it in this assemblage was almost certainly related to the lack of joint surfaces present, in particular those belonging to the spine. The aetiology of primary degenerative joint disease is complex, but amongst the most prominent causes are age and repeated stress. The closure and partial obliteration of one of the cranial sutures belonging to the individual from 014 might indicate that in this instance the condition was age related, although other factors may have been involved.

A double occipital condylar facet from context 068 was the only non-metric trait identified. This was undoubtedly due to differential preservation.

Animal bone

Animal bone was identified in three contexts (068, 082 & 056). In 068 fragments of long bone, scapula and cranium, belonging to a sheep/goat-sized animal were identified. These fragments were completely cremated, having been burnt at the same temperature as the associated human bone. In deposit 082, sheep/goat tibia was identified. It, too, was completely calcined and showed extensive transverse curved cracking, indicating that it had been burnt while still fleshed.

Also in this deposit was an occipital condyle which may have belonged to the same animal, or something larger (as it was incomplete it was not possible to tell). This fragment from the base of the skull was unlikely to have been burnt for food; it seems probable, therefore, that the animal from which it came was deliberately cremated as part of the mortuary ritual. The occipital condyle was light grey in colour and slightly less well cremated than the majority of other fragments. This may have been due to its anatomical position, or the position of the skull on the pyre. The animal bone from context 014 was a fragment of the axis of a sheep/goat. Again, this was cremated at the same temperature as the human bone.

Conclusions

The individuals from Cloburn were cremated while their bodies were still fleshed, at temperatures in excess of 700°C. They were then buried individually, the exception being the double burial of an adult female and foetus/neonate (possibly *in utero*).

It was possible to assign a probable or possible sex to only one-third of the individuals from Cloburn, and no sex-specific mortality patterns were identified. The majority of adults whose age could be determined were classified as 'young–middle adults'.

The predominance in many of the deposits of long bone and cranium, and the under-representation of certain skeletal elements, most notably the pelvis, ribs and vertebrae, implies the practice of selective burial.

The lack of pathological conditions was surprising despite the fact that preservation, of joint surfaces in particular, was poor. If the absence of pathology was real and not merely apparent, this does not necessarily mean that this was an exceptionally healthy population. Skeletal manifestations of any disease generally represent long-term illness, where an individual has been able to survive for some length of time. Where no bony changes are visible, it may be because that person was not strong enough to survive the initial stages of a disease and progress to the stage where the bone becomes involved; alternatively, disease may have been rife but of the type that does not affect the skeleton or kills quickly. The correct interpretation must remain unknown.

Cremated animal bone was included with three of the burials. The colour and texture of the bone suggest that they were burnt in the same manner as the humans with whom they were buried, perhaps even on the same pyre. Cremated animal bone mixed with human remains has been identified at a number of other sites of different periods in Britain, including the Anglo-Saxon cemetery at Spong Hill (McKinley 1989), the Roman cemetery at Cross Farm, Harpenden (Roberts 1996b), the Bronze Age barrow cemetery at Linga Fold, Orkney (J Downes, pers comm), and the Neolithic settlement/ritual site at Beckton Farm, Lockerbie (McKinley 1997).

THE POTTERY (ILLUS 8)

Olivia Lelong

Sixteen of the contexts observed during excavation of the cairn in 1986-87 and in subsequent investigations by LADAS contained sherds of pottery. These are estimated to represent 77 vessels, although the number may be higher. This discussion groups the sherds by phase and context, describing them in terms of the manufacture, use and stylistic parallels of the vessels they represent and the condition of the sherds themselves. Their condition, in particular, sheds some further light on the monument's formation processes.

Phase 1

Several of the stratigraphically earliest contexts produced sherds of a similar nature and condition.

065 This layer, a surface formed on the exposed B horizon and later sealed by the red chip deposit, contained 74 sherds, the remains of an estimated 31 vessels. They fall into four fabrics and came from both coarse and relatively fine pots. They all display a similar degree of abrasion, however, indicating they had similar taphonomic histories.

Most of the sherds (56, from an estimated 21 vessels) were of a distinctive fabric (A): fine, hard and micaceous, with sparse, subangular stone grits. The vessels were smoothly finished, 10 of them burnished and 16 coated internally, externally or on both sides with a dark slip. They were thin-walled (most between 5-7 mm) and their profiles generally oxidized. They were almost certainly fired in the open, in pits or bonfires (Gibson & Woods 1997, 49), but with the skill to control and prolong firing conditions enough to produce this evenly oxidized fabric.

The form of the vessels was apparent in several cases from surviving rims. Vessel 1 had a slightly flared and thickened rim with a faint internal bead and external bevel; it was probably an open bowl, as was Vessel 3, which had a comparable rim lacking the internal bead. Both rims had had diameters of 340 mm. Two other rims (Vessels 23 & 27) were simple and straight, not thickened at all, and a third (Vessel 28) was rolled a little outward; all three were very thin-walled, but the sherds were too small to establish diameters. Sherds

from two other vessels (24 & 25) showed faint carinations. All of the sherds in this fabric were small and fairly abraded.

In spite of the limited direct evidence for form among these sherds, the similarities in wall thickness, surface treatment, fabric and condition between the rims and shoulders and the body sherds support the contention that they all belong to the same ceramic tradition. This seems most likely to be the earlier Neolithic pottery found in central and eastern Scotland (Cowie 1993), including the early Neolithic sites on Biggar Common, across the River Clyde from Cloburn (Sheridan 1989; Johnston 1997). Plain carinated bowls and related forms characterize that tradition most strongly, and generally date from the first half of the fourth millennium BC (Cowie 1993, 15-19). The thin-walled, fine sherds from this context might be comparable to those found at Clatchard Craig (Close-Brooks 1986) and Pitnacree (Coles & Simpson 1965).

Also found in this layer were seven sherds from four vessels of a hard, coarse, micaceous fabric (B), tempered in three cases (Vessels 15, 16 & 20) with grog. One vessel had been crudely burnished, and all seem to have been fired upside down and exposed to oxygen at the end of firing. Two sherds from two vessels were of a relatively fine, soft, sandy, slightly micaceous fabric (D), and one of these (Vessel 20) was burnished and slipped.

Another four vessels were represented by nine sherds, all of a very coarse, sandy, soft fabric (E) with stone inclusions and (in Vessel 40) grog. Both of these sandy fabrics were almost entirely oxidized, again suggesting good control of firing conditions and length. One of the coarse sherds (Vessel 19) was from a straight, simple rim, thickened slightly on the outside and coated inside with a light brown slip; the rim, extremely weathered, originally had a diameter of 120 mm. Given its provenance, condition and association with finer earlier Neolithic pottery, the rim sherd may have belonged to the class Cowie (1993) calls heavy bowls which date from the mid fourth millennium BC, and known from Barbush Quarry, Dunblane, and from early features west of the Balfarg Henge in Fife (Barclay & Russell-White 1993).

