
5 The Results of the Blackhouse Burn Environs Project *with contributions from M Donnelly, T Ballin, J Hamer and L Sharpe*

5.1 The uplands: topographic and geophysical surveys

by O Lelong, J Hamer and L Sharpe

Illus 2 shows all of the monuments recorded by topographic survey on the Pettinain Uplands in relation to each other and to the terrain.

5.1.1 Blackhouse Burn and Meadowflatts

The topographic survey recorded the large and adjacent small enclosures in the upland basin at the head of the Blackhouse Burn, as well as the nearby enclosure of Meadowflatts (see **Illus 3**).

The large Blackhouse Burn enclosure lies in the south-east part of the basin in the Pettinain Uplands, between 295 and 285 m above OD (see **Frontispiece**). The enclosure is sub-circular, composed of fairly straight stretches of bank, and measures 300 m across (internally) east/west and 290 m north/south (see **Illus 3**). The bank itself measures between 7 and 14 m in width, but averages around 12 m. Stone is apparent intermittently along its length, beneath turf. It is very low, standing to no more than 1.5 m high and in most places to under 1 m, and is extremely irregular in appearance, with what appear to be robbing scoops along much of its length.

The 1980s excavations confirmed that the north-west sector of the bank had been robbed for stone, and along some stretches only the flanks survive intact (**Lelong & Pollard 1998a**, 17). However, it seems unlikely that robbing could account for its unfinished appearance along its entire circumference. An early antiquarian describes 18th-century stone robbers finding cists containing urns inverted over cremations in the bank (**Ferguson 1794**, 39); it is possible therefore that later Bronze Age re-interpretation and re-use of the monument also involved disturbing its fabric and could partly account for its irregular appearance.

The bank is broken in three places: where the two prongs of the burn leave it on the south-east (**Illus 3**, A) and south-west (**Illus 3**, B), and on the west (**Illus 3**, C) beside the smaller enclosure. This western entrance (**Illus 3**, C) is perhaps the best defined. On the northern side of the entrance, the bank is slightly inturned, while to the south it turns outward and north-westward in an amorphous, hummocky mass to abut the smaller enclosure.

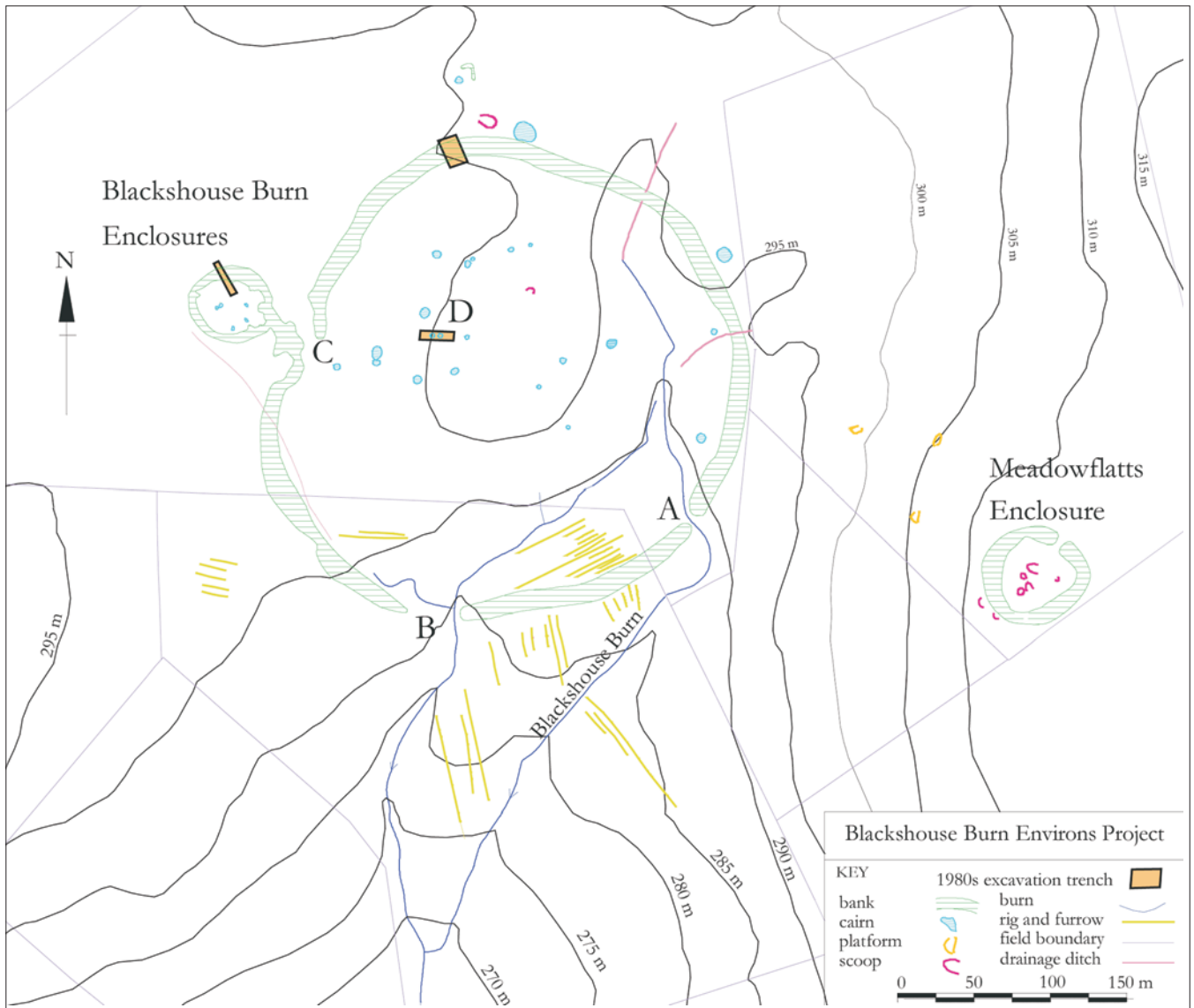
It is difficult to determine whether the breaks in the bank at the points (**Illus 3**, A and B) where the burn exits the enclosure were intended as entrances or whether they simply accommodated the burn; however, given the fact that the enclosure was deliberately built around the heads of the burn and these form the focus of the monument, the question may be irrelevant. The western break (**Illus 3**, B) is much wider than the eastern (**Illus 3**, A): 15 m compared to 3 m. However, the bank to the west of break B tapers out rather than ending abruptly. It is possible that stone robbing and/or past cattle erosion of the burn's banks are responsible for at least some of the break's width.

The northern part of the enclosure's interior comprises a plateau, *c* 5 m higher than the southern and eastern parts through which the burns flow. Scattered over the plateau are *c* 17 small cairns between 2 and 6 m in diameter; another two lie to the east of the burn's eastern fork, and another two just outside the enclosure bank on the north-east and north (see **Illus 3**). Two of these investigated in the excavations (**Illus 3**, D) were discovered to be small heaps of stone lying on the old ground surface (**Lelong & Pollard 1998a**, 30–1).

The smaller enclosure is defined by an even more irregular and hummocky, turf-covered stony bank. It is oval in plan, and measures 23 m north-west/south-east by 18 m internally, with the bank between 2 and 5 m wide. The entrance is not easily definable, although breaks in the bank to either side of where it joins the large enclosure could have led into it. Inside it are at least five small cairns, no more than 1 m in diameter and 0.6 m high, visible as irregular, stony, turf-covered mounds. The interior of the enclosure is extremely boggy, in spite of drainage attempts (the excavation found ceramic drainage pipes, and a deep drainage ditch has been cut through the monument's south-west side).

The scale and internal topography of the large enclosure are such that at most places inside it, it is impossible to see all of the perimeter bank at once. Views from the enclosure to the surrounding landscape are also limited by its position in the basin. The curtain-like visual effect of the ridge to the south, east and north is continued along the west and south-west by Tinto, Kirk and Carmichael Hills. However, the Meadowflatts enclosure is visible, breaking the skyline, from most points within the large enclosure.

Both inside and outside the southern part of the



Illus 3 Survey plan of the Blackhouse Burn and Meadowflatts monuments

large enclosure are traces of rig and furrow cultivation (see [Illus 3](#)). The rigs visible on the ground at the time of survey, which measure between 0.6 and 2 m wide, represent only a fraction of those visible on aerial photographs; these have been transcribed by Lorna Sharpe as part of the Upper Clyde Valley Landscape Project.

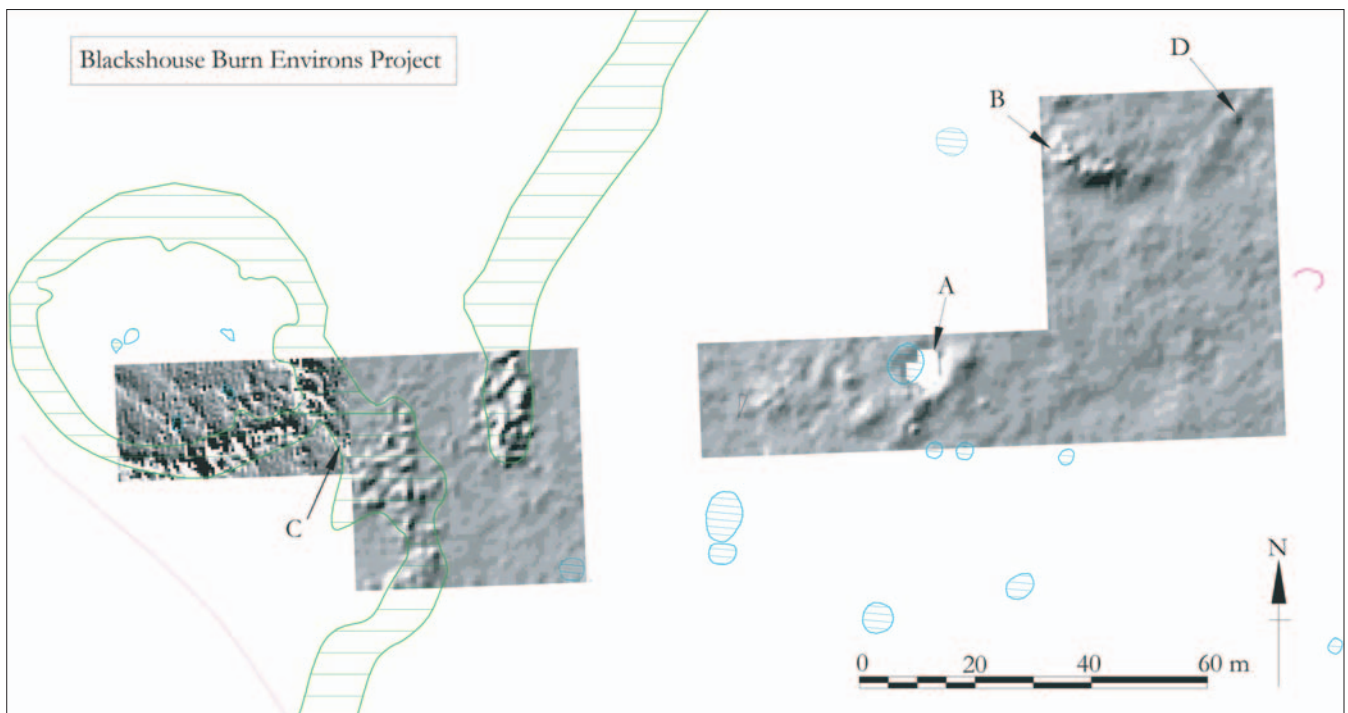
The Meadowflatts enclosure (at 312 m above OD) is sub-circular in plan, measuring *c* 24 m in diameter internally (see [Illus 3](#)). Its low, turf-covered bank measures between 3 and 5 m wide and, like the banks of the Blackhouse enclosures, it appears very irregular, possibly robbed. The bank is broken by a clear entrance on the NNE; a dip in the bank on the SSW probably represents disturbance.

