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The Excavation Of Burnt Mounds At Titlington Mount, North Northumberland, 1992-3.

Peter Topping

Summary

Two burnt mounds were excavated at Titlington Mount Farm, north Northumberland; one completely, the other only sampled as a control for the first. Both mounds had a structural sequence featuring hearths, troughs and stone-built fixtures. A series of C^{14} dates demonstrated that the sites had been in use between 3610±60 BP and 3200±60 BP. Palaeoenvironmental evidence illustrated a changing landscape evolving from scrub woodland to moorland; some evidence of possible local cereal cultivation during the earlier phases of the mounds was recovered.

INTRODUCTION

The Titlington Mount group of burnt mounds was originally discovered by Dave Cowley during fieldwork on nearby Beanley Moor. An additional mound belonging to this group was noted by Keith Blood in a subsequent field visit. These discoveries were amongst the first burnt mounds to have been recorded in Northumberland along with others found near Shaftoe Crags (Davies and Davidson 1989, 74 (P37); Davies 1995, 66 (P41)) and a further group of four mounds near Jenny's Lantern (Cowley 1991, 119-120). The Northumberland mounds compliment those previously recorded in the Furness area of southern Cumbria, the only other group known from northern England at present (Nixon 1990).

As a result of these discoveries in Northumberland and the potential for the recognition of more sites, it was considered that an excavation designed to establish the chronology of the mounds and investigate their structural features would provide useful information to help place them in context. This would then allow comparison of the Northumberland sites with the well documented burnt mound chronologies of Scotland and Ireland.

The Northumberland Archaeological Group (NAG) decided to undertake this work over two field seasons during the summers of 1992 and 1993. The farmer and landowner, Mr Ian Brown of Titlington Mount Farm, generously gave permission for the excavations to take place. NAG itself financed the excavations, all post-excavation work, specialist reports and the suite of six C^{14} dates.

SITE LOCATION

The site lies in Hedgeley Parish, Alnwick District, north Northumberland at NU1032 1645 (fig. 1).

The group of burnt mounds at Titlington Mount is located upon a south-east facing slope between 133m to 140m above OD. The four mounds are ranged along a south-flowing tributary of the Titlington Burn, which flows eastwards between Beanley Moor and Jenny's Lantern (fig. 2).

The Titlington sites lie at the junction of Palaeozoic and Mesozoic sandstone and shale. The soils graduate from the very acid coarse loamy soils of the Anglezarke series on the higher ground of Beanley Moor on the northern periphery of the site, through to the coarse loamy soils of the Rivington 2 series on the lower southern dipslope. The valley floor of the Titlington Burn comprises finer loamy soils of the Brickfield 3 series.

The adjacent areas are rich in archaeological remains. Beanley Moor has produced palynological evidence of activity from the Late Neolithic/Early Bronze Age period onwards (Cowley and Stevenson 1991), and the landscape includes a series of both enclosed and unenclosed settlements with field systems, dominated by the forts of Beanley Ringses and that located in Beanley Plantation at NU093 178. A complex of settlements and field systems is also situated 1.3kms to the east of the Titlington Mount site on Hunterheugh Crags. Some 300m to the south-east of the burnt mounds lie two prehistoric settlements whose precise chronological context is uncertain. Although these two sites remain the closest recognisable settlement evidence, the existence of timber-built sites now obscured by moorland vegetation may be possible.

BURNT MOUND 1

Site 1 was fully excavated to establish the form and complexity of the entire monument. This demonstrated that the mound had experienced at least three basic phases prior to its abandonment (cf fig. 12):

Phase 1 (fig. 3)
The initial construction of the burnt mound. A trough (018) 3.05m NW-SE by 2.30m transversely was dug 2.5m to the east of the stream. The trough had a maximum depth of 0.49m on its eastern side. The base of the trough contained fine black silts, powdered charcoal and small fractured burnt stones, and its base was scorched a bright mottled pink/red.