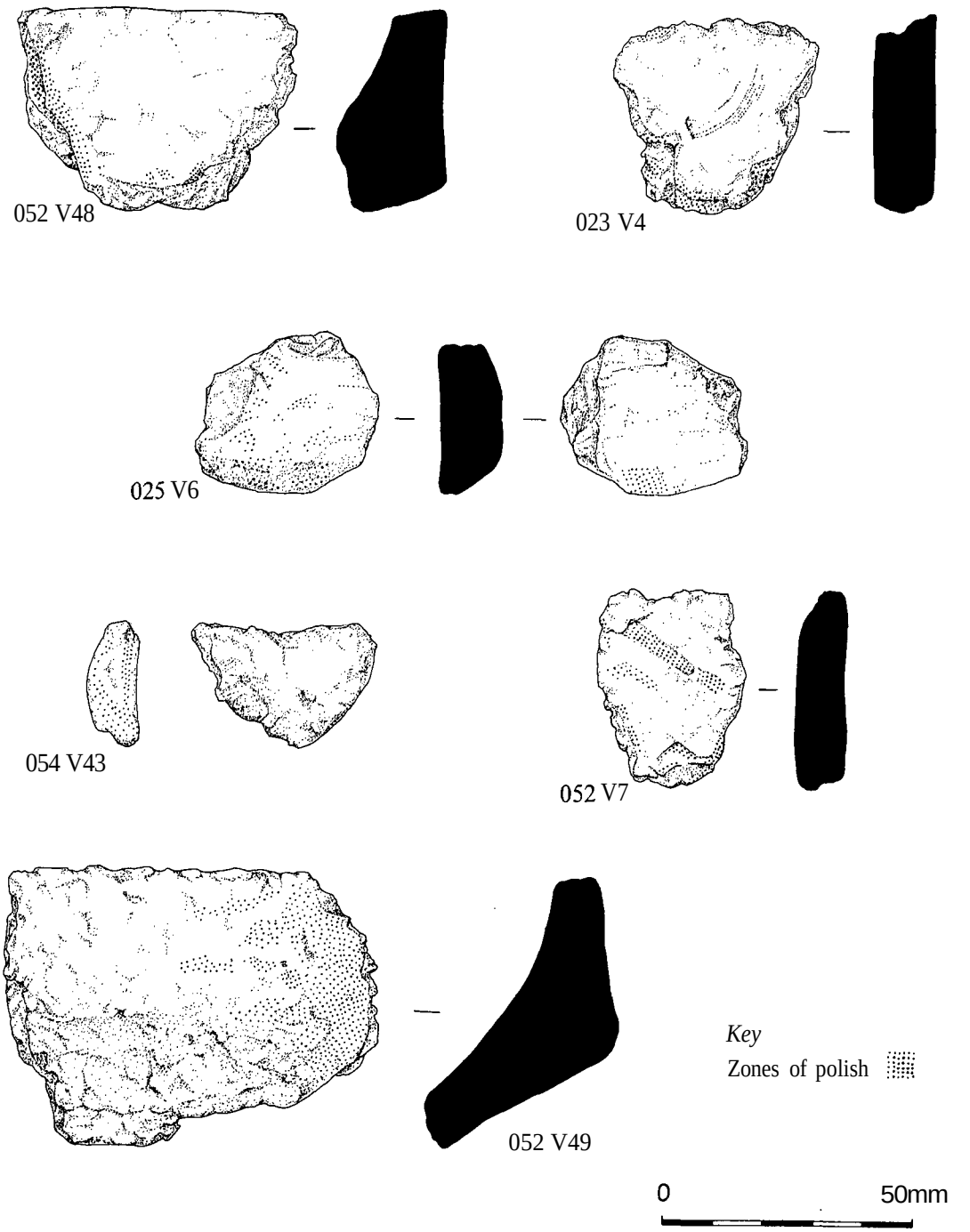
Allowing for differences in wall thickness and coarseness of fabric, all of the sherds found embedded in the layer were consistently small and well abraded. Very few sherds survived per vessel from the estimated 31 pots represented, an average of about two from each. This, coupled with their general and consistent condition, might mean the sherds were brought in from a midden, where they had been lying for some time, and scattered or deposited more formally on the ground. While it is also possible that the sherds are occupation debris in their primary context of deposition, scattered and trampled *in situ*, the excavation results (above) make it more likely they were redeposited on the site.

Phase 2

081 The fill of this shallow central scoop produced 10 sherds (or, more accurately, crumbs) of the same fabric and possibly the same vessel. The fabric (E) is soft, powdery and coarse, with angular inclusions of dark grey stone. They seem to have been low-fired, but for long enough for nearly all of their profiles to oxidize. Their extremely weathered condition suggests they are residual, perhaps having survived activity on the site preceding the scoop and become incorporated in the clay which lined it.

088 This pit, investigated by LADAS in 1989 (Archer 1989), held several fragments of burnt bone, two tiny flint flakes and two wall sherds. These were of a discrete fabric (B), sherds of which were found in several other contexts: coarse and micaceous, with characteristic cracks around protruding stone inclusions, and with a reduced interior and core and an evenly oxidized surface, indicating the pots were fired upside down and allowed contact with oxygen at the last minute. Their surfaces were wiped before firing, and the thickness of the sherds suggests they belonged to a large vessel. Both sherds are quite abraded, as are the fragments of bone.

023 From this charcoal-rich post-hole came one wall sherd (Vessel 4) in a hard, coarse, micaceous fabric (B), reduced except for its buff surface. Its interior had been roughly wiped while damp and coated with a dark grey slip, and traces of a dark slip or possible residue also cling to its outer surface. The sherd is fairly



ILLUS 8 Pot sherds reused as polishers

abraded. It was reused after its vessel broke: two of its edges have been rubbed against a small object, wearing down the sharp break and part of the section. The angled position and width (10 mm) of these areas suggest the sherd was rubbed against something narrow, perhaps a bone tool, producing this rather striated polish.

025 From the foundation trench which accommodated the low inner wall, one sherd was recovered (Vessel 6). Its fabric (C) is unique in the Cloburn assemblage. A rim sherd, it is composed of a soft, soapy, dark-grey fabric with a clearly laminated fracture. The clay has been tempered with fragments of grog from another pot of the same fabric: small lumps of laminated grog, their layers running across those of the sherd, are visible in the section. The vessel's original form seems to have been a coarse, open bowl with an externally bevelled rim, the bevel joining the vessel's wall gently rather than abruptly. It was coated inside with a brown slip, perhaps to make it less permeable. The vessel is likely to have been a heavy bowl, perhaps similar to those described by Cowie (1993) from the earlier Neolithic, although too little remains of it to say for certain.

Like the sherd from the charcoal-rich post-hole (023), this sherd was used after breakage to polish something. A small, discrete area, roughly 5 mm square, has been worn and polished on one edge of the interior, perhaps by rubbing it against a narrow, squared-off piece of bone or wood. The softly rounded surface of the exterior has itself been rubbed against another surface: the peaks and ridges of its surface irregularities have taken on a high polish which extends just onto the sherd edge, proving that polish to have been acquired after the vessel broke. The surface against which it was rubbed must have been relatively soft and smooth, as the fabric is not robust and has not been worn away or striated by the friction; it might have been used to burnish a leather-hard pot or smooth an animal skin.

Phase 4

From this phase, the red chip deposit (014) with its lenses of ash and cremated bone and its cremation pit (068) and the surrounding trampled turf surface (052) all produced pot sherds. The following discussion moves from the outer edge of the monument to contexts near its centre.

052 The ring of dark trample surrounding the red chip layer produced four sherds, the remains of four different vessels. Two wall sherds were of very similar fabrics: hard, coarse and micaceous, one tempered with grog and both oxidized only externally. Both sherds, moreover, were reused after their vessels broke. The larger one (Vessel 7) has been worn smooth along one broken edge, the polish forming two facets at different angles and the striations showing the sherd was rubbed across its profile (see illus 8). One facet is 5 mm wide, the other 10 mm, and the sherd's interior surface also has two long, narrow marks with squarish terminals. These marks might have been caused by rubbing the sherd along the end of a cut twig or bird bone in order to smooth it.