Inside and outside to the south-west, several shallow scoops are visible; while seven were visible at the time of survey, more have been identified on aerial photographs taken when the monument was under snow (L Sharpe, pers comm). Those on the

exterior appear to be later robbing pits which have intruded on the bank. Those on the interior may have been dug to quarry stone used to built the monument; alternatively, they could be pits containing cremations or other deposits, related to the prehistoric use of the monument.

The Blackhouse Burn enclosures sit on magnetically and resistively ‘quiet’ ground which provided an excellent background to the survey. Much of the ground on which the enclosures lie is poorly drained, preventing full resistivity coverage over areas of standing water. However, the damp and loosely compacted nature of the soil cover allowed good electrode contact over the rest of the area, ensuring a technically sound survey.

In the **resistivity survey**, attention focused on the entrance of the large enclosure and the area between that and the smaller western enclosure. This allowed known archaeology as well as an area containing no visible remains to be sampled. This



Illus 4 Blackhouse Burn resistivity plot

strategy also allowed evaluation of the instruments' performance, given the ground conditions.

Illus 4 shows the south-eastern arc of the smaller enclosure, with the bank terminals of the large enclosure appearing in the lower left of the plot. The smaller enclosure has a narrow but clearly defined entrance in the south-east, immediately west of the main enclosure entrance. There appears to be a linear anomaly which links the entrance of the small enclosure to the southern terminal of the large enclosure (**Illus 4, C**).

A number of linear features appear inside the small enclosure, trending north-west/south-east. These may represent traces of cultivation and seem to continue outside the enclosure where the plots reveal apparent breaches in the bank which are aligned with these linear features. The survey did not extend far enough to the south to allow the extent of the anomalies to be assessed. While no rig and furrow were visible in the rough, boggy ground at the time of survey, rig cultivation can be seen around both enclosures on aerial photographs. The linear feature (**Illus 4, C**) linking the two enclosures may also be associated with this cultivation, as it is trending in the same general direction.

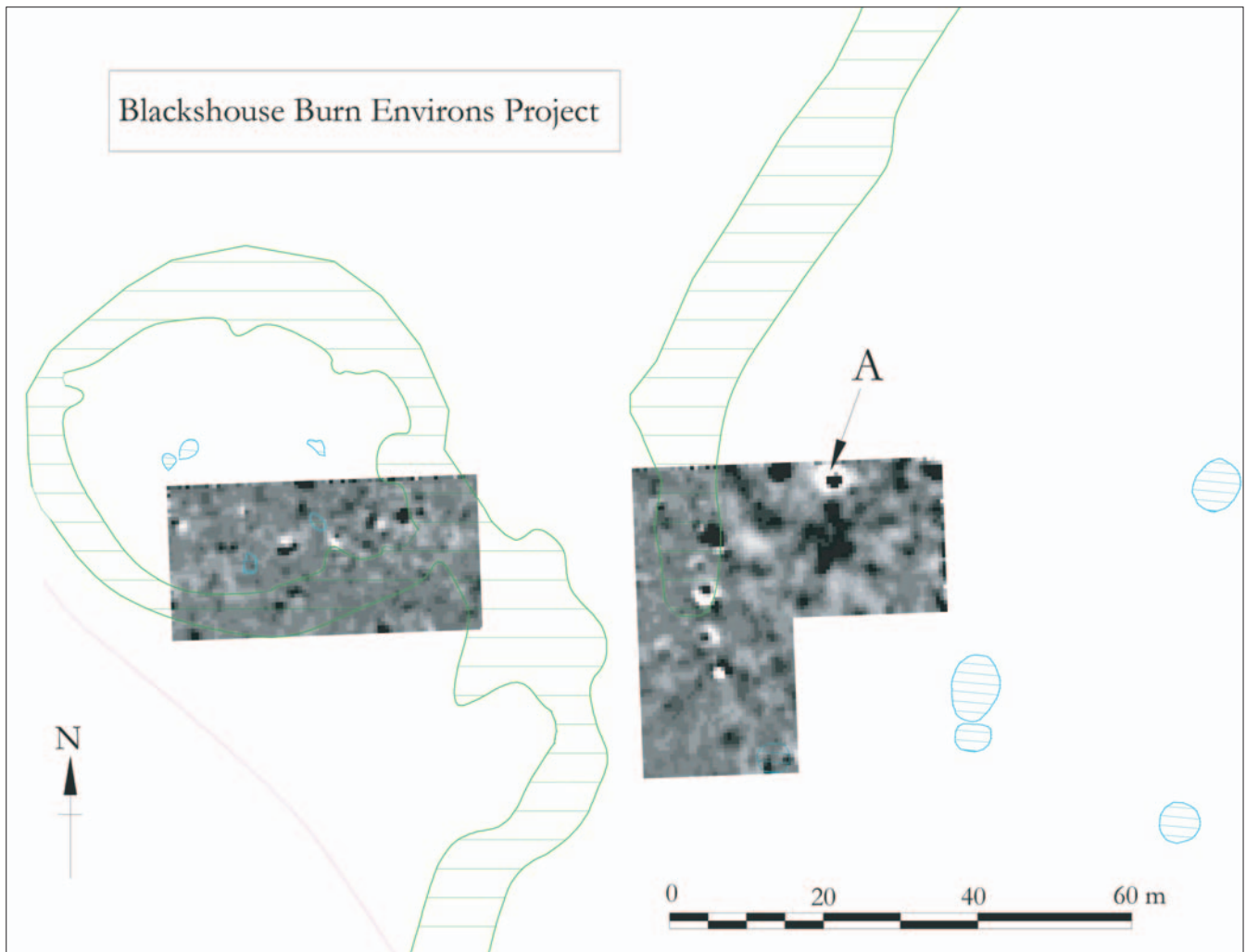
The western entrance to the large enclosure is visible on the ground as a break in the extant banks. The resistivity plot, however, provides more information about the construction of the terminals. The high resistance response over the banks indicates their construction incorporates stone; this is consistent with excavated evidence for a rubble core (**Lelong & Pollard 1998a**, 22–30). The plot also clearly shows that the terminals are staggered, with

the northern terminal lying around 10 m to the east and inside the southern one.

Illus 4 also reveals the resistivity responses in part of the interior of the large enclosure. The gap in the survey data between the entrance and the rest of the interior marks the position of an area of standing water just inside and to the north of the entrance, which prevented resistivity survey. Another, smaller pond or spring is marked 'A' on **Illus 4**. The narrow high resistance area bordering the pond on the south-east side, together with associated, more subtle anomalies to the west of the water, indicates stone that may have been deliberately placed around the pond.

The other significant feature that appears in the resistance plot is in the top right corner, at the north-eastern edge of the survey area, marked B on **Illus 4**. The resistance plot shows the southern arc of a curvilinear feature. Its southern edge is marked by a low resistance area, which would usually be interpreted as a ditch or similar cut feature. This is echoed by an internal bank, which appears in the south-west of the arc as a high resistance feature on the plot. Finally, a linear feature (**Illus 4, D**) cuts the bank and ditch on the south-east and runs south-west, roughly aligning with the high resistance anomaly along the eastern side of the pond (**Illus 4, A**).

The only significant features that appear in the **magnetic survey** data (**Illus 5**) are the series of dipole anomalies set against an otherwise magnetically quiet background; they appear as dark spots, in some cases ringed with white. The dipoles are present in both enclosures and, in both cases, are



Illus 5 Blackhouse Burn gradiometer plot

associated with the resistivity anomalies recorded over the enclosure banks.

Dipoles are normally associated with areas of burning, especially *in-situ* burning, and are produced by fermentation reactions which also enhance the magnetic properties of soils. They also appear in response to the presence of metal objects, such as tines and other implements lost from farm machinery.

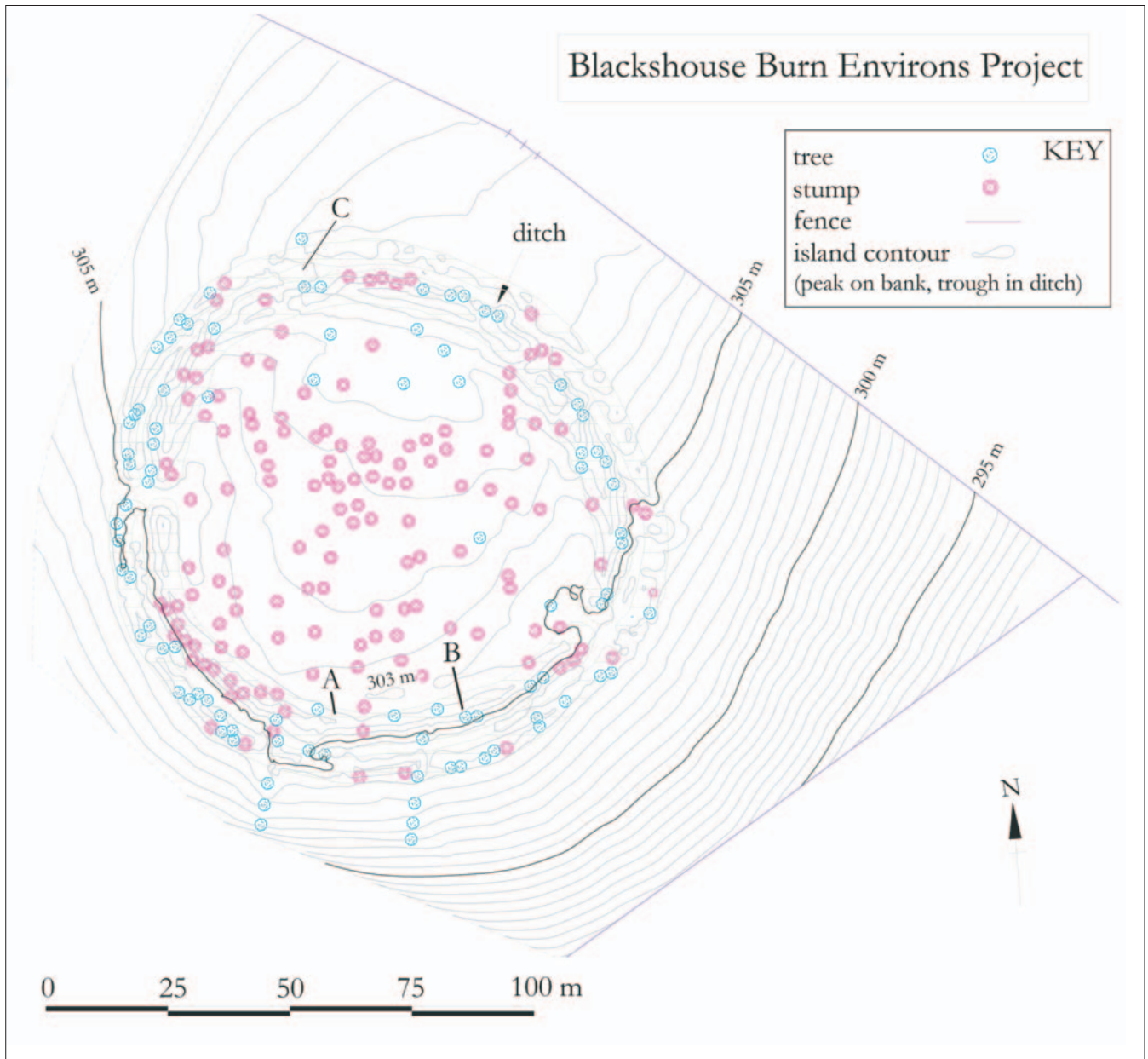
The dipoles associated with the enclosure banks could indicate the positions of cremations, such as those found beneath the enclosure's bank in the 18th century (Ferguson 1794, 39–40; Lelong and Pollard 1998a, 50). Alternatively, they may show the positions of post holes, possibly with waterlogged posts *in situ* such as those found in the north-west arc of the bank during the 1980s excavations (Lelong & Pollard 1998a, 26–7). *Illus 5* shows that these dipoles extend at an angle partway across the entrance, parallel to the bank's terminal on the south side of the entrance and perhaps indicating the line of a structure designed to channel movement into the south part of the interior or to screen the northern part from the eyes of those entering. Another large dipole appears at the northern edge of

the plot (*Illus 5, A*), in the interior. The dipoles visible in the interior and along the bank of the smaller enclosure may indicate that it contained pits or standing posts.