Some 0.5m to the east of the trough on a higher natural platform lay a hearth (014; plate 1). This was built in a shallow pit no more than 0.18m deep, and 2.78m NW-SE by 3.42m transversely. The hearth contained roughly 25% small fractured burnt stone in its matrix of dark greyish brown silty loam (fig. 4). Several larger partly burnt stones lay around the edges of this hearth. A charcoal sample from this feature produced a C^{14} assay of 3610±60 BP (Beta-71042).

About 5.0m to the north-west of the hearth lay a stone setting (021; plate 2) comprising four slabs laid flat with several smaller stones used as infilling (fig. 5). On the western side of the slabs, 1.3m away, lay an arrangement of six stake-holes. The stone slabs showed no signs of burning. The function of this setting and the stake-holes is unclear.

Roughly 3m to the north-west of the trough lay a stone slab (022) 0.45m wide by 0.73m long, set vertically in a post-hole, protruding 0.35m above the surface. No signs of burning were noted upon this stone. As with the stone setting recorded above, the function of this feature is uncertain.

A natural sandstone outcrop lay only a metre to the north-west of the trough. What may be angular fractures on the western edge of the outcrop could suggest that this convenient source of stone might have been exploited by those who used the mound. In addition a scattering of unburnt stones was recorded in this area which could lend weight to this suggestion.

Phase 2 (fig. 6)
This phase was characterised by the replacement of the phase 1 hearth (014) by a much larger and less structured hearth (010) which overlay its predecessor (plate 3). The Phase 2 hearth was not set into a pit, but was placed directly upon the ground surface and over the abandoned Phase 1 hearth. The hearth covered an area of 4.30m north-east to south-west by 4.45m transversely, with a maximum thickness of 0.20m (fig. 7). The matrix of this hearth comprised some 80% fractured burnt stone with large quantities of powdered charcoal in a mottled reddish grey silty loam. A charcoal sample from this hearth produced a C^{14} date of 1430±50BP (Beta-58163).

Both the stone setting (021) and the vertical slab (022) associated with Phase 1 would appear to have continued in use during the course of this phase. A stone pounder was discovered on the north-western lip of the trough (fig. 8).

Phase 3 (fig. 9)
This was the final recognisable phase of use. The main development during this phase was the abandonment of the earlier Phase 2 hearth (010) as it became stratified beneath the gradually accumulating mound of reddish-pink fire-shattered stones. Most of these stones were small, c 0.1m or less in diameter, and probably represent unusable waste. The matrix of the mound comprised much charcoal in a black silty loam, and the stone content was roughly 90%. There were no obvious tip lines in the matrix of the mound nor any layering, lenses of soil or old turf lines; thus it would appear that the mound had gradually built up without any significant intervening periods to allow stabilisation and the development of turf lines or other vegetation. A charcoal sample from the mound gave a C^{14} date of 3230±60BP (Beta-58164).

Roughly 0.7m above the old land surface, in the body of the mound, a further small hearth (019) was discovered 2.45m to the north-east of the trough. This hearth was 1.21m north-west to south-east by 0.97m transversely with a maximum depth of 0.12m; it did not have any formal structure. The hearth had been stratified in the mound of burnt stones. Others which are likely to have occurred upon the final uppermost surfaces of the mound, would presumably have been lost through erosion.

It is unclear at what point the mound of burnt stones would have buried the ancillary features such as the stone setting (021) and the vertical slab (022) due to the lack of clarity in the stratigraphy of the mound.

A small flint spall (TM92 I 004 [1]) was discovered on the south side of the mound, perhaps representing the retouching of an implement during the later use of the mound.

Phase 4 (fig. 11)
Abandonment. The burnt mound finally stabilised and turf developed over the stones. In addition several tree holes discovered in the summit of the mound indicate changes in the vegetation cover following abandonment (plate 4).

BURNT MOUND 2

This burnt mound lies some 30m upslope and to the north-west of Mound 1 (plate 5). A sample excavation was carried out to provide complementary material for C^{14} dating and to gain information regarding the structure of the mound. The sample trench did not allow a sufficiently large sample to accurately determine a developmental sequence. However certain structural features were observed which contrasted with Mound 1.