The other sherd (from Vessel 8) is very small and abraded. Rubbing has worn one edge down to a wedge. The sherd's shape and small size make it fit perfectly between the thumb and middle finger, with the forefinger resting on an unworn edge. Held like this, striations on the surface show the polished face was used to rub a vertical surface, perhaps a leather-hard pot. The middle finger's pressure has worn away the buff slip and formed a faint, polished hollow in one side of the sherd.

The other two sherds found trampled into this layer are both rim sherds, and both have also been reused as polishers. One (from Vessel 49) is steeply bevelled internally with a narrow external bevel, in a remarkably coarse and gritty fabric (F), tempered with grog; it is oxidized inside and out to an orange-buff colour, but is reduced throughout its internal profile. Chevrons have been impressed onto the external bevel, and the exterior bears rows of diagonal incised grooves, one running across and another up the vessel, with a third row of tiny diagonal grooves also running a short distance up the wall. This vessel had walls 16 mm thick and its rim had an estimated diameter of 300 mm. Its size, decoration and bevels place it within the categories of Food Vessel Urns (Cowie 1978).

The other rim sherd (Vessel 48) has a coarse, rather sandy, micaceous fabric, tempered with grog; it is reduced throughout its core but oxidized on both surfaces. It also has a steep internal bevel and a narrow external one, with chevrons impressed into the latter. Outside, just below the rim, is an applied chevron. This pot, then, can be classed as an Encrusted Urn (Morrison 1968).

Both of these sherds have small patches of polish which extend over their broken edges. On the sherd from Vessel 49, rubbing has worn away the slip and smoothed the surface and sherd break along one end of the interior. The sherd's large size and deep bevelling make it easy to grip, and polish on this part of it would have resulted from holding it in the most comfortable position possible, its long axis aligned with the fingers. On the other sherd (Vessel 48) there is a small, worn patch on the lower edge of the interior and another just below the rim on one side. The sherd was probably braced lengthways between the thumb and middle finger, with the forefinger resting along the rim and guiding the rubbing action.

It is striking that this trampled surface contained only four sherds, and that all had been reused to rub and polish small objects or larger surfaces. It seems likely they were being used in this way on the site, around the red chip-filled centre, for activities such as smoothing small bones (perhaps for ornament?) and burnishing pots before their final hardening.

014 The 31 sherds found mixed with the red felsite chips came from an estimated 25 vessels. Most of them were markedly different in form, fabric and decoration from those found in contexts which were stratigraphically earlier, suggesting a chronological break in the practice of depositing sherds on the site, an abrupt change in the ceramics used by those who visited it, or perhaps a change in the purpose of the pots (or sherds) they brought there.

One wall sherd of a fine, hard, slightly micaceous fabric (A) was present. It had come from a thin-walled vessel, its profile thoroughly oxidized and its interior slipped dark-grey. The sherd — solitary, small and extremely abraded — appears residual. The similarity of its fabric, surface treatment and wall thickness to sherds from stratigraphically earlier contexts suggests it might have survived from an earlier phase, perhaps dating to the surface in which early Neolithic sherds were found.

Among the rest of the sherds from this context, several others were in a similar condition. There were four wall sherds, representing four vessels, in a fairly hard, coarse, micaceous fabric (B), reduced throughout except for their exteriors. All were highly abraded. One of these (a grog-tempered sherd from Vessel 43) had been rubbed against another surface, producing polish along one broken edge. The sherd's triangular shape and particular curvature make it fit well between the thumb and first two fingers, with the polished edge pointing outwards; it appears to have been rubbed along (rather than across) its profile. The way the polish covers the entire broken edge indicates it was probably rubbed against a surface broader than its edge, rather than a small, narrow object, as were the Vessel 4 sherd and part of the Vessel 6 sherd.

The remaining 23 sherds found in the red chip deposit came from 17 vessels. These were distinctly different from the other sherds found in this context, and fell into two related fabrics groups. Two sherds from two vessels were of an extraordinarily coarse, hard, rough fabric (F) with a hackly fracture, its profile bristling with large stone grits and (in the case of Vessel 64) lumps of grog. The outsides of both vessels had been oxidized to orange-brown, but otherwise their profiles were reduced. One of the sherds (Vessel 57) was a fragment of base, too small to determine its diameter, but it clearly belonged to a bucket-shaped pot, possibly a Food Vessel or Food Vessel Urn (Cowie 1978). The other (Vessel 64) was a wall sherd 21 mm thick, from a very heavy, coarse vessel.

The other 21 sherds exhibited remarkable cohesion as a group in their forms, fabric and decoration. They came from 15 vessels, no more than three sherds per vessel. They were all made of a very coarse fabric (G), similar in the size and density of its inclusions to fabric F (above), but generally oxidized throughout the firing profile, sometimes with only a thin black core indicating the firing had not lasted quite long enough for all of the carbonaceous material in the clay to combust (Gibson & Woods 1997, 53). The vessels were all thinner-walled (consistently 10–13 mm thick) than the coarser fabric F vessels from this and other contexts (discussed below).

Eight of the vessels had been decorated with rows of deep, vertical or diagonal grooves, some possibly incised with fingernails. In four cases (Vessels 42, 61, 63 & 67) an upper and lower row of diagonal grooves met or overlapped slightly, creating hatched or herringbone patterns. Vessel 42 survived as a shoulder sherd from a large, subtly carinated pot decorated with a zone of herringbone along the shoulder; finger impressions are perceptible on its rough interior surface.

Several rim sherds in this fabric gave further clues to the form of two pots. Vessel 58 was represented by two rim sherds, forming 20 per cent of the original rim, an estimated 200 mm in diameter. The pot had been a tripartite vessel, with two carinations beneath a straight, internally bevelled rim; a row of short diagonal grooves occupied the bevel, and rows of long, curving grooves had been carved on the cavetto zones between the carinations. This pot's size, decoration and several carinations leading up to a vertical rim indicate it was probably a Food Vessel Vase (Cowie 1978). One other vessel (75), represented by three small sherds, had a straight, simple rim with a slight internal bevel. It had been decorated with rows of stabbed impressions.

063 One very small, abraded wall sherd of a fine, hard, slightly micaceous fabric (A) came from this context, the lower part of the red chip deposit. Its vessel had been thin-walled and its exterior slipped dark-grey. The original vessel appears to have been an AOC Beaker (all-over-cord impressed) (Clarke 1970). This sherd's solitary and weathered state suggests it had lain exposed for some time before being incorporated in the layer. It may have been brought in and redeposited with the red chips and other material filling the scoop. The collapse of the established chronological schemes of Beaker typology mean we can no longer assign date brackets to particular forms with any confidence, but Kinnes *et al* (1991) has placed the Beaker tradition within the broader bracket of 2600–1800 BC.

059 From this lens of ash and cremated bone in the red chip deposit came sherds from two vessels. Vessel 55 survived as two very abraded wall sherds in a hard, coarse, oxidized fabric (G). In spite of their heavy weathering, one sherd retained just a hint of a carination. Vessel 56, remaining as five wall sherds, had an extremely coarse, partly oxidized fabric, fairly thick walls (13 mm) and incised rows of hatching. Although the sherds were large, their edges were reasonably abraded. The state of these sherds indicates the material making up this lens had been lying exposed for some time (perhaps exposed in a pyre, although the surfaces showed no signs of sooting) before they were dumped in, or as part of, the red chips. Their fabric, decoration and form seem consistent with the Food Vessel types represented in sherds scattered throughout the red chip layer.