If these anomalies do indicate post holes, their nature suggests that the posts were either burnt or decayed *in situ* to produce the magnetic response recorded. The coherent nature of all of the dipolar responses suggests that the enhancement of magnetic properties took place *in situ*. This makes cremation deposits unlikely, as the deposition of the cremated remains would be likely to disrupt the dipolar nature of the response, producing a weaker magnetic signal (see Aitken 1961).

5.1.2 Chester Hill

The monument sits on the rounded summit of Chester Hill, at 300 m above OD. It is sub-circular in form, the circle slightly flattened on the north-east. Two turf-covered banks and a medial ditch define the monument, which measures 82 m NNE/SSW by 86 m ESE/WSW internally. *Illus 6* shows the survey plan



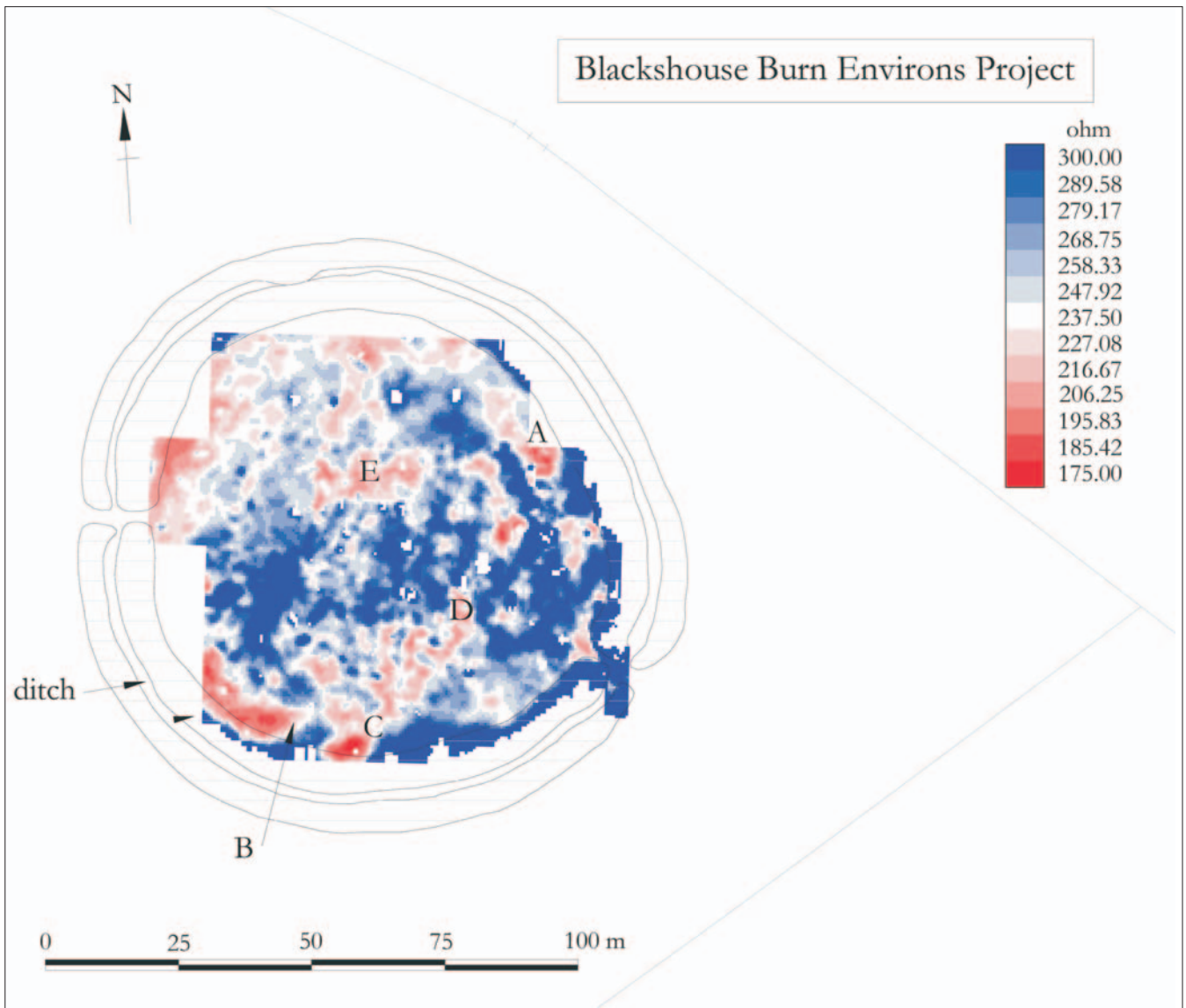
Illus 6 Survey plan of Chester Hill earthworks

of the monument and the locations of trees and stumps.

The inner bank measures on average 6 m wide and stands to *c* 1.4 m above the interior and 2.3 m above the base of the ditch, while the outer rampart measures 4–5 m wide and stands to *c* 1 m high at most; in places, particularly in the NNW sector, it stands to no more than 0.5 m. Where cattle and sheep have eroded the banks, angular stones generally under 0.3 m across are visible in a light brown loamy soil matrix. The banks are broken by two offset entrances, one on the ESE and the other on the west side. The terminals of the outer bank are slightly inturned to either side of both entrances. The western entrance looks down on the small valley that leads toward present-day Hyndford Bridge, site of a former ford and perhaps a longstanding crossing

point on the River Clyde. The other entrance looks up the Clyde Valley toward the river and the fort of Quothquan Law.

In the 19th century, the monument was incorporated into the designed landscape of the Carmichael estate, with deciduous and coniferous trees planted on the banks and in the interior, and an avenue of beeches planted on the hill slope leading up to the monument from the south. Most of the trees in the interior have now been cut down, although many still stand on the perimeter banks and in the intermediate ditch. Their root systems have almost certainly disturbed the fabric of the banks and any archaeological features surviving inside the monument. A portion of the outer bank on the NNW (marked C on *Illus 6*) is nearly flattened, presumably by ploughing or stock encroachment in the past.



Illus 7 Chester Hill resistivity plot

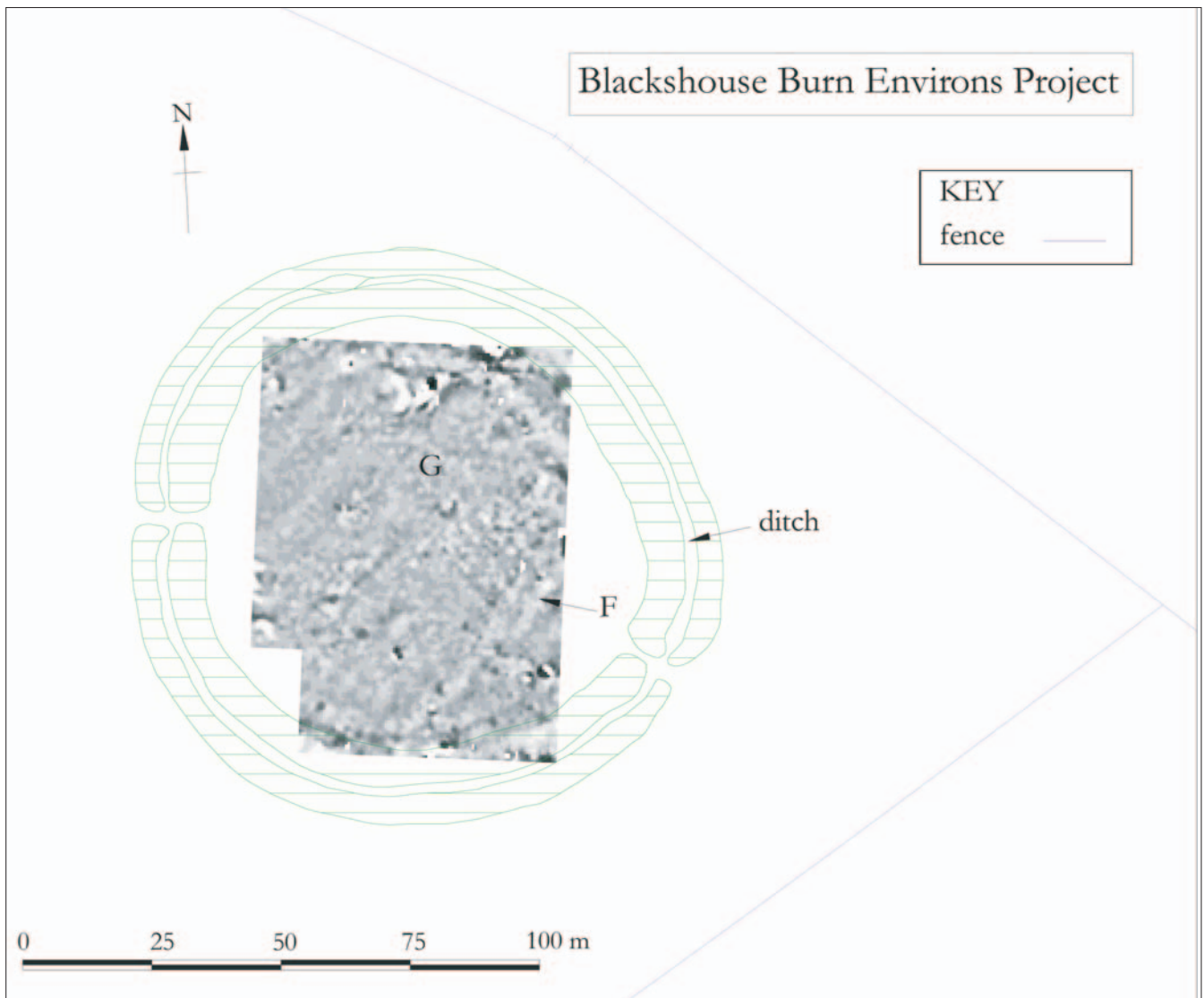
Inside the enclosure a slight hollow is visible concentric with the inner bank; it measures an average of 1 m wide. This may be the result of contiguous quarry scoops, produced by quarrying material to build the banks, as suggested previously (RCAHMS 1978, 97, no 224) and illustrated by geophysical survey of the monument (see Illus 7 and Illus 8). The hollow creates a slightly raised platform which dominates Chester Hill's interior.

Geological maps for this area indicate that the Chester Hill monument overlies a solid geology of upper Silurian (Downtonian) sandstones. However, there are a large number of blocks of quartz conglomerate visible at the surface on the banks and the interior. This rock is mapped as a band trending north-east/south-west around three-quarters of a mile north-west of the enclosure (British Geological Survey 1:63,360 map, Sheet 23, Solid). From the surface evidence, it is difficult to say whether the visible blocks represent a previously unmapped

occurrence of this rock type or whether it is instead evidence of glacial erratics. It may even be that the builders of the monument used the rock in its construction. The local geology and soils provided a reasonably quiet, consistent background for detecting features. The survey results do not indicate excessive interference from high magnetic materials at the fort.

The **resistivity survey** (Illus 7) indicates the position of curvilinear anomalies concentric with the inner bank. The Royal Commission surveyors had described this as a series of quarry scoops (RCAHMS 1978, 97, no 224). The variable resistance met around this feature could mark a series of scoops; alternatively, the values recorded could indicate an internal ditch and may be used to pose questions regarding the entrances to the enclosure.

The resistivity survey calls into question the assumption that the entrances in the west and ESE are original. The ESE entrance gave a very high



Illus 8 Chester Hill gradiometer plot

resistance signal. There is a large amount of stone rubble visible at the surface in this entrance, and a widening of the banks at this terminal point. The high resistance in this entrance is most likely to be due to the partial collapse of the stone-built banks over time. It is also possible that the entranceway was metallised, perhaps with cobbling.