Early phases (fig. 13)
The structural features evident in the initial phases of the mound appeared to be significantly different to those of Mound 1, in that there was not only a sequence of hearths,

but also more than one trough. The earliest features comprised a hearth and trough located in the northern part of the trench (005 and 009). Feature 005 appeared to be a shallow sub-circular pit-hearth up to 1.48m in diameter and 0.12m deep, containing a dark reddish brown silty loam fill with c 45% burnt stones (cf fig. 14, M-N). An arc of fire-reddened stones (mostly 0.3m wide) were ranged around the western edge of the pit. One small fragment of calcined bone was discovered in the upper fill of this feature (TM92 II 005 [100]; cf Appendix 4).

Feature 009 was a sub-oval pit up to 1.08m in diameter and 0.35m deep. It had a fill of silty loam, the uppermost layer being black with a heavy inclusion of charcoal overlying a layer of dark brown sandy loam with less charcoal. Tip lines were evident in the section (cf fig. 14, K-L), suggesting that the slumping or filling may have taken place from or towards the east. No finds were associated with this feature.

To the south of these two pit-dug features lay a vertical slab (015) similar to that discovered in Mound 1. This slab had maximum dimensions of 0.32m by 0.15m and stood to a height of 0.26m.

Between pit 009 and the north-west corner of the trench lay a compact cairn or dump comprising 80% burnt stones and 20% earth. As this dump developed, its eastern edge gradually crept closer to pit 009 - which had already silted - and eventually partly buried this feature. This episode appears to have brought the early phases to an end.

The later phases

Following the stabilisation of the dump of burnt stones roughly half of pit 009 had been buried. This coincided with the digging of a new pit (012) some 2m to the south-west of 009 and 005. Unfortunately, this later pit only partly fell within the western edge of the trench thus its full extent was not revealed, However in section it had a width of 0.82m and a maximum depth of 0.35m (fig. 14, I-J); the fill was predominantly sandy loam ranging from mid-brown to black charcoal-rich pockets. All of the small stones within the section were burnt, and after excavation the pit was found to fill naturally with water, suggesting that this feature may have been another trough. A small end scraper (fig. 15; TM93 II 012/004 [1]) was discovered in the upper fill of this feature (see fig. 14, I-J, layer 4).

A hearth (011) was associated with this trough and lay directly to the east. The matrix of this hearth showed successive deposits of slightly differing character ranging from yellowish brown to black sandy loam with an admix of roughly 25% small fractured burnt stones. This hearth grew to a height of 0.70m and appears to have produced the burnt stone deposit which spilled downslope eventually burying the two pit features 005 and 009. This burnt stone deposit had an uppermost layer comprising black loamy sand with roughly 50% stone to 50% earth. Beneath this lay a similar deposit whose interface with the overlying layer was difficult to identify, but was distinguished by being almost stone free in nature (cf plate 6). Amongst this lower layer a small fragment of calcined bone was discovered (TM93 II 003 [2]).

Hearth 011 and the gradually spreading dump of burnt stones effectively buried the earlier features until this phase itself was also abandoned, buried beneath a shallow deposit of burnt stones (c 80% stone content) of roughly 0.3m in depth. The hearths responsible for this waste deposit - as with the later hearths in Mound 1 - must have eroded from the upper surface of the mound. These events mark the end of the use of this mound.