064 Another discrete lens in the red chip layer, this context held one wall sherd in a coarse, hard, mostly oxidized fabric richly studded with stone grits (G). The sherd, small and weathered, had probably lain exposed or been otherwise abused before, separated from the other sherds from its vessel, it was dumped in this context.

068 This feature, a hollow in the red chip layer, contained a cremation and a complete pot which had been crushed *in situ*, probably through post-depositional processes. The vessel (76; not illus) is a finely made bipartite Food Vessel Vase (Cowie 1978), of a fairly coarse, hard fabric, oxidized except for a central dark core. It has a carination punctuated by solid lugs beneath a cavetto zone which leads up to a gently flaring rim, 140 mm in diameter. The rim has a steep internal bevel, decorated with an incised herringbone pattern. It also has a small external bevel, and three incised lines run around the rim. The vessel's entire body is decorated with rows of neatly executed, incised herringbone. The pot was probably coil- or ring-built, as it appears to have fractured horizontally along the breaks between the rings, one just below the carination, and another about 40 mm below that. The base was not recovered during the excavation (the fabric, though hard, is quite crumbly), but what remains of the body shows it must have been very small, under 40 mm in diameter. The vessel's closest affinity is the Yorkshire vase (Cowie 1978). A very similar vessel was found at

Knappers, Dunbartonshire, beneath one of the stones of a pear-shaped, sand-filled stone setting (Ritchie & Adamson 1981).

This pot was deliberately set in its hollow in the red chip layer, along with the cremated remains of a female adult and a foetus/neonate (Roberts, above). It may have held these remains as they were carried to the site. The vessel's delicacy, proportions and careful finish evoke a sense of special attention to the pot when it was formed, a sensibility perhaps extended from or associated with the care bestowed on treating the remains of a woman and baby (or foetus). The pot and other members of its class earned the name of 'Food Vessel' because they did not seem suitable for drinking, with their thick, bevelled rims. What they do seem entirely suited for is holding, cupped between both hands and carried before oneself.

056 This pit, cut through the red chip layer and containing cremated bone from at least one human and one animal, also held a few sherds of pottery, possibly all from the same vessel. All of the sherds were of a relatively fine, sandy fabric, oxidized throughout and slipped externally with a light brown slip. Surface erosion on the bone fragments indicated they may have lain above ground for some time before burial in the pit (Roberts, above); the sherds' high degree of abrasion suggests they may have had a similar history.

That only one or a few sherds from each vessel ended up in the red chip layer and the lenses and hollows it contained, and that all were somewhat abraded, suggests that they had lain in the open for a period of time after breaking — long enough for the sherds from each vessel to scatter and weather. These sherds, consistently of the Food Vessel family, might have been used in funerary rituals such as cremations (although none actually in pyres) and then broken. Redepositing them along with dumps of ash and cremated bone might have represented the belief that the remains were somehow transformed by fire, exposure and breakage. (The final section of the report explores this possibility further.)

Phase 4/5?

008 From the ring of boulders set above the dark trampled layer, around the red chips, came one fairly abraded sherd of an extremely coarse, gritty, grog-tempered fabric (F). It was fired upside down, reduced inside and throughout its core but oxidized externally to red-orange. The sherd is from a shoulder, its surface concave above the carination and convex below it; on the latter is a faint row of incised diagonal lines. The vessel was probably very large; the wall is 16 mm thick. The sherd's form, fabric and decoration all indicate it was probably a Food Vessel Urn.

016 From the soil beyond the ring of boulders came several sherds representing an estimated two vessels. One survived as five small and quite weathered sherds, while of the other only one sherd remained. All were of very coarse, gritty and (one vessel) grog-tempered fabric (F), and incised slashes on sherds of both vessels indicated they might have come from Food Vessels.

Discussion

The range of forms, fabrics and condition of the sherds illuminates the formation processes as well as the phasing of their various contexts. Those from the stratigraphically earliest contexts were generally small and well abraded, in hard, micaceous, mostly fine fabrics. The few clues to form suggest their vessels were open and sometimes carinated bowls, with a possible heavy bowl or two, belonging to the traditions of early Neolithic pottery. This, coupled with their evident residuality, supports the view of a long sequence of activity on the site of which these are the earliest ceramic residues.

By the time the red chip layer and its many lenses were laid, people were bringing sherds of Food Vessels and similar pots and incorporating them with ash and cremated bone, probably as

the remains of rituals involving cremation. Only a few sherds at most were brought from each broken vessel, and their somewhat abraded condition shows they had been left lying for some time.

Particularly striking in the Cloburn assemblage is the presence of several sherds which had been used, after their vessels broke, to polish or smooth small objects or larger surfaces. These sherds came from contexts of every phase, but especially from the ring of trampled soil contemporary with the red chip layer. It seems likely, given their remarkable concentration, that these sherds were reused at the monument and dropped or discarded there. They may have been used to prepare objects for use in funerary rituals, such as pots, bones or skins. The preparation of such things could itself have been an important ritual, and the use of pieces of old pots in the process may well have been significant: the old, fragmentary pots might have had specific meanings, accumulated during their original use or derived from the people who made them, which fed into the rituals and the newly prepared objects.

JET BEADS AND BUTTON (NOT ILLUS)

Ian A G Shepherd

Twenty jet disc beads and one jet button were recovered from the red chip layer (Phase 4) during the 1987 season of excavation. These were carefully made. The button had been in use as such prior to burial but the majority of the disc beads may have been made specifically for deposition. A full descriptive catalogue has been placed with the site archive and is available for consultation at the National Monuments Record of Scotland (RCAHMS).

Technology

All the beads, except for no 13, are in the same type of high quality, lustrous jet and all, except for nos 13 and 14, were drilled by the one cylindrical bit, probably of metal. The perforations of nos 13 and 14 have probably been redrilled; no 13 is in a slightly different jet. The beads have been made to a consistently high standard and do not exhibit much wear. They appear therefore to have been drilled and finished not long before deposition, with one or two exceptions. The manufacturing process probably involved the shaping of suitable jet lumps into rods, which were then drilled. The individual beads would then have been cut out and finely shaped.

A consistent feature of the group is evidence of damage, in the form of small flake scars to the edges or the outer areas of the sides. This is difficult to interpret, but it could indicate the dismantling of the necklace (ie forcing apart of tightly strung beads). The damage does not seem to result from the manufacturing process because it has not been polished or worn off. The polishing evident on the sides of some beads (eg no 17) may suggest that they were either the end beads in a string or that they were single beads which had not been strung. At any rate, the very small amount of necklace wear round the perforations may reinforce the possibility that these beads were made for deposition.

The mean diameter of the beads is 9.71 mm (range = 8-10.75 mm), and their mean thickness is 1.64 mm (range = 1-2.75 mm). Plotting the dimensions of the disc beads shows two principal groupings plus two slight oddities (nos 4 & 13). Eleven or 55% are in the range 10-10.75 mm in diameter while seven (35%) are either 9 mm (six) or 9.25 mm (one) in diameter. When diameters are plotted against width, the two groups can again be discerned: 11 are of large diameter (10-10.75 mm) and with a range of thicknesses (1-2.5 mm), whereas seven are between

1–1.5 mm thick, with a tight concentration (four) at 1.5 mm (all 9 mm in diameter). The extraordinarily consistent diameter of the perforations in both groups has already been commented upon. Similarly, there does not appear to be any major difference in the wear of the two groups, so the variation discerned in the dimensions does not seem to indicate any chronological separation between their dates of manufacture.