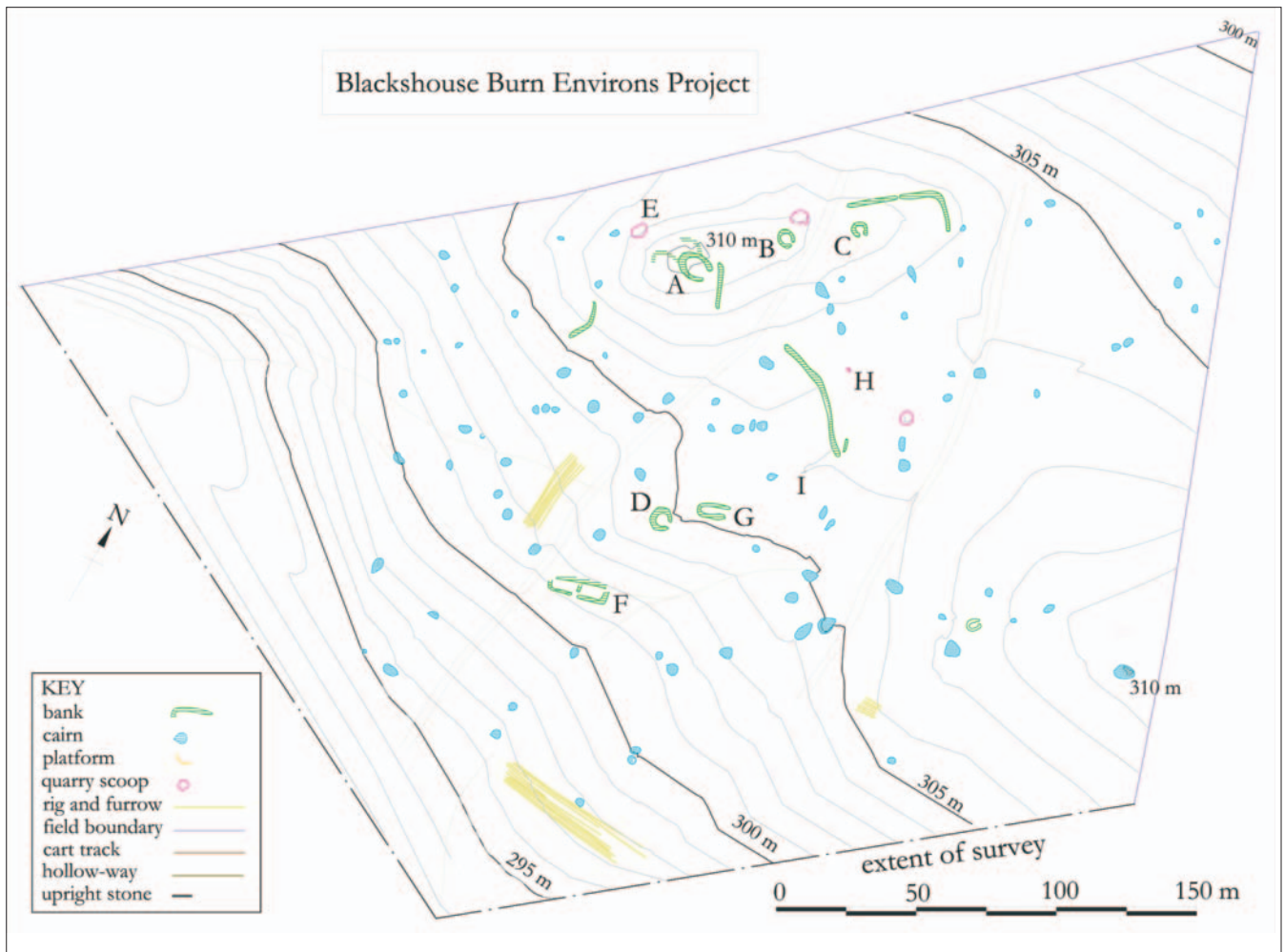
The western entrance, by contrast, showed no sign of high resistance features. In fact, the resistance values in front of this entrance suggest that the internal ditch or series of quarry scoops continues across it. This could suggest that the western entrance is not an original one. However, this interpretation is offered with caution, as this part of the enclosure was surveyed in December 1998 after a period of sustained wet weather, which will have slightly affected the resistance values recorded.

There is a possible third entrance to the monument, in the southern arc. This arc adjoins the avenue of trees which leads up to the monument from the south-west, and for years visitors may have

entered the enclosure from this side. This will have caused the ground to become compacted locally and might give the appearance of a third entrance. However, the resistance values do indicate that the internal ditch or series of quarry scoops is interrupted at this point (see *Illus 7*, B), revealing a possible rounded terminal. An adjacent area of high resistance, c 7 m wide, lies east of the terminal and could be interpreted as an entranceway into the interior.

This leads to the second area of interest on the resistance plot, inside the south-eastern entrance. There are no obvious indications of the internal ditch between point B and the south-eastern entrance. The only low resistance feature detected here is the linear one (C to D on *Illus 7*) trending north-east/south-west in the southern part of the enclosure. This feature is also clearly visible on the magnetic survey plot (*Illus 8*, F). It may represent a ditch relating to an internal structure.

The central part of the enclosure rises from the



Illus 9 Survey plan of Cairngryffe Hill

internal ditch or series of quarry scoops to a slightly domed, south-facing area, its edge defined by positive anomalies on both survey plots.

There is a second possible structure, marked E on Illus 7, which is also faintly visible as a magnetically disturbed area on the gradiometer plot (Illus 8, G). Otherwise, the changes in resistance over the interior are probably due to the trees and tree stumps and to small, local variations in topography resulting in differential soil moisture levels.

The **gradiometer survey** (Illus 8) again defined the possible internal ditch. It appears as a slightly negative anomaly, as would be expected, and the edges appear as a positive anomaly with an associated, very subtle negative rim.

In addition to anomalies F and G on Illus 8, discussed above, several dipolar anomalies are visible in the plot (Illus 8). If tree planting or metal fence debris can be eliminated as the source, then the cause of these anomalies may be attributable to activities relating to burning, for example *in-situ* burning of posts. Another possible cause is more highly magnetic bedrock coming closer to the ground surface at the base of quarry pits. There are a number of other dipole anomalies scattered across the interior of the enclosure. Every trace of metal

contamination observed was removed prior to the survey commencing, and every extreme reading was investigated in an attempt to eliminate surface metal as the cause. Even so, at least some of these dipoles could have been caused by metal spikes. Others, however, may indicate the presence of hearths or other burning events.

5.1.3 Cairngryffe Hill

To the south and south-west of Cloburn Quarry, at the north-west end of the Pettinain Uplands, is a well-preserved fragment of prehistoric landscape. The archaeological remains comprise structures, field banks, clearance cairns, cultivation traces, trackways and hollow-ways, with some of the elements relating to more recent agricultural use (see Illus 9).

The monuments lie on an open, south-west-facing slope of Cairngryffe Hill, immediately south-east of the quarry road and, at the time of survey, south-west of an area containing heaps of rose, pink and lilac felsite gravel. The grassy ground of the survey area appears never to have been improved or colonized by heather, which must account for the

monuments' visibility and relatively good preservation. The trapezoidal field in which they lie rises to two low knolls (both at 310 m above OD) at its northern and eastern edges and descends south-westward 18 m into a boggy gully cut by modern drainage ditches.

The earliest occupation is most likely represented by several sub-circular structures (interpreted here as small hut circles) and associated clearance cairns and field banks. The structures are all defined by slight, turf-covered banks standing no more than 0.3 m high, with entrances on the south-east. The largest of these (Illus 9, A) sits atop the highest point on the western of the two knolls. Oval in plan, it measures 9 m south-east/north-west by 6 m internally. Two curving lengths of much more ephemeral bank extend from it to the west, creating a subtle platform on that side.

Another smaller sub-circular structure (Illus 9, B), measuring *c* 4 m in diameter internally, sits on the lower end of the knoll's summit, 25 m to the north-east. A third (Illus 9, C) of similar dimensions lies another 20 m to the north-east on still lower ground. The remains of another structure (Illus 9, D) of similar form, measuring 4 m in diameter internally, lie approximately 80 m to the south of the larger hut circle. A platform (Illus 9, E) measuring *c* 8 m across is levelled into the west-facing slope of the western knoll, although there are no signs of a structure on it. This group of features clustered around the western knoll appears to represent a prehistoric settlement associated with the numerous clearance cairns and field banks around them.

Approximately 90 small cairns are scattered over the hill slope, concentrated mostly between the 295-m and 305-m contours. Several form rough alignments (at least six are apparent on the survey plot), running both down and parallel to the slope, perhaps indicating the edges of fields. The cairns measure from 1 to 8 m across; few are more than 1 m high. All are turf-covered, with stone apparent in their fabrics.

Several lengths of slight, turf-covered bank lie among the cairns on the east, south-east and south sides of the western knoll, radiating from the top of the knoll and the structures on it. Some patches of narrow rig (*c* 0.8 m wide) lie among the cairns, running across and down the slope.

While the hut circles, field banks and small cairns appear to represent a coherent, mutually referencing group of prehistoric settlement remains, perhaps contemporary with the later, Bronze Age phases of the ring cairn excavated on the summit of Cairn-gryffe Hill (Lelong & Pollard 1998b), their dating is not certain. At Burnhouse Moor, to the south-west of Tinto Hill in Clydesdale, a sub-circular structure overlying cultivation rigs of unspecified width was interpreted as a possible shieling hut or sheep pen (Ross 1999).

A structure (F on Illus 9) of distinctively different form lies lower down the slope and parallel to it, at 301 m OD. It is sub-rectangular and appears dug into

the slope, defined on the south by slight, turf-covered banks. It measures 18 m east/west by 4 m internally, and is divided in half by an internal partition, with two entrances in the south-east. Little stone is evident in the banks, and they may have been largely of turf construction. It may be a shieling hut (albeit a large example), associated with a sheep-milking *bucht* about 45° to the north. This is a U-shaped structure (G on Illus 9) that measures about 10 m east/west by 2.2 m internally, probably a *bucht* or open-ended pen into which ewes were driven for milking. Juxtapositions of such structures are fairly common 17th- to 18th-century sheep management features in the region, usually found above the head dyke, such as those at Dyke Farm, Biggar (Ward & Brown 2001) and Glenochar (Ward 1998). The larger structure may also be comparable to some of the later buildings excavated at Fall Kneesend, near Elvanfoot in the Upper Clyde Valley, which were interpreted as possible shieling huts (Downes 2001).

A hollow-way leads downslope toward the shieling hut from a cart track to the east, while another cart track skims the building on the west. Both tracks could well be contemporary with the hut and *bucht*. Two other hollow-ways run from the area of the structures toward the south-west.