DISCUSSION

The burnt mounds at Titlington Mount show a structural development. Firstly, the two burnt stone mounds differed from each other in structure, Mound 1 had an amorphous stratigraphy without recognisable tip lines or layering, perhaps suggesting that the mound had grown gradually without any distinct periods of stabilisation which might have allowed the growth of a turf covering. Mound 2, however, had a more complex sequence involving the deposition of many similar layers of burnt stones and debris interspersed with occasional sandy deposits, perhaps representing eroded sandstone. Arguably the most important facet of the burnt stone mound at site 2 was its stone content in comparison with Mound 1. At Mound 1 the composition of the burnt stone mound was roughly 90% stone to 10% earth; at Mound 2 the uppermost abandonment levels of the mound contained c 80% stones to 20% earth which reduced to 50% stone to earth immediately below in a medial deposit, all of which overlay a basal deposit of almost stone-free black loam and comminuted charcoal. Considering the earlier dates obtained at Mound 2, it may be possible that some stone originally from earlier lower deposits was recycled during the later phases, or may even have been re-used at the slightly later Mound 1 (the author is grateful to Barbara Esslemont for this suggestion). Certainly the relatively stone-free nature of the lower layers suggests that their depositional histories were significantly different to the overlying deposits and were not affected by natural sorting.

The ancillary features recorded at both mounds suggest that a range of activities occurred, whether as part of a single process or a variety of events. It would appear likely that (allowing for the fact that Mound 2 was only sampled) there were differences in the development and use of the troughs at both sites. At Mound 1 there was an apparently more straightforward arrangement with only the one trough, although undoubtedly it was periodically cleaned or re-cut. However, at Mound 2 there seems to have been the possibility of at least two, the later and more definite being 012 which filled naturally by water seepage, and potentially 009 with its adjacent shallow pit-hearth (005). The two mounds thus illustrate differences concerning the development and use of troughs.

Both sites had a sequence of hearths, at Mound 1 an early pit-dug hearth (014) was replaced by a larger less structured example (010) followed by smaller hearths (eg 019) in the body of the mound. Mound 2 similarly seems to have had an initial pit-hearth (005) which was subsequently overlain by a much larger hearth (011) which eventually accumulated a height of 0.70m of burnt debris. It is not yet clear whether these sequences illustrate a deliberate trend

Table 1: The environmental context of Titlington Mount and Beanley Moor.

TITLINGTON MOUNT			BEANLEY MOOR
Phases	**Pollen**	**Macrofossils**	**(after Cowley and Stevenson 1991)**
Pre-mound:	Alder and hazel scrub		
Phase 1:	Scrub woodland, some open disturbed land - grassland	Burnt hazel nut shells 6-row barley ?emmer wheat	Initial Late Neo-EBA clearance, pastoral use
Phase 1/2:	Conversion of alder scrub to heather moorland, open disturbed ground, ?local cereal cultivation		Rising levels of cereal cultivation
Phase 3:	Disturbance ends, environs of site abandoned, stable grassy heath and moorland develops		
Phase 4:	Heath and moorland, some renewed activity and ground disturbance		? Second period of cereal cultivation

(regional or otherwise), or if they simply show no more than the fact that the later hearths gradually buried the earlier examples.

The chronology of the hearths requires some consideration. At Mound 1 the earliest pit-hearth (014) produced a date of 3610±60 BP, which was overlain by a secondary hearth (010). However, this secondary hearth had a C^{14} assay of 1430±50 BP which suggests that the sample had been contaminated particularly considering that it had been completely buried beneath the undisturbed body of the burnt stone mound. Consequently it is probably more reliable to accept the date for the mound itself - which buried both hearths - and had a date of 3230±60 BP. This would give a potential rough chronology of some 380 C^{14} years for the use of the hearths at Mound 1. In comparison the dates available from Mound 2 both relate to the later phases of use (ie the late hearth (011) and lower levels of the burnt stone mound) and produce a crude figure of some 160 C^{14} years, or roughly half that of Mound 1.

Certain stone-built features were also recorded at both sites. At Mound 1 in Phases 1 and 2 the small stone setting associated with a linear series of stake-holes (021) lay on the northern side of the mound. These stones were placed directly upon the old land surface and were not the capping of a pit, thus suggesting some form of levelled surface perhaps designed to be the stance for an artefact, deposit or perhaps offering. The series of stake-holes were stratigraphically associated with the stones and may have originally functioned as the foundations for some form of structure, perhaps a support or wind-break. This type of feature was not recorded in the sample area opened on Mound 2.