The button, which is a Shepherd Type 4 (1973, 8-9), has been competently made; its V-perforation was probably made with a flint point (for a discussion of craftsmanship in jet, see Shepherd 1985). It is considerably more worn than the beads and has been tightly attached to a garment for some time. The evidence of attachment by a double thong is unusually clear.

Comparanda and discussion

The dimensions of the disc beads compare with disc beads from short cist burials at Dalgety, Fife, and Almondbank, Perthshire, as follows. Almondbank Cist VII had 37 disc beads with a mean diameter of 6.36 mm (range = 5-7 mm) and a mean thickness of 2.02 mm (range = 1.25-3 mm). Cist IX at Almondbank had 218 disc beads with a mean diameter of 7.06 mm (range = 4.75-7.75 mm) and a mean thickness of 1.55 mm (range = 1–3 mm). Most of the wear on the Almondbank disc beads was indeterminate (Cist IX 116 indeterminate: 41 unworn: 60 worn; Cist VII 32 indeterminate, 2 unworn and 3 worn) (Shepherd 1997). At Dalgety (Shepherd 1982, 104) the disc beads in a necklace of 210 beads had a mean diameter of 9.63 mm (range = 6–11.5 mm) and a mean thickness of 2.47 mm (range 1-3.5 mm).

TABLE 2

Comparative dimensions of jet disc beads from Cloburn, Almondbank, Dalgety and Achnacreebeag

	Mean diam (mm)	Mean thickness (mm)	
Cloburn	9.71	1.54	
Almondbank VII	6.36	2.02	
	7.06	1.55	
Dalgety 4	9.63	2.47	
Achnacreebeag	diam	thickness	perforation
max	9	3	3
min	5	2	2

The 17 disc beads from Achnacreebeag chambered cairn, Argyll, were found throughout the blocking and in the disturbed portion of the chamber (Ritchie 1970, 49, fig 4 & pl 6).

Such comparisons show the Cloburn beads to be very accomplished pieces of work, being larger but thinner than those from other sites

The Cloburn button belongs to the oval type (Kingston Deverill: Hoare 1812, 456, pl 111) which is found most often in amber. However, the only other Scottish example, from Oxgangs Road, Edinburgh *(Proc Soc Antiq Scot,* 68 (1933-4), 351-2), is also in jet, as is the one from Durrington Walls, Wiltshire (Hoare 1812, 172, pl xix). A bone example is also known, from Folkton LXXI, Yorkshire (Greenwell 1877, 274-9). It is perhaps significant that the parallels for this button type look to Wessex rather than to Scotland. (Buttons with Scottish/Yorkshire axis are generally larger, over 25 mm in diameter, whereas those in the small conical series, below 25 mm in diameter, cf Cloburn, are of the Yorkshire/Wessex axis).

Although in terms of Beaker typology, this button type was present during steps 4 and 5 (Lanting & Van der Waals 1972), the period of its greatest use was undoubtedly step 6 (Shepherd

1973, 34), ie in a late Beaker/Wessex milieu. The small, slightly domed button in various materials is basic to the whole of Europe (Shepherd 1985, 215).

Only three other direct associations of a jet button and disc beads have been recorded (Shepherd 1973, appen VII). A secondary burial in a round barrow on Hay Top Hill, Derbyshire, may have been accompanied by a small conical button, three disc beads and six fusiform beads, all of jet (Bateman 1861, 74); an inhumation at Soham Fen, Cambridgeshire, was accompanied by two spacer plates, 11 fusiform and 20 disc beads as well as an unusual biconvex button, all of jet (Thurnam 1871, 515); a short cist on Culduthel Farm, Inverness, contained a female inhumation and a necklace of 520 jet disc beads with a fastener in the form of a triangular jet button (Low 1929).

The context of the Cloburn find, being some kind of formal disposal if not actual burial, is unusual, although one of the other Lanarkshire jet buttons, the large conical example from Limefield, not far from Cloburn, was also found in an atypical context, a step 6 Beaker cremation burial (MacLaren 1984, 99). The only other button from the county was found 'in a moss' on Crawford Moor *(Proc Soc Antiq Scot,* 2 (1857, 306-7).

STONE ARTEFACT ASSEMBLAGE

Tony Pollard

Struck stone (illus 9)

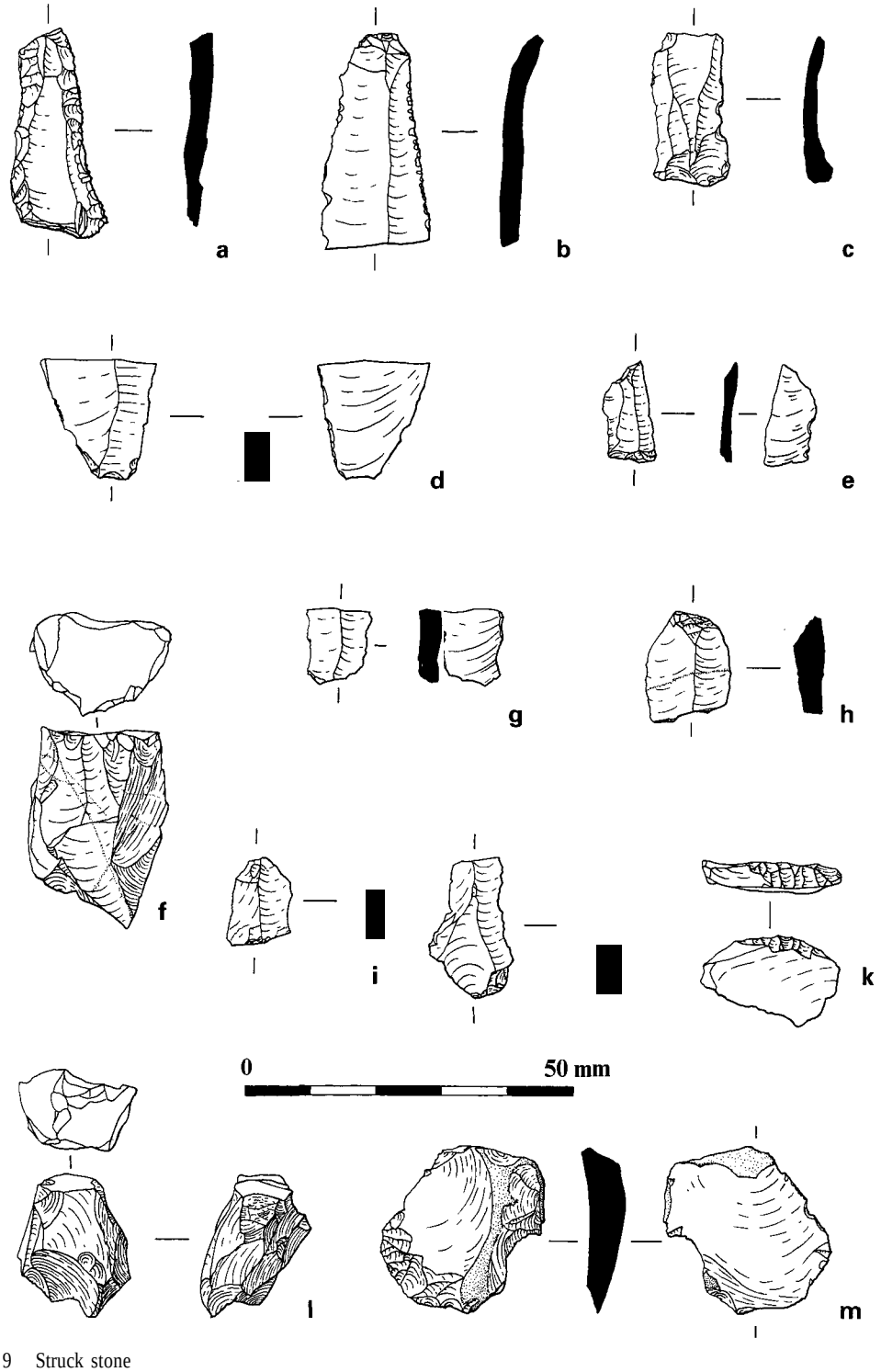
A total of 222 pieces of struck stone was recovered; the majority were of chert, although 15 pieces of flint and two pieces of pitchstone were also recovered during the main excavation (1986/7). A number of stone tools were also found during the later excavation of the site by the local archaeological society, including a microlith and a leaf shaped arrowhead (the latter was not available for examination by the writer). A full catalogue of these artefacts has been prepared as part of the site archive which is available for consultation at the National Monuments Record of Scotland (RCAHMS). By far the largest proportion of the assemblage was recovered from the topsoil and the matrix of the cairn (134 pieces); this suggests that the cairn served as a place of social congregation perhaps long after its construction.