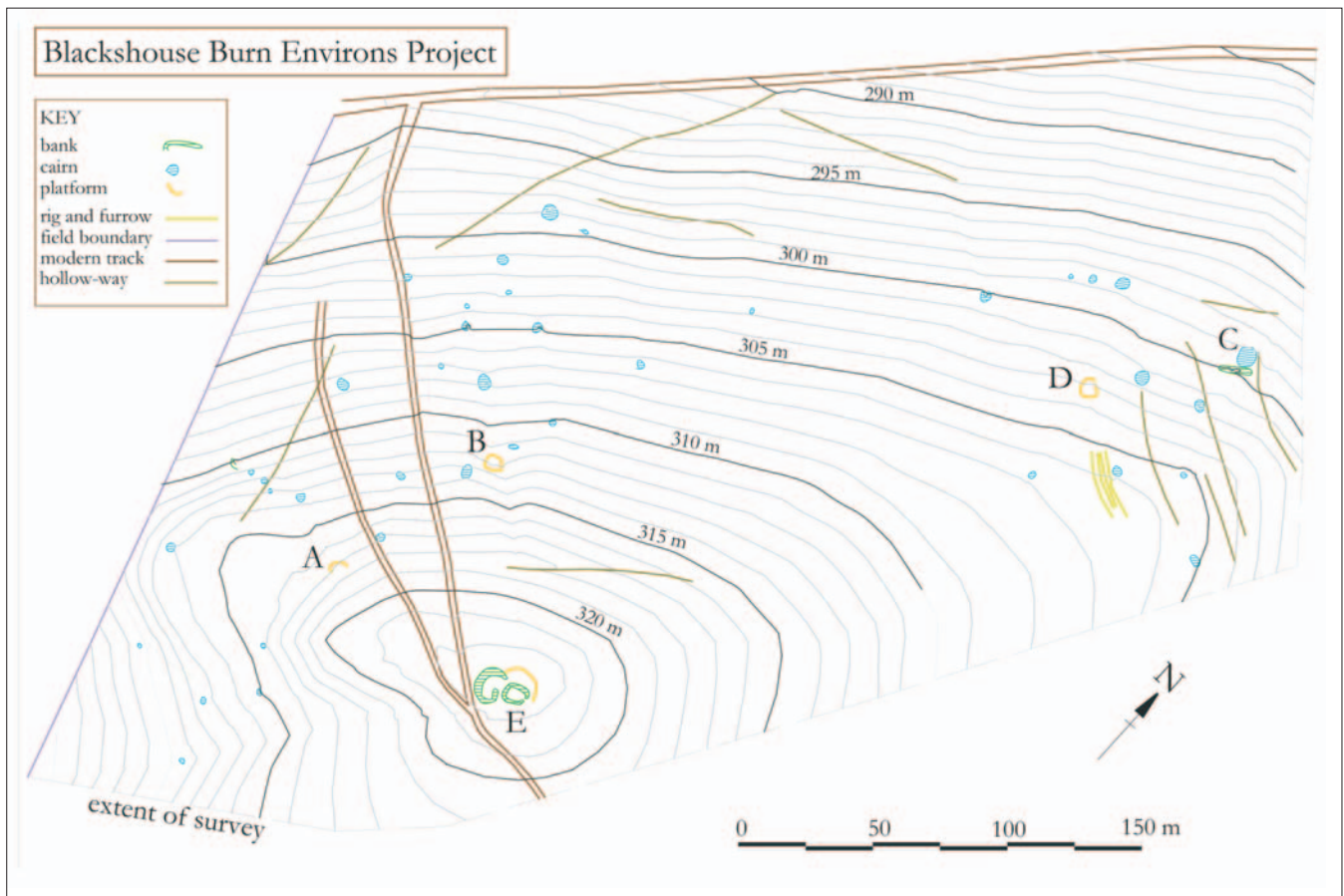
Several sub-circular hollows, filled with water at the time of survey, are dotted around the survey area. Some of these have been interpreted as quarry scoops and are shown as such on the plan, while others are likely to be natural features. One, in the north-eastern part of the plan, is bordered on the east by what appears to be a wedge-split stone (Illus 9, H).

Near the centre of the survey area, at 306 m OD, is a triangular monolith (Illus 9, I). It stands over 1 m high, and is visible from much of the hill slope. It stands among clearance cairns and near a length of field bank. Although no other features seem to refer to it, its prominence and distinctive shape could have made it a focal point of some kind for those living in the vicinity.

5.1.4 Swaites Hill

Another group of archaeological remains of probable prehistoric date was surveyed on the summit and the north- and north-west-facing slopes of Swaites Hill, at the northern end of the Pettinain Uplands. This consists of small cairns, platforms, cultivation traces, hollow-ways and what may be a ring cairn (see Illus 10).

The monuments lie at between 291 and 322 m OD. Most of the features are under thick heather, although rough grass covers the summit of the hill and parts of the north-facing slope. The area surveyed measures a maximum of 940 m north-east/south-west by 530 m. An unmetalled road serving Cloburn Quarry runs along the north-west edge of the survey area at the base of the slope; the area to the west, bordered by a fence, was at the time of survey covered with heaps of quarried felsite.



Illus 10 Survey plan of Swaites Hill

The survey recorded approximately 40 small cairns, all at between 298 and 317 m above OD. Most measure between 1.5 and 10 m across, and stand up to 1 m high. The cairns in the western part of the survey area form a distinct group, with a clearly delineated upper edge running diagonally across the slope. Some of the cairns in this group form rough alignments that may indicate the edges of former fields. Two platforms (*Illus 10*, A and B), measuring up to 12 m across, are terraced into the slope at the top of the cairn field. The spatial coherence of this group of features suggests they comprise a small Bronze Age unenclosed platform settlement, such as that excavated at Lintshie Gutter in Crawford, Lanarkshire (*Terry 1995*).

Another group of cairns was recorded on the lower part of a north-facing spur on the eastern side of the survey area. This smaller group includes one larger cairn (*Illus 10*, C), measuring 14 m across, with an associated bank along its south-east side. Another platform (*Illus 10*, D), measuring 12 m across, is terraced into the slope near the top of the cairn field. There are traces of rig and furrow cultivation, with rigs up to 4 m wide, among the cairns.

Several hollow-ways run among the cairns, parallel to the rig and furrow. Other lengths of hollow-way run along the slopes of the survey area. The positions of these larger cairns relative to the hollow-ways

could suggest they are the result of relatively recent field clearance.

At the summit of the hill a modern farm track skims the edge of a large, complex feature (*Illus 10*, E), previously identified as a cairn by the Royal Commission (*RCAHMS 1978*, 65, no 106[7]). It comprises two sub-circular, turf-covered banks, one immediately east of the other, enclosing areas of up to 18 m and 12 m across, respectively. The banks measure up to 6 m wide and appear spread and somewhat disturbed (in one place by fairly recent vehicle traffic diverging from the farm track). Curving around them to the north and east is a much slighter bank or scarp defining an associated platform.

Although these features could be structures, several factors make it more likely that they represent a ring cairn or cairns. They occupy a very exposed position on the summit of the hill, well above the clearance cairns and platforms on the slopes below. From this position, one can see across to the large cairn on Tinto Hill, the Hero's Cairn at Meadowflatts, the sub-circular enclosure on Chester Hill and, in the distance, the massive cairn on Cairnpapple in West Lothian.

Before its destruction by quarrying, one would also have been able to look directly westward to the excavated ring cairn on Cairngryffe Hill.

This feature was recorded in the 1985 survey as a possible house platform when it appeared as a sub-circular structure defined by a slight bank. As discussed in the archaeological background for the project (Section 3.2), excavation proved that this was a Bronze Age ring cairn, built over early Neolithic ceremonial remains and containing early Bronze Age cremations (Lelong & Pollard 1998b).

The monument on the summit of Swaites Hill is similar in form to the Cairngryffe ring cairn's appearance before excavation. It has a similarly elevated position, which is too exposed to have been suitable for domestic habitation and seems deliberately chosen for its visual links with ritual structures on the surrounding hilltops. The two sub-circular banks comprising the possible Swaites Hill ring cairn could indicate multiple phases or structural complexity.

5.2 The lower slopes and valleys: field walking and trial excavation by M Donnelly and O Lelong

5.2.1 The results of field walking

by M Donnelly, with comment on the pitchstone by T Ballin

The 15 ploughed fields examined on the lower western and south-western slopes of the Pettinain Uplands and in the valleys to the west (see Illus 1, A–R) varied considerably in their lithic content. Fields D and M produced significant quantities of lithic material numbering in the hundreds. Field K produced close to 100 pieces of lithic material. Fields A/B, G, H and L produced small assemblages, while Fields C, J and N produced a few finds and Fields E and F produced no material of note.

Fields A/B, which lay closest to the Blackhouse Burn enclosures and were subjected to a second, intensive examination over a selected portion, produced a small assemblage of 24 lithics as well as a lump of glass and a five penny silver coin dating to the reign of George III.

Chert (20 pieces) is the dominant raw material, with small quantities of quartzite (two pieces) and solitary examples of flint and chalcedony. The assemblage is very small and displays a mix of blade (three pieces) and flake (14 pieces) forms. Waste (five pieces) is rare and there is a single, bipolar chert core. There is a single formal tool type, a partially worked discoidal knife of chert. Such objects are usually dated to the late Neolithic to early Bronze Age. Two flakes, one of chert and the chalcedony examples, display faceted platforms which are also indicative of the late Neolithic. The lithics recovered from these fields appear broadly contemporary with the late Neolithic activity at the nearby monuments.

Field C, on the lower western flank of Chester Hill, produced two chert flakes and a single sherd of medieval, green-glazed pottery.

Field D (in reality two fields divided by the Blackhouse Burn), in the valley to the west of the monuments, produced significant quantities of lithic material during its initial sweep and was then examined more intensively. This produced a large number of lithics dispersed throughout the field in several clusters. These were not particularly discrete and none appeared suitable for trial excavation. The field produced 131 artefacts, including six pieces of medieval and post-medieval pottery, two pieces of clay pipe and a fragment of industrial waste. A solitary hammerstone and a possible axe-sharpening flake were also recovered. A variety of raw materials are present within the assemblage. Chert (106 pieces) dominates, followed by flint (eight pieces), quartz (three pieces), agate (one piece) and pitchstone (one piece). The assemblage of 119 lithics consists of flakes (69 pieces), waste (29 pieces), tools (14 pieces) and cores (eight pieces); one of the tools is classified as a core/tool, so the assemblage appears to contain 120 instead of 119 pieces.

The pitchstone piece is a very small platform flake or chip (8 × 6 × 1 mm), in homogenous dark green/black pitchstone with good flaking properties. The raw material is most likely to be the Corriegills variety, that is, the best of the four recognized varieties of Arran pitchstone (Williams Thorpe & Thorpe 1984, 3–5).

The assemblage contains a full range of decortical, preparatory, trimming, rejuvenation, regular and irregular flakes, suggesting that the reduction of nodules to cores and the production and use of blanks and tools all took place within the field. A lack of blade forms suggests that the bulk of the assemblage is late and the rarity of faceted platforms may support a date range in the earlier part of the Bronze Age. Beyond the formal tool types retouch is rare, occurring on only four of the 69 flakes, and indicating that the vast majority of the flakes are waste from tool production.

The cores are predominantly tabular, bipolar cores geared to the production of flakes (Illus 11, D10). These tended to be found in the northern half of the field, where the densest lithic concentrations occurred. A single blade core was also recovered, this at the southern end of the field. The tools from Field D include a number of typically late scraper types such as the well-fashioned side (Illus 11, D114) and double side scrapers (Illus 11, D124) on small regular flakes, as well as some that could be considered as earlier in date. Also discovered was a non-geometric microlith (a large, irregular scalene triangle; Illus 11, D201) that may date to the early Mesolithic. In addition to this there were two awl-scraper composite tools, a denticulate and a burin, that may also date to this period.

The early Mesolithic material appeared scattered throughout the field, but the later prehistoric tools were concentrated in the southern central part, away from the distribution of cores. It is therefore possible to identify a zone of tool or blank production in the northern half of the field and an area of tool use

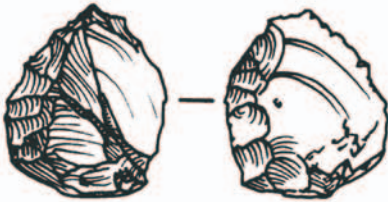


D201

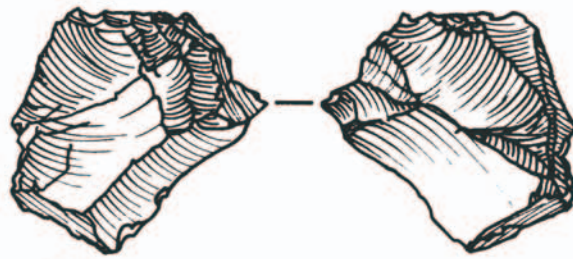


D114

Area D



D124



D10

M118



M121.2



M225



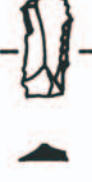
M517



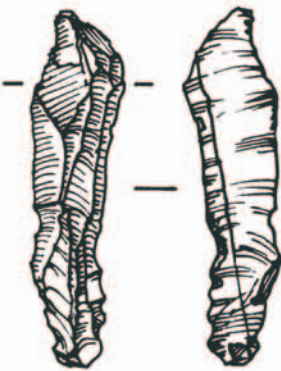
M547



M612



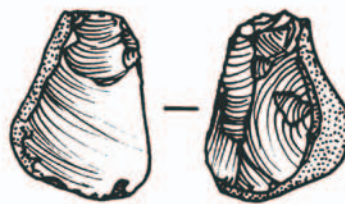
Area M



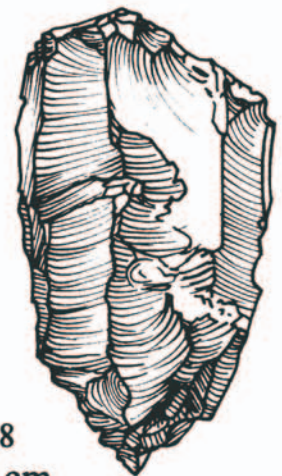
M480.2



M569



M44



M68



Illus 11 Lithics from Fields D and M on the Carmichael estate

and/or discard in the southern half of the field. These zones relate to late Neolithic to Bronze Age activity, while scattered throughout the field was a small but significant amount of early Mesolithic material. However, the pitchstone chip does suggest possible early Neolithic residuality on the site.