One type of stone feature was discovered at both sites, and this was the vertically-set stone slabs. At Mound 1 the slab (022) occurred some 3m to the north-west of the trough, and at Mound 2 (015) it lay centrally between the two troughs (009 & 012). The function of these vertical slabs is unclear, but their location suggests that they may be associated with the original use of the troughs.

The function of the burnt mounds has been the subject of much debate in recent years (eg Buckley 1990, Hodder and Barfield 1991) but it has not been resolved whether they served as cooking sites or sweat lodges/ saunas. However there are certain conclusions which can be deduced from the evidence available at Titlington Mount. Firstly, these sites made use of both fire and apparently water in whatever process took place. If cooking did occur, then only two small slivers of calcined bone were recovered at Mound 2, which suggests that butchery probably occurred off-site and joints were brought in for cooking and then removed elsewhere for consumption. It may be possible that an undiscovered midden deposit lay beyond the excavated area, but arguably if food processing and feasting did take place at these sites, then more than two slivers of burnt bone should survive. In addition the small bone assemblage might even represent imports into the site record and not the residue from a cooking process.

The survival of this calcined bone in the Titlington soils implies that if cooking had occurred then other fragments should have been discovered unless this activity were strictly controlled as suggested above. Consequently it would appear that the Titlington sites produced few surviving by-products and had little accumulation of waste debris on or near the site. The stone setting (021) and the vertical slabs (I:022 and II:015) implies some elaboration or variation in whatever process was involved. These factors all add to the observations made by Barber when reviewing the evidence of function at 'fulachta fiadh' who came to similar conclusions regarding off-site butchery and food consumption - if these sites were indeed cooking places (Barber 1990,99-101).

The chronology of the Titlington Mount group places them broadly towards the end of the Food Vessel horizon when Cordoned Urns were being introduced, c3600-

3200 BP (cf Gibson 1986, 6), and coincides during the earlier part of this period with the floruit of the 'Wessex Culture' in southern England. In terms of the wider chronology of other burnt mounds, the Titlington series of dates fall broadly in the centre of the available British range which spans the period of 3970±100 BP (Birm-799) to 2826±75 BP (SRR-701) (Brindley, Lanting and Mook 1990, 29-30). The only C^{14} date previously available from a burnt mound in Northumberland came from a site on Callaly Moor 10kms to the south, which produced an assay of 3920±80 bp (Beta-29517; Cowley 1991, 120; Macklin et al 1991, 226). The range of dates from the two Titlington Mount sites suggests that there may have been some overlap in their respective periods of use, particularly considering only features associated with stratigraphically-later deposits were dated at Mound 2. It would seem likely that there was a significant overlap between the later phases at Mound 2 and those of the earlier phases at Mound 1.

The palaeoenvironmental evidence from Titlington Mount illustrates a sequence of landscape developments which compliment the preliminary data available for the adjacent area of Beanley Moor (cf Cowley 1991, 7). The construction of the Titlington mounds in the Early Bronze Age coincides with some open grassland around these sites, probably for pastoral use, which may be broadly contemporary with the initial clearings on Beanley Moor (see table 1). During the earlier phases at Titlington Mount there is a conversion from scrub woodland to moorland with some possible local cultivation. This palynological episode correlates with the macrofossil evidence from Titlington (see Appendix 2) where burnt hazel nut shells, 6-row barley and possible emmer wheat were recovered from what was probably the interface between the buried old land surface and the basal deposits of the mound (and thus could relate to any of the pre-mound to Phase 1/2 contexts, allowing for Huntley's suggestion that these deposits may have moved down through the mound; see Appendix 2). These discoveries suggest that small scale agriculture (perhaps shifting plots) may have occurred locally, or that the grains were imported onto site. The presence of burnt hazel nut shells demonstrates that local wild resources were also exploited.

Perhaps broadly contemporary with Phases 1/2 at Titlington was an intensification of cereal cultivation on Beanley Moor. However, by Phase 3 at Titlington Mount the evidence for cereal cultivation appears to have ended, and at present it is unclear what events were taking place on Beanley Moor. Interestingly when the Titlington Mount sites are abandoned in Phase 4, the beginning of a second major period of disturbance on Beanley Moor may have occurred when cereal cultivation culminated with deforestation, perhaps by the Iron Age or Romano-British periods.