TABLE 3

Contexts containing struck stone objects

Context no	Description	Phase	No pieces
001	topsoil	-	134
007	platform cairn	5	5
008	ring cairn	4/5?	2
015	?	?	3
051	humic soil layer at base of platform cairn	5	43
014	red chip layer	4	20
056	cremation on red chip layer	4	4
058	?	?	4
063	= 014, red chip layer	4	7

Two microliths were recovered, one from the topsoil above the cairn and one from the top of a pit below the cairn excavated by the LADAS. Both are obliquely blunted points on flint blades, with the example from beneath the cairn coming closest to an isosceles triangle (not illus). The long edges of this latter piece both display microscopic damage which may have been incurred during its hafting, probably in an arrow, or its use thereafter. Both pieces have been



ILLUS 9 Struck stone

snapped across the proximal end, removing the bulbs of percussion. Although the writer has commented on the need to consider the maintenance of microlith technology into later periods, given the levels of ground disturbance and material movement/deposition related to the construction of the monument there seems little reason to doubt that they represent anything other than late Mesolithic artefacts, inadvertently integrated within the monument during its construction.

Both of the microliths are of flint and this is true of the majority of the regular blades within the assemblage. The flint was imported to the area, probably from the south-west coast of Scotland. The chert, on the other hand, is found locally, where it can be picked up from exposures as weathered and water-rolled pebbles or nodules.

A small number of regular blades may represent Mesolithic or Neolithic activity, with several displaying snaps, perhaps related to microlith production. One of these (illus9, b) has been denticulately retouched irregularly along one edge, with the other displaying micro-notching probably caused by use. Retouch or possible edge damage is also visible on several snapped blades (illus 9, d, g, h & j) a factor which would suggest snapping through use rather than microlith production. One flint blade is heavily retouched along both edges with its proximal tip snapped away (illus 9, a). This is a fabricator, thought to be used for retouching or other manufacturing purposes. Fabricators are a common feature of late Neolithic and Bronze Age assemblages. Only four scrapers were recovered and these again display the irregular character of many of the flakes (eg illus 9, k & m).

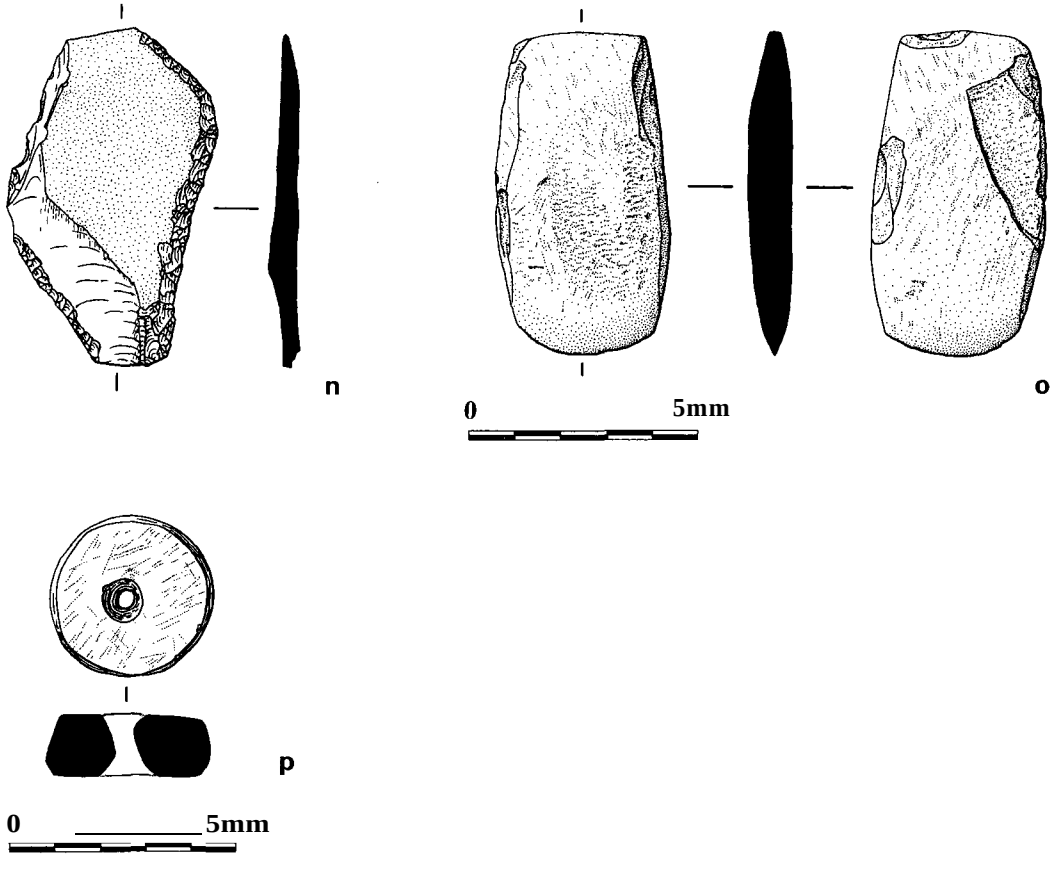
The rest of the assemblage is dominated by chert flakes (122), the majority of which are very irregular, a factor largely due to the generally poor quality of the material. The by-products of blade production are present, with several platform (illus 9, f)and multifaceted cores present (illus 9, 1). However, the lack of great quantities of debitage does not suggest that large-scale manufacturing was taking place in the immediate vicinity of the cairn.

The largest flake (illus 10, n) was recovered from the red chip layer (014) and is of good-quality chert. It has been heavily modified, with steep invasive retouch on three edges creating an irregular trapeze. This retouch appears to have blunted the piece, perhaps in order to ease its fit in the hand. The lower half of the right-hand edge is notched and damaged, and probably represents the working edge of the piece, which appears to have been used as a knife. The retouch on the upper part of this edge is less steep than elsewhere and may represent an attempt to sharpen rather than blunt.

Coarse stone tools (not illus)

A total of 33 coarse stone tools were recovered from the Cloburn excavation. The majority of these were rounded quartz pebbles, which would have been collected locally where they can still be seen eroding from the till exposed in the banks of streams and field drains. Most of those recovered from the site displayed evidence for use as hammer stones, with little or no evidence for modification other than the scars resulting from percussion. Exceptions were a broken sandstone mattock blade and a sandstone hammer stone. Like the majority of the lithics (struck stone), most of the pieces were recovered from the topsoil which covered the cairn, with relatively few from earlier contexts.