Pitchstone was mainly exchanged in the early Neolithic, with some possible limited exchange during the late Neolithic and early Bronze Age; on the Isle of Arran it was also used in the Mesolithic (Ness & Ward 2001). The pitchstone flake from Field D, although tiny and not particularly diagnostic in itself, does indicate some form of contact or exchange with the Isle of Arran, most likely in the early Neolithic.

Fields E and F, immediately south-east of Field D in the same valley, produced very little material during their initial sweeps. No further work was conducted in these fields.

Field G, on the south-east flank of Chester Hill, was walked during the initial sweep and produced a surprising quantity of lithic material, considering its steep slope. The assemblage of 13 items includes both chert (nine pieces) and flint (four pieces). Cores are absent, as are blades. Flakes (seven pieces) dominate, along with waste (three pieces) and tools (three pieces).

The main objects of note are the three tools, which consist of two side scrapers of flint and a chert awl. These tools would sit easily within a late Neolithic to early Bronze Age context, although the possibility that the material is later still or from a variety of periods must also be considered. This field (along with Field H) sits directly below Chester Hill enclosure which, although generally assumed to be Iron Age in date, could conceivably be earlier or overlie earlier prehistoric remains (see Section 6.2).

Field H lies immediately to the north-east of Field G and is similarly steep. Despite this, the field produced 22 archaeological artefacts, including a pot handle of fairly recent date and a sherd of medieval to post-medieval pottery, all recovered during the initial sweep.

The lithic assemblage contains 14 pieces of chert and four pieces of flint. Flakes (10 pieces), blades (two pieces), cores (three pieces), tools (one piece) and waste (four pieces) are all present. The cores are generally later prehistoric, consisting of a tabular multi-platformed flake core (chert) and two tabular bipolar flake cores (one of flint and one of chert). The solitary tool is a flint side scraper. Both blades are of chert and are retouched, one with 'knife-like' invasive retouch. The flakes represent a mixture of preparatory, regular and irregular examples, one of which has been retouched while another displays a faceted platform.

A similar date can be suggested for the material from Field H as was indicated for Field G, although here the likelihood of mixing within the assemblage is higher. It is possible that the material from Fields G and H has moved down the steep slope and may represent disturbance of a site or several sites at the

top of Chester Hill, currently occupied by the enclosure.

Field J, in the valley of the Glade Burn to the south of Chester Hill, produced very little material during its initial sweep, despite its size and proximity to the more productive Field K. No further work was conducted in this field.

Field K, which extends along the valley floor south-west of Field J, produced 64 artefacts, including a sherd of post-medieval pottery and a piece of industrial waste. After its initial assessment, this scatter was walked using the more intensive methodology.

The 62 lithics recovered included chert (49 pieces), flint (six pieces), agate (four pieces), quartz/quartzite (two pieces) and stone (one piece). Flakes (40 pieces) dominate the assemblage, followed by waste (13 pieces), cores (six pieces), blades (two pieces) and a single tool, a very crude side scraper. The cores were used solely for the production of flakes from tabular cores, with a variety of platform complexities evident (single, opposed, bidirectional and multi-platformed). Two of the cores are bipolar.

Two of the 40 flakes display faceted platforms typical of the late Neolithic. This type of removal strategy often gives way to a bipolar strategy as the cores become progressively smaller. Such a dual strategy was observed among pieces from a single pit at Fox Plantation dated to the late Neolithic (MacGregor forthcoming). Retouch is rare within the assemblage and it is likely that the material from Field K relates to tool or blank production as opposed to tool use. This has probably taken place during the late Neolithic.

Field L, to the south of Carmichael village, produced very little material during its initial sweep. This field covers a north-west-facing slope, with one or two flat terraces suitable for habitation. Despite its proximity to the very productive Field M, because of the small quantity and inferior quality of the lithics recovered, no further work was conducted here.

Field M, immediately south of Carmichael village, produced the largest quantity of lithic material and also the most obvious concentration of lithics; it was walked intensively following its initial sweep. A dense scatter in the north-west corner of the field was chosen for trial excavation, leading to the recovery of over 600 lithics (Section 5.2.2). Although a total of 662 objects were collected during field walking and trial trenching, 199 were rejected as entirely unworked objects, producing a total of 463 genuine artefacts. The lithics recovered during the trial trenching are discussed below, along with those identified on the surface of the scatter.

The field produced 244 flakes, 87 pieces of waste (mostly angular shatter), 40 blades, 37 cores, seven microliths and 17 other tools; 31 other objects recovered included a sherd of Beaker pottery and one of Food Vessel, a probable cannel-coal bracelet fragment, medieval and post-medieval pottery and glass. The tool types (10) and cores (14) from outside

the main concentration appear to represent a mixture of early and late forms, with some typical conical and cylindrical blade cores found side by side with amorphous flake cores and flake-producing bipolar cores. Tools such as large, complex scrapers, thumbnail scrapers and knives (Illus 11, M255) were also present.

The main concentration in the field's north-west corner (see Illus 12) produced 312 of the 463 artefacts, including 34 of the 40 blades, all seven of the microliths, seven of the 17 other tool types and 23 of the 37 cores. This concentration also produced 173 of the 244 flakes, 58 of the 87 pieces of waste and 10 of the 31 other objects, including (rather surprisingly) the sherds of late Neolithic Impressed Ware and Beaker. The close proximity of these sherds to microliths, narrow blades and bladelet cores suggests that they are intrusive to the main concentration.

The 23 cores consist of 14 uniplane, two penannular and seven biplane examples. Single platforms account for 15 of the 23 examples, with four bidirectional, one opposed and three multiplatformed variants. Tabular cores (10 pieces) dominate, followed by cylindrical (six pieces), semi-conical (three pieces) and conical (three pieces) and, finally, amorphous (one piece). There are 10 flake-producing cores, of which four are rough test cores abandoned after the removal of only a few flakes, six blade and bladelet cores and seven cores on which both blade and flake removals can be observed. Bipolar technology is apparent in only one example and this is of flint, which suggests an attempt was made by the knappers to maximize the potential of this material, which is exotic to the area.

The seven tools recovered from the scatter consist of two end scraper–burin combinations (one definite and one possible; Illus 11, M121.2), a single end scraper (Illus 11, M118), three side scrapers and a side and end scraper. The blades are fairly narrow but quite long, indicating the good knapping quality that can be found in chert, and often display signs of retouch or utilization (Illus 11, M480.2).

The microliths display a wide range of typical narrow blade, geometric forms. There is a single scalene triangle (Illus 11, M517), a partial double-backed bladelet or point (Illus 11, M547), a backed bladelet, a needle point, an unclassified example closely related to the *lamelles-à-cran* (Zetterlund & McCartan 1990) and two fragments. Such a collection is typical of the late Mesolithic in certain areas of mainland Scotland, such as at Starr and Smittons in the vicinity of Loch Doon (Finlayson 1990), at Garvald Burn, Lanarkshire (Donnelly 1998; Barrowman 2000b, 313; Barrowman forthcoming) and at Littlehill Bridge, Ayrshire (MacGregor & Donnelly 2001). Further excavation would be required in order to recover a large enough sample for detailed typological comparison.

Clearly the cores, blades, tools and microliths demonstrate that the main concentration in Field M relates to late Mesolithic activity which could have taken place at any time between 7500 and 4000 BC.

The range of flakes, blades, cores, tools and waste indicates that knapping occurred on the site and that tools were probably generated as required and used in the immediate vicinity.

The site sits on a low knoll overlooking a broad, shallow depression, which may have held a small lochan or bog at the time. Furthermore, the site lies close to a burn. Given this position, it would have been a suitable base of operations for a small group of late Mesolithic people living off the varied ecosystems they would have found in the area (upland, valley, riverine and probably marsh/bog). This activity was followed by a phase of later prehistoric activity dating from the end of the Neolithic into the Bronze Age, the material from which appears as a diffuse background scatter intermixed with Mesolithic material. What this later prehistoric activity represents is still unclear, but the presence of later prehistoric cores as well as formal tools suggests that tool production occurred along with activities that led to tool abandonment, intentional or otherwise.

Field N is a small, relatively flat, triangular field at the base of Chester Hill (south of and across the road from Fields G and H) and produced nine lithic items, all chert. These consisted of four flakes and five cores. The latter comprised two bladelet cores, two flake and blade cores and a single flake core. Three had single platforms, while two were bidirectional (two platforms at 90°). Conical, semi-conical, cylindrical and tabular forms were present. Such cores are often associated with early prehistoric assemblages and in particular the late Mesolithic, although they could also date to the early Neolithic.

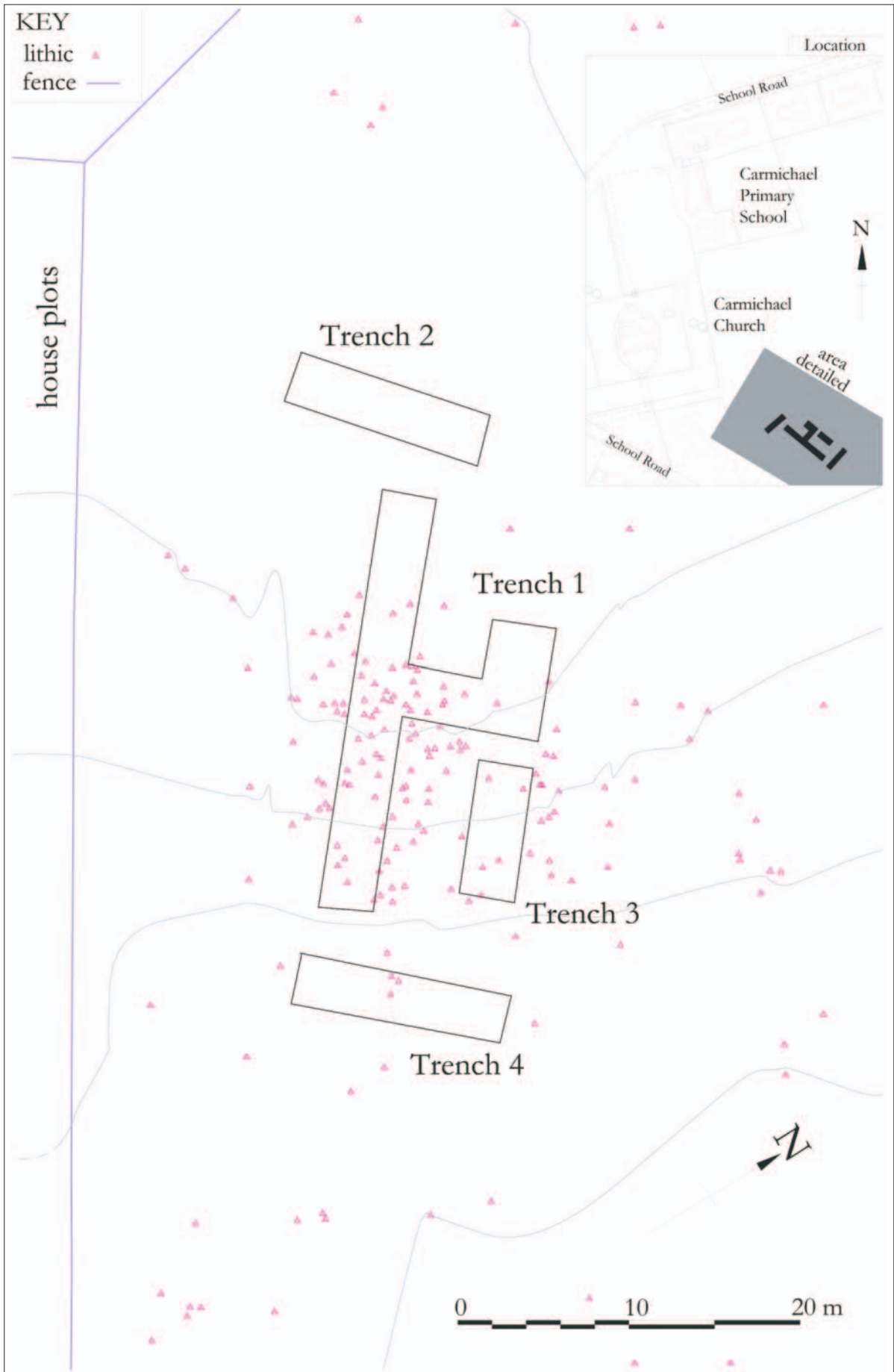
Despite the proximity to Fields G and H and the incidental separation of these assemblages by the construction of the later road, this assemblage does not appear to relate to the same activity represented by the majority of the material from G and H. Rather, it appears to relate to the possible mixing of the assemblage that was suggested above for Field H.