Taken together the environmental evidence suggests that many of the earlier events recorded at Titlington Mount were paralleled on Beanley Moor, and may represent complimentary episodes of colonisation and land-use. However, unlike Beanley Moor where events clearly continued beyond the end of the Early Bronze Age, the Titlington mounds were abandoned completely by the end of this period. Presumably their social or economic role had concluded, and the need for burnt mounds had passed in this part of Northumberland.

APPENDIX 1: THE POLLEN ANALYSIS BY J. B. INNES

(i) Introduction

Pollen analyses have been conducted on eight sediment samples recovered from archaeological contexts associated with a burnt mound near Titlington Mount, Northumberland. Standard laboratory techniques (Moore and Webb 1978) were used in the preparation of the organic samples. Alkali digestion with 10% sodium hydroxide removed organic material, followed by acetylation to oxidise insoluble organic substances like cellulose and lignin. The high inorganic fraction in the samples required the use of hot hydrofluoric acid to remove silicates. Pollen preservation was generally good although all samples contained pollen grains showing a degree of corrosion. At least 200 land pollen grains, in addition to fern and moss spores, were counted from each sample. The results are shown on fig. 17 as percentages of the total land pollen sum. Although excluded from the pollen sum, fern and moss spores are shown as percentages of it. Plant nomenclature follows Clapham et al (1962). The context samples are shown on fig. 17 in approximate chronological order, the oldest at the base of the diagram, based upon their stratigraphic position during excavation.

(ii) Results and Interpretation

Vegetation Phase 1; Context 007 (pre-Phase 1): Old Ground Surface beneath mound

This context is considered by the excavators to be probably an old ground surface sealed by the mound and so its pollen assemblage may reflect vegetation conditions existing prior to the mound's construction. It will provide the oldest pollen record recovered from the site. Filicales (fern spores) frequencies are not high, and are similar to all the other samples analysed. This suggests that differential corrosion, which would lead to high counts for the resistant Filicales (Dimbleby 1985), has not been a significant problem in pollen preservation at this site. The record is dominated by Alnus (alder) and Corylus (hazel), with values for Quercus (oak) and Salix (Willow) which are low but higher than in any of the other samples. Polypodium (polypody fern), which is often an indicator of tree or shrub habitats, is also significant. Calluna (heather) is very low and the only pollen types which may indicate more open conditions are the low frequencies for Gramineae (grasses) and Cyperaceae (sedges). Alder and hazel scrub would seem to have been the characteristic vegetation prior to the building of the mound, with few indications of open ground and none of human activity nearby.

Vegetation Phase 2; Context 015 (Phase 1): Base of early pit-hearth (014)

This context represents the fill of a structure at the base of the mound and may be interpreted as post-dating the sealed old ground surface of context 007. The pollen evidence is quite similar to that of the earlier context, with Alnus and Corylus still dominant, although Quercus and Polypodium are reduced and Salix is no longer present. Scrub woodland was still the local vegetation, although the introduction of Plantago lancealata (ribwort plantain) and Pteridium (bracken) suggests that some open, disturbed land had been created. Calluna remains very low and these more open areas will have been mainly grassland.

Vegetation Phase 3; Contexts 008 and 009 (Phases 1-3): Stake-holes from stone setting (021)

These two contexts are the fill of stakeholes at the bottom of the mound and cannot be separated chronologically on stratigraphic grounds, and their similar pollen records may be considered together. They are characterised by the sharp reduction in Alnus frequencies and an equally sharp rise in Calluna. Corylus declines only slightly and the results of human activity at this time seems to have been the conversion of alder scrub to heather moor. As hazel is hardly affected, it would appear that alder and hazel had been growing in separate areas around the site, and not in mixed populations. Perhaps the alder had been growing at the site of activity itself and thus suffered more from its development. Evidence for human activity is very clear. A wide range of waste ground and possibly agricultural weeds occurs in the pollen record of both contexts. Centaurea nigra (lesser knapweed), Taraxacum (dandelion) type, Chenopodiaceae (goosefoot family), Silene (campion) type, Rumex (sorrel or dock), Ranunculus (buttercup) type, Stellaria (chickweed) type, Galium (bedstraw) and Plantago lanceolata all occur and suggest a considerable amount of open disturbed ground. Cereal type pollen in context 008 indicates that cultivation may have occurred locally.