Twenty-six of the hammer stones are fragmented to some degree, with breakage probably resulting from their use. Only one of the few complete examples displays percussive peck marks on both ends, but the occurrence of more than one peck zone on fragmented examples suggests that various parts of the stones were used to apply impact. Some pieces display irregular peck



ILLUS 10 Stone artefacts

zones, fairly standard among hammer stones used in flint working. However, one of the most interesting features of this small assemblage is the appearance of depressed circular peck zones on several stones, with the central area left as an island. It is hard to imagine the technique of working which would leave such regular scars, but a circularity of motion is certainly implied.

Five of the quartz hammer stones display areas of accentuated polish, distinct from the naturally polished appearance which quartz can take on. The cause of this polishing is uncertain, but it seems likely that these stones served a double purpose as burnishers, perhaps for pottery or leather. A similar function has been suggested for a number of the pot sherds (Lelong, above).

A single spindle whorl was also recovered, context unknown (illus 10, p). This is made from sandstone and has been drilled slightly off-centre. The edges have been rounded and the surface displays striation marks indicating polishing.

Polished stone axe (illus 10)

A polished stone axe (illus 10,o) was recovered during the first season of excavation in the vicinity of the central scoop (Phase 1, 020/081). It is made of mudstone and measures 30 mm by 20 mm. Its small size and the soft raw material used may suggest that it served a ritual or symbolic function rather than as a woodworking tool. However, despite the apparently friable nature of

the raw material, the sharp edge does display scars which indicate its damage through use. Other fractures are also visible, on the sides and the butt end. Offset diagonal polish zones on either side of the butt end clearly show how the piece was polished first on one side and then turned over in the hand and polished in the same direction. The sharp end displays a similar but less obvious bias. The flat surfaces of the piece had only been partly polished, as opposed to the sides, the sharp edge and the butt end, and the original surface striations can still be seen.

Use of this tool on the site, perhaps to shape the timber posts which formed an important element of the monument, may have imbued it with a special meaning, that use perhaps polluting it and making it unusable in any other context.

DISCUSSION

The excavation at Cloburn Quarry revealed that the Bronze Age ring cairn was only the latest incarnation of a monument which had long been the focus for funerary rituals. The two microliths recovered are limited evidence for the use of the hilltop as far back as the Mesolithic period, when the upland environment probably provided rich hunting ground for local hunter-gatherer groups. However, the earliest evidence in any quantity comes from the early Neolithic period, in the form of the abraded pottery scattered across what appears to have been a B horizon freshly exposed by stripping away the turf and topsoil. While the pottery's highly abraded condition, and the presence of only one or two sherds per vessel, may be due to its having been trampled under foot after deposition, it might also show that these sherds were redeposited from elsewhere, perhaps after having been collected from an earlier midden or habitation site. The presence of early Neolithic material beneath a Bronze Age cairn is certainly not unique to Cloburn; for example, in the cairn at Stoneyburn, early Neolithic pottery was recovered from sub-cairn features and surfaces. It has been suggested that there, a notion that the site was important lingered from the early Neolithic until the Bronze Age, and was perhaps maintained by raising an earth mound over Neolithic material before the construction of the stone cairn in the Early Bronze Age (Banks 1995).

Similarly, at Cloburn a complex monument occupied the site before the cairn was built. However, the evidence here points to a Bronze Age rather than Neolithic origin for the embryonic pre-cairn monument, with radiocarbon dates indicating that the pre-cairn features date to the Early or Middle Bronze Age.

While Cloburn appears unique among excavated ring cairns in Scotland, some comparisons can be drawn between it and the smaller ring cairn at Limefield, c 2 km to the south-west of Tinto Hill. Here, the interior platform cairn filled the entire area defined by the stone ring, removing the effect of the 'halo' so obvious at Cloburn. However, the sequence postulated for the Limefield cairn (MacLaren 1984) is similar, with an early cremation in a central, shallow pit surrounded by a stone ring, followed by the insertion of cists, all finally sealed beneath the low platform cairn. Cloburn could also be compared to the platform cairn at Lyles Hill, in County Antrim. Beneath the stones of that cairn was a thick, organically rich deposit which contained abundant charcoal, ash, burnt splinters of stone, fragments of burnt bone, struck flints and pot sherds, apparently resulting from cremation pyres on the site (Evans 1953, 11).

At Cloburn, one could argue that Neolithic pottery sherds were imported to the monument (Phase 1) long after their original deposition elsewhere. Scattering the sherds across what appears to have been a newly created ground surface may have created a symbolically charged foundation deposit: the new was made familiar — or given a more specific meaning — by sprinkling it with the old. The origin of this material will never be known, but it is likely that the remains of older

settlements were still visible in the surrounding landscape, and indeed some of them may have been occupied into the Bronze Age. The massive late Neolithic enclosure at Blackshouse Burn, visible from parts of Cairngryffe Hill, if not from the cairn itself, would have provided a constant reminder of past human endeavour; a Bronze Age urned cremation was inserted into its bank long after that monument was built (Lelong & Pollard, this vol).

The first obvious evidence at Cloburn for what we would refer to as funerary activity took the form of a cremation, placed in a pit dug into a shallow central scoop which had been cut through the pot-strewn subsoil (Phase 2). The scoop within its ring of posts and the cremation pit formed an embryonic monument which grew over time around the approximate circle they described. Outside the central area, that space was repeatedly defined and enclosed, first by a low wall, then another ring of posts and finally a low ring of stones. Pits were dug near the post-holes and came to contain cremated human bone. Sherds of early Neolithic pottery on the old ground surface found their way into some of these features.

Despite the limited evidence for some of the architectural elements proposed above, the overall impression of pre-cairn activity is of an imposing monument created by combining various architectural elements. Entering the inner parts of the monument could have involved walking across the outer ring of stones, which was more effective as a threshold than a barrier, passing through the outer ring of posts and stepping over the low inner wall before passing through the inner ring of posts. As someone penetrating the monument breached each circular element and advanced toward the centre, his or her movements and actions would have become increasingly difficult for an outside observer to distinguish. Thus, their movements at different depths within the monument could have carried an increasing sense of mystery the deeper they took place.

Later, the monument's appearance changed significantly. This change may have taken place over a prolonged period of time, with the posts slowly decaying rather than being removed, or possibly burnt (from the charcoal in some of the fills). During this process of transformation (Phase 3), the outer stone and putative outer timber rings, and at least one cremation pit, were buried beneath an earthen bank, and earth was also thrown against the sides of the putative low inner stone wall, obscuring it. The central scoop may also have been backfilled at this time, and a cremation pit dug into this fill.

Next, a thin spread of dark, ashy soil accumulated over the surface of the monument, filling hollows in it. Its origin is uncertain, but it may have been the residue of cremation pyres on the site or perhaps charcoal-rich debris from nearby pyres. This horizon was later sealed beneath a deposit of red felsite chips, dumped in the shallow basin created by the outer bank (Phase 4).