Field P, to the west of Field M, produced extremely little material during its initial sweep. No further work was conducted in this field.

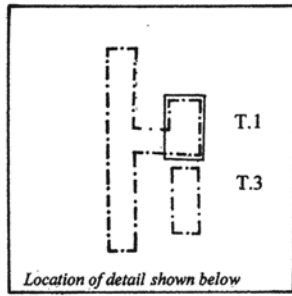
Fields Q/R, to the ESE of Chester Hill fort, produced extremely little material during their initial sweep. No further work was conducted in these fields.

5.2.2 Trial excavation at Carmichael

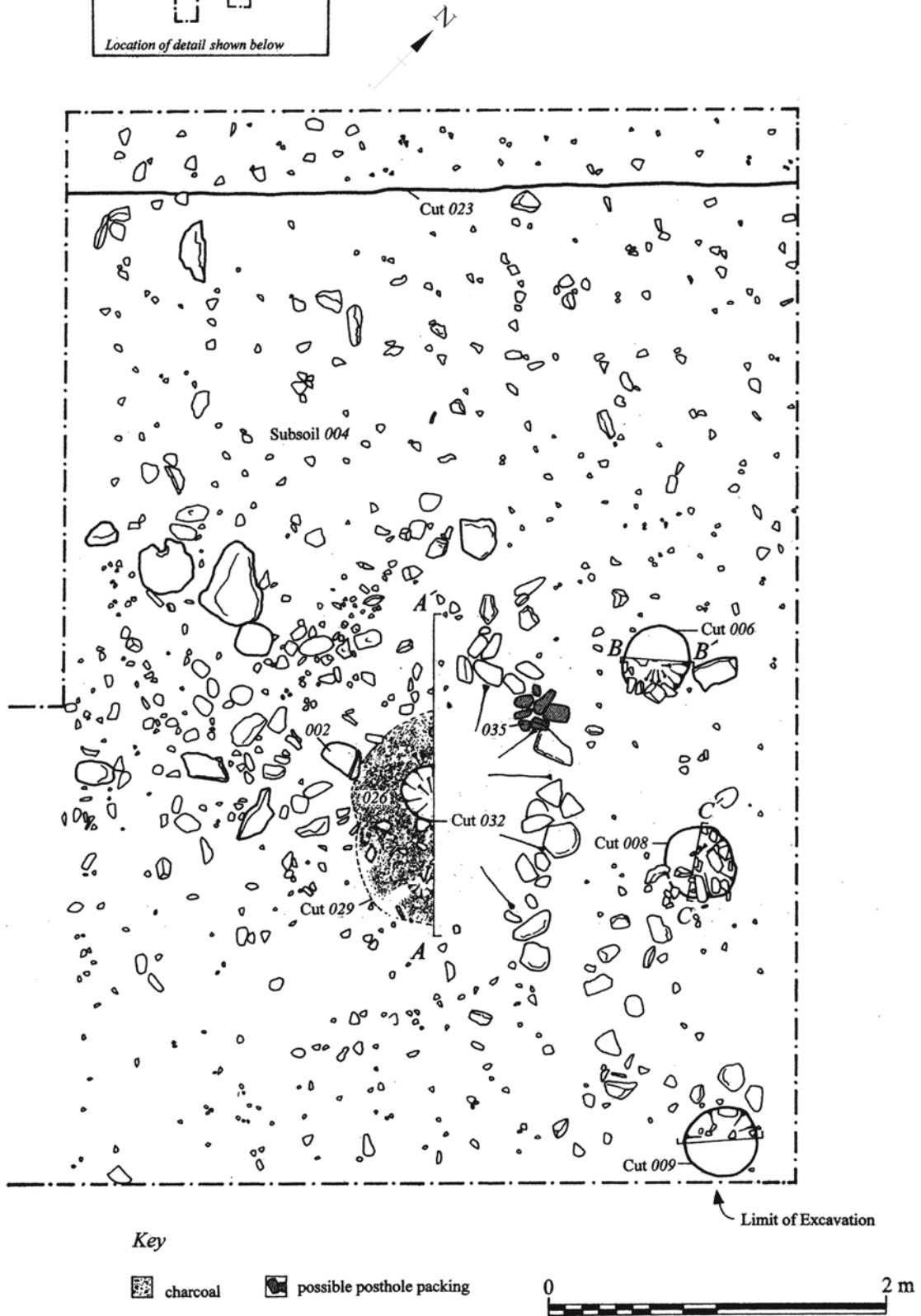
Four trenches were opened by machine over the lithic scatter in **Field M** (above) at Carmichael, after field walking and test-pitting had been carried out (see Methodology, Section 4.3.4); Illus 12 shows the trench positions. In each, the ploughsoil (001), a mid brown, fine, silty loam with abundant gravel, lay an average of 0.3 m deep above the sandy subsoil (004). Only Trenches 1 and 3 contained archaeological remains of any interest; these are described and discussed below.



Illus 12 Location of trial trenches and lithic scatter at Carmichael



Trench 1 Plan



Illus 13 Plan of Trench 1

The T-shaped **Trench 1** was opened over the densest part of the lithic scatter, and extended north and east beyond its edges. After archaeological features and lithics were observed on the surface of the subsoil during machine excavation of the eastern leg of the trench, it was extended northward to establish the extent of these.

In the test pit (**Illus 13**, D) previously excavated by hand, at the junction of the two legs of the 'T', a rim sherd of Impressed Ware in a coarse, gritty, thoroughly reduced fabric was recovered from the ploughsoil (sf M663). The vessel from which it came was large; its rim was 25 mm thick and had a slight internal bevel. Along the top of the rim and the exterior were rows of crescent-shaped impressions, made with a slightly irregular, pointed implement such as a twig or small bone. Late Neolithic Impressed Ware has been found at a number of other sites in Upper Clydesdale and Upper Tweeddale, including Biggar Common, and may be attributed to Burgess's 'Meldon Bridge style' (Burgess 1976; Speak & Burgess 1999), which dates broadly to the 4th millennium BC (Sheridan 1997, 221).

Two concentrations of archaeological features were found in this trench. Cut into the subsoil at its western edge was an irregularly shaped, oval pit (028), with steep sides and a flat base (see inset, **Illus 15**). It was filled with a mixed dark grey-brown/light yellow-brown silt sand (027), extremely rich in lithics. Over 100 pieces were recovered from the fill, along with fragments of burnt bone and flecks of charcoal.

The edges of the pit were rather indefinite, and it may have been part of a larger feature or spread of dark red-brown silt sand (031) (not excavated), with abundant lithics in its surface, that extended westward from it to run into the trench edge.

Many of the lithics recovered from the pit (028) and from the surface of the spread (031) were pieces of knapping waste. This set of features was interpreted as the remains of a knapping floor of late Mesolithic date (see **Section 5.2.1** above).

Another group of archaeological features lay c 9 m to the north-east of these, comprising a stony surface sealing a charcoal-filled hollow, and several post holes (see plan, **Illus 13**). The earliest feature identified was a spread of charcoal lumps in a black-brown silty matrix (026), which lay in a broad, shallow, oval scoop (029) in the subsoil. Although the base of the scoop did not appear scorched, the nature of the fill suggests that this was a hearth.

Above it lay a deposit of subangular cobbles (002) that covered a roughly rectangular area and also extended to the south-west of the charcoal-filled scoop. The bases of the lower stones were blackened, so they appeared to have been laid over the charcoal-rich material (026) soon after its deposition, perhaps to level or consolidate the ground. Most of the stones lay within a mid grey-brown sandy silt (003), interpreted as an old topsoil which subsequently developed around the stones (see section drawing, **Illus 14**, A–A'). A microlith was recovered

from the old topsoil. This layer echoed the extent of the stones, and did not extend north or eastward as far as the post holes; it appeared to have survived ploughing only above the scoop itself.

Cut through the remnant topsoil (003) and charcoal-rich fill (026), near the centre of the scoop, was a roughly circular feature (032) (**Illus 13**; **Illus 14**, A–A'). It was filled with what appeared to be redeposited sandy subsoil (033), with several upright stones packed together in its centre. This was interpreted as a post hole, post-dating the scoop and the formation of topsoil above it. At the north-west edge of the scoop, beyond the limit of the old topsoil spread (002), was a small stake hole (014) (see **Illus 14**, A–A'), apparently the remnants of a stake burnt *in situ*.

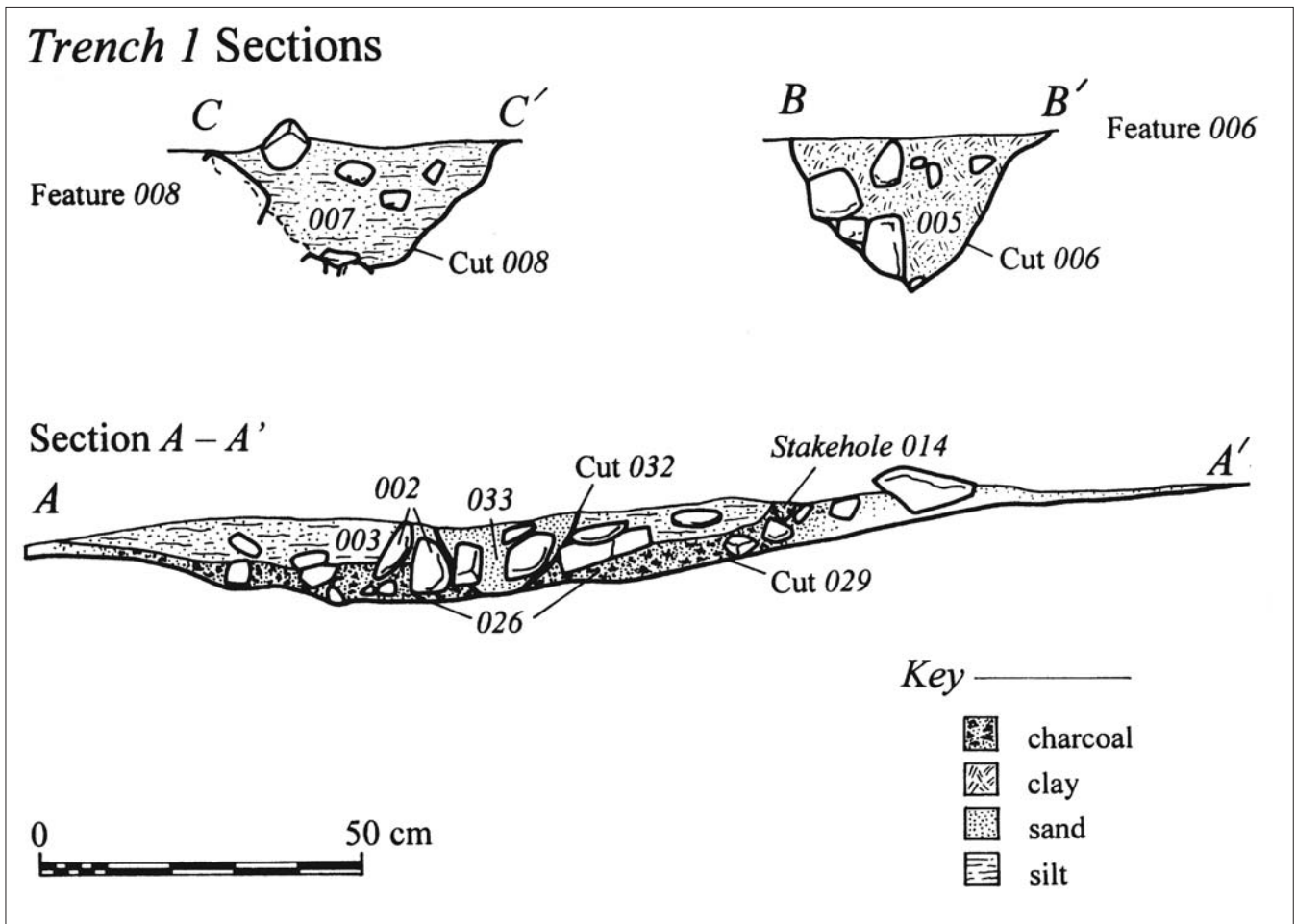
These two structural features may have been associated with several other post holes to the east, although ploughing had destroyed any stratigraphic relationship between them. About 1.3 m to the east and north-east of one post hole (032) were three sub-circular features that formed an alignment and were spaced at roughly a metre apart, all cut into the gravelly, sandy subsoil (004). One feature (006) lay 0.6 m to the north of the post hole (032) and the other feature (008) 0.5 m to the north-east. The northernmost feature (006) had stones packed against its sides and base in a grey-brown clay sand (005); no post pipe was evident, but a slight ramp at the eastern side of the cut suggested a post had been pulled out (see **Illus 14**, B–B'). The middle feature (008) in the alignment was of identical dimensions to the nearby post hole (032) and had packing stones against its sides and base in a grey to yellow-brown sandy silt (007) and a possible post socket in the western part of the base (not illustrated).

The easternmost feature (009) in the alignment, while of similar size in plan to the other two, proved to be very shallow (about 0.10 m deep) and may have been a much more truncated post hole. Midway between one post hole (032) in the centre of the scoop and another post hole (006) was what may have been another post setting (035), comprising angular stones packed together and set upright in a shallow depression in the subsoil.

This group of post holes indicates the existence of a structure on the site; although the alignment of three possible post holes appeared to respect the hearth, if they were associated with the post hole (032) cut through its centre then the structure would have post-dated the hearth and the stones and remnant topsoil that sealed it. The recovery of a microlith from the remnant topsoil could suggest a date in the Mesolithic for its formation. However, the contextual security of this lithic is dubious, given the history of ploughing and other disturbance at the site. About 3 m to the north of the features, a modern ditch (023) that runs to a nearby septic tank crossed the trench.

The ploughsoil (001) in **Trench 3** sealed several features cut into the orange silty sand subsoil (004) (plan, **Illus 15**).

Two linear features (020 and 022), sharing a roughly north/south alignment and with their ends



Illus 14 Trench 1 sections

separated by a gap of just under 2 m, entered the trench from either side.

The eastern feature (020) extended south into the trench for 1.9 m from its north side, curving slightly along its length with a rounded southern terminal. It had an open U-shaped profile and was 0.2 m deep at the centre, with stones packed into the light orange-pink fine sand (019) of its fill. The other feature (022) extended 0.8 m northward into the trench from the opposite side with a tapered northern terminal. Excavation of half of its visible length showed the terminal sloped down in a steep step to a relatively flat base, 0.18 m deep; the ditch was filled with light orange-pink fine sand with lenses of clean grey-white sand (021). These two features were interpreted as a pair of associated ditches, perhaps forming the entrance to a ring-ditch enclosure, although the size of the trench precluded definitive interpretations.

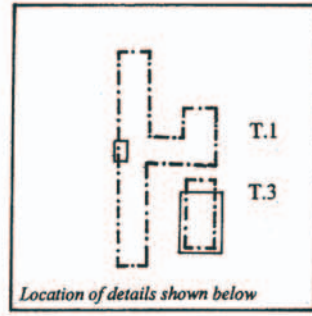
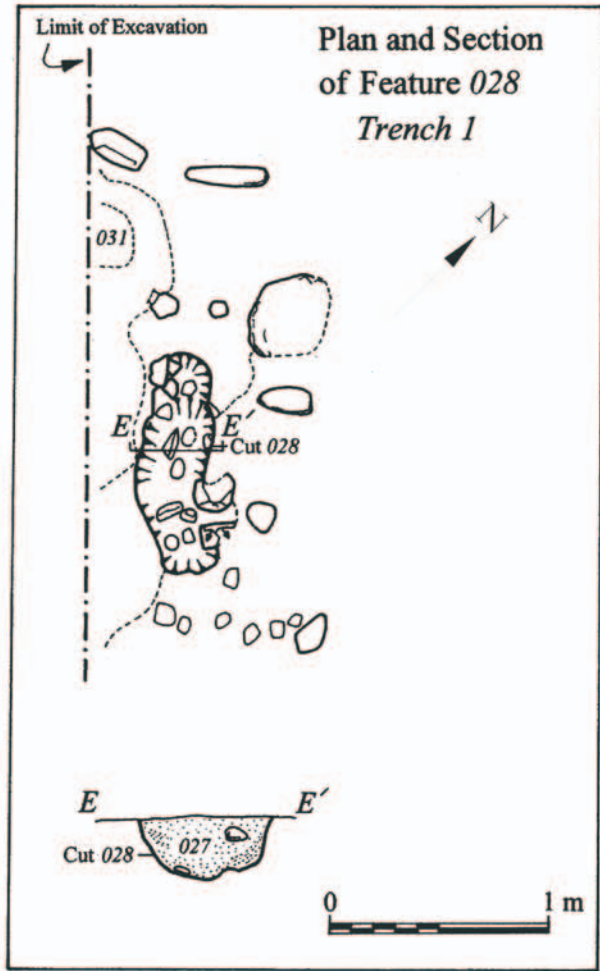
Between the two putative ditches, a small, oval deposit of charcoal-rich silt (025) lay in a slight hollow in the subsoil. This may have been an extremely truncated post or stake hole, the contents of which had burnt.

Across the southern part of Trench 3, extending eastward from the southern putative ditch terminal (022), was a spread of light pink-brown, fine sand

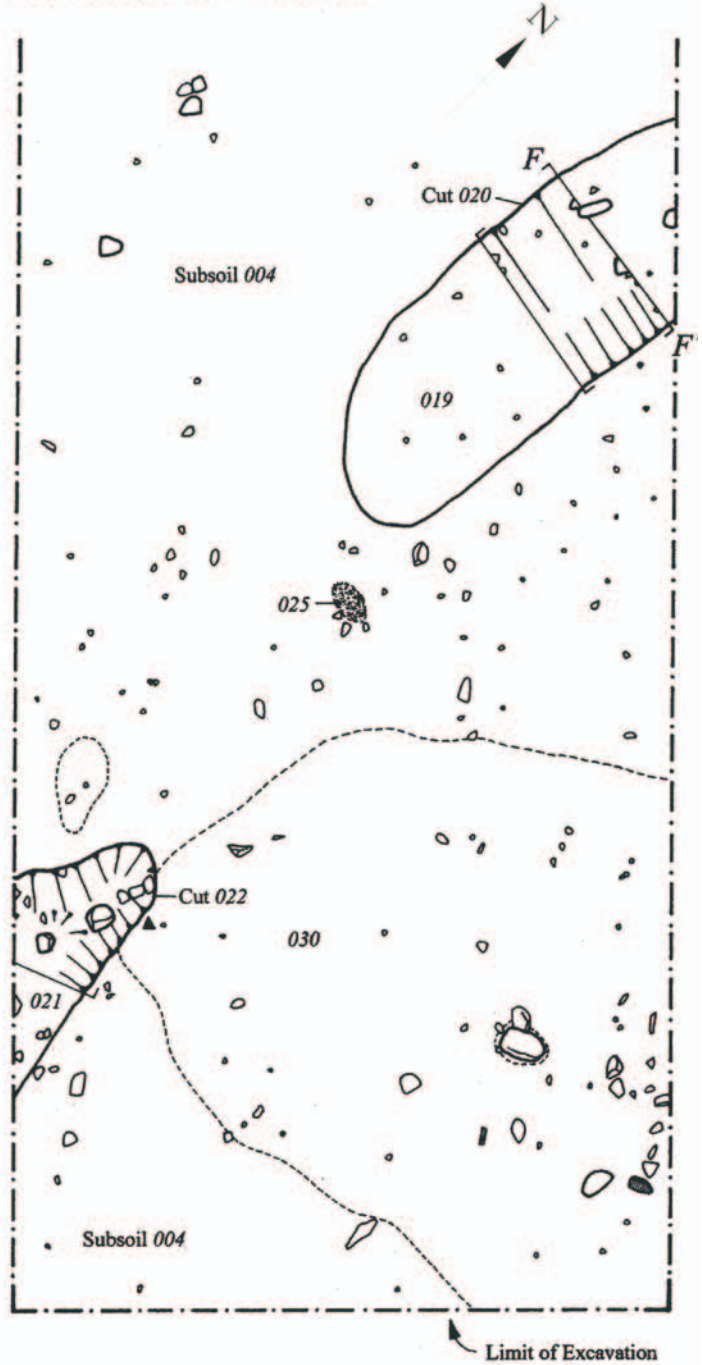
(context 030) with charcoal flecks (not excavated). A small sherd of pottery was recovered from its surface beside the terminal.

The pot sherd (sf no M611) measures a maximum of 30 × 23 mm and is 12 mm thick. It is a body sherd, with a noticeable curve despite its small size. Its fabric is reasonably hard and slightly sandy. Although mineral accretions partly mask the firing profile, it appears to be oxidized on the exterior and reduced on the interior, with what may be traces of an oxidized slip on the interior. Four parallel rows of fine comb impression are visible on the exterior. The sherd's curve suggests it came from the shoulder of the vessel, while the decoration indicates that the vessel was a Beaker. While the uncertainties that now plague Beaker chronologies (Kinnes *et al.* 1991) make its dating uncertain, it is likely to date from the mid 3rd millennium into the 2nd millennium BC (Sheridan 1997, 223).

The trial trenching, although limited in scale, did establish the presence of significant archaeological features beneath the densest concentration of lithics identified during field walking. These features appear to include a late Mesolithic knapping floor; a hearth, either respected or superseded by a post-built structure, and a pair of associated ditches, possibly representing a ring-ditch.



Trench 3 Plan



Section of Feature 020

Key

- | | |
|----------|---------------------------------|
| charcoal | location of sherd of AOC Beaker |
| clay | upright stone |
| sand | |
| silt | |



Illus 15 Trench 3 plan and sections, with plan and section of Trench 1 feature 028

The results of the lithic analysis (Section 5.2.1) indicated an intensive phase of activity at Carmichael, including tool production, in the late Mesolithic, with a less intensive phase of tool production, use and abandonment at the end of the Neolithic

and into the Bronze Age. This interpretation accords with the archaeological remains uncovered. The possible ring-ditch might represent the last phase of use in the Bronze Age and would suggest the presence of a ceremonial monument at the site.