The many lenses of charcoal, ash and cremated bone mixed with the red chips might have been brought from pyres elsewhere, but it is possible that pyres were lit on it or very close by. We cannot be certain whether all of these deposits, a few of which contained very little cremated bone, represent 'burials' in the same sense as dense deposits of bone placed in pits cut into the ground. Some may be the residues of cremations brought to (or even fired on) the site and then swept away. A similar act may have been responsible for the deposition of small quantities of charcoal, interpreted as pyre sweepings (MacKinley 1997), cremated bone and sherds of Grooved Ware pottery in a pit at Beckton Farm, Dumfriesshire (Pollard 1997). Lynch (1979, 10) has also suggested that the charcoal in pits beneath the ring cairn, Brenig 44, in the Brenig cemetery, Denbighshire, may have represented pyre sweepings buried separately from the cremated bones. The relatively large number of pot sherds in the red chip layer may have been similarly deposited after their participation in a cremation or other funerary ritual. Anthropological studies have shown that vessels used in funerary rituals, perhaps to contain food offerings, are thereafter regarded as polluted by some peoples and so must be disposed of in certain ways (Downes 1999).

The results of the skeletal analysis (Roberts, above) show that animals were cremated along with humans, and their remains also brought here.

The lenses and pockets of ash, charcoal, cremated bone, pot sherds, jet beads and worked stone within the red chip matrix show that people did not simply import one homogeneous dump of the red chips, but instead seem to have brought different loads of material at different times, so that the deposit accumulated in piecemeal fashion. A parallel for this exists at the ring cairn known as Moel Goedog Circle 1 in Wales, where a layer of imported earth c 0.1m deep was deposited in the monument (Lynch 1979). A total of nine pits were dug through the red chip layer, but the fact that they were cut through at different levels again shows that this deposit accumulated over time rather than in a single event. Similarly, a number of pits were cut through at various levels in a sloping bank built up against the inner face of a stone ring at the site of Brenig 44, Denbighshire, mentioned above *(ibid).*

The red chips would have had to be quarried from the felsite which comprises Cairngryffe Hill; breaking the ground and excavating it, the builders used the stone they removed from the earth to cover the traces of earlier activities on the site. In doing so they effectively reversed the natural stratigraphy, sealing the traces of that which took place on the earth's surface with that fetched up from below. This might in itself have expressed a profound shift in world views from those which motivated the pre-cairn monument's construction.

As time passed, the layer of dark, greasy soil accumulated around the monument, creeping over the outer edge of the bank, resulting from concentrated activity. People may have gathered around the monument's edges in remembrance, mourning or celebration. From the presence in this layer of several pounders, possibly used to prepare food, and pot sherds which had been reused as polishers, we can envisage possible productive activities: the preparation of ritual feasts, either for the live participants or for the dead, and the treatment of skins, pots, ornaments or tools for new rituals. Whatever the details, these artefacts were almost certainly linked to rituals carried out for the living and the dead.

The presence of cremated bone outside the monument, along with charcoal in the dark greasy soil 'halo', suggests that cremation pyres were actually lit around it. Alternatively, this material might have resulted from cremated bone having been scattered across the site, perhaps in the same way that human ashes are scattered at sea and elsewhere today. The more concentrated deposits in the red chip layer may have been left exposed for some time before they were buried beneath more chips, so that fragments of bone were blown onto the monument's outer edge. The abraded condition of much of the cremated bone strongly suggests its exposure to the elements for some time (Roberts, above) and it is of course possible that this exposure occurred on the site.

This somewhat diffuse pattern of deposition is very different to the earlier, discrete deposits of cremated bone in pits. In the earlier phase, one or a few individuals were cremated, and their remains immediately swept up and put in a discrete pit, dug into the monument. The small pits were closed, intimate receptacles for the bone and pyre charcoal, and their position within a space clearly separated from the outside world by rings of timber and stone further emphasized the removal of these remains from the domain of the living. The later period (Phases 3–5), by contrast, saw cremated bone placed in shallow, ill-defined scoops within a red chip deposit which was continually augmented.

Clearly, the monument's use and process of construction were intertwined, and the changes in both its architecture and the nature of the cremation deposits illuminate a shift from intimacy, privacy and individual presence to a more communal practice. Although the number of cremations in the earlier phases of the monument may have been under-represented due to the

limited excavation, the same is also true of the red chip deposit, and on balance it seems likely that this later phase saw an upsurge in the number of burials taking place. This increase implies that burial within the monument was no longer limited to a few, but became open to many more members of the community.

There is still, however, some evidence for an emphasis on the individual continuing well into the red chip phase (4). The most impressive burial on the site was recovered from it: the entire, delicately made Food Vessel Vase accompanying the remains of a woman and a foetus or neonate. This double burial, evoking death in childbirth, suggests special treatment of the dead, perhaps for emotional reasons rather than the functionalist, status-related motives more often conjured from grave goods.

The inclusion of the cremated remains of more people into the monument in its later phases need not have meant the privileges of burial, as we understand them today; surely the disposal of the dead during the monument's use was highly complex. During its early phases, the incorporation of a few scraps of cremated bone might have been incidental rather than deliberate burial, part of a larger and more complicated ritual. That incorporation might not have been a privilege at all, but might have had other implications for those whose remains were selected for it. The range of potential interpretations must be broader than our usual repertoire allows.

If the monument's long use and evolution did help to reinforce a sense of continuity and tradition, it might also have involved the manipulation of elements of material culture dating back to some earlier time. (The use of midden material in funerary rituals has been discussed elsewhere (Pollard 1995).) Thus, initially depositing Neolithic pottery sherds on the freshly exposed ground surface might have in some sense consecrated the site, identifying it with a genealogy stretching far back into the past. Similar motives may explain the incorporation of a Beaker sherd along with Food Vessel sherds in the red chip deposit. The reuse of a number of sherds as polishers (Lelong, above) is further evidence for the retention and reuse of old pieces of material culture.

The shift in monumental architecture in the red chip phase (4) away from clearly defined circularity and a compression of its spatial depth may have parallels elsewhere in Scotland. At Dunbeath in Caithness, for example, an impressive ritual monument dating back to the Middle/ Late Bronze Age and continuing in use into the Iron Age consisted of a series of concentric stone rings or revetments enclosing a central area within which pits had been dug; later, the stone rings were buried beneath a deposit of imported earth which included charcoal, ash and midden material (Banks & Pollard 1996). The sealing of an earlier circular monument beneath earth which included elements of older material culture may have expressed an attempt to symbolically bind people to each other, to the land they lived on and to their own history. Similarly, at Cloburn, raw materials, animal remains, human remains, pottery, jet beads and worked stone were brought together into one carefully defined space, perhaps representing a microcosm of the world in which these people lived.

CONCLUSIONS

Despite the obvious limitations on piecing together the results of limited excavations carried out almost 15 years ago, we have attempted to paint a picture of the monument as it changed over time. The interpretations presented have made some heavy demands on the evidence, but this is necessary if we are to achieve anything meaningful with the archives from backlog excavations. Other interpretations are, of course, possible and we hope that enough has been presented here to

allow the construction of alternative ones, particularly ones which address more fully the potential for some undated elements of the site to relate to earlier activity.

The most striking and incontrovertible conclusion to be drawn from the work at Cloburn is the complex nature of the monument, which was transformed through time as the ways of seeing of those who used it changed. Other excavated ring cairns such as those at Lyles Hill and Stoneyburn have displayed similar degrees of complexity; all vary slightly, however, in their structure and the nature of funerary rituals in evidence. Clearly these monuments served the particular needs of quite small communities, being altered as those needs changed; we should not, therefore, expect any two monuments to be identical. The future application of micromorphological analysis on organically rich layers, magnetic susceptibility analysis on charcoal-rich soils and careful sampling and radiocarbon dating of lenses of material on similar sites excavated in future could answer many of the questions raised at Cloburn.

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