Vegetation Phase 4; Context 002 (Phase 3): Burnt stone mound

This context represents sediment from around burnt stones within the upper body of the mound. It is therefore later than the activity phase of contexts 008 and 009, and it shows none of their weed evidence of landscape disturbance. It is characterised by the sharp fall of Corylus and the rise of Calluna to very high values. Alnus is also further reduced, while Quercus and Betula (birch) cease to be recorded. Gramineae and Cyperaceae remain stable as they have throughout the diagram. While Calluna is dominant, Plantago lanceolata reaches peak values and Pteridium rises sharply. These three plants suggest that after the previous activity the environs of the site were abandoned and a stable grassy heath and moorland vegetation developed. The decline of the Corylus pollen curve may be due to actual reduction of hazel cover because of soil changes or human activity, but may as easily have been caused by the great increase in very locally derived pollen from the three dominant heath and moorland taxa.

Vegetation Phase 5; Contexts 005 and 006 (Phase 4): Tree holes in summit of abandoned mound

These contexts represent the fills of surface features in the top of the mound and, while both will postdate context 002, they can not be separated chronologically and may be considered together. Calluna is still highly dominant, supported by major frequencies for P. lanceolata and Pteridium, so that no change seems to have occurred in the general heath and moorland vegetation around the site established at the time of context 002. Some evidence of renewed activity and ground disturbance at the site occurs, however, with Centaurea nogra, Taraxacum-type, Stellaria-type and Galium returning to the assemblage. Epilobium (fireweed) is an important addition to the weed flora. Disturbance was either less intense or further from the site than in the major disturbance phase of contexts 008 and 009.

Vegetation Phase 6; Context 003 (Phase 4+): post-abandonment hillwash deposit on N edge of mound

This context represents a subsoil sample from beyond the north edge of the mound. It is therefore almost certainly later than all the other context samples, which are directly associated with the mound itself, and may well reflect conditions after the site had been finally abandoned and any human activity or use of the site had ceased. Heather and bracken moor was very dominant, with Calluna at almost 60% of total land pollen, and Pteridium remaining very high. Occasional weed types like Taraxacum-type and Artemisia (mugwort) occur but in too low values to be significant. Gramineae and P. lanceolata deline to low frequencies and it appears that the amount of grassland near the site was greatly reduced. It may have been replaced by the regeneration of some woody scrub, as both Alnus and Corylus values rise, the latter especially. This would agree well with the end of any human influence, including the maintenance of grassland by stock grazing, and the long term establishment of heath moorland with scrub in more sheltered localities or areas of marginally better soils.

(iii) Conclusion

The pollen analysis of a series of context samples from Titlington Mount burnt mound has been successful in reconstructing the vegetation landscape before, during and after the phases of human activity which were associated with the construction of this archaeological feature. The stratigraphic order of the context samples gives a relative chronology to the pollen assemblages. These document six phases of vegetation history at the site: (Vegetation Phase 1) a pre-mound landscape dominated by local scrub woodland, (Vegetation Phases 2-5) four phases associated with the period of land use activity during which the mound was created and (Vegetation Phase 6) a post mound landscape dominated by heath and heather moor. Two distinct phases (Vegetation Phases 3 and 5) of vegetation disturbance occurred during the period of activity associated with the mound. After an initial period during which some small scale creation of grassland occurred, an intense period of vegetation clearance (Vegetation Phase 3) took place which included an element of cultivation as

well as broken and disturbed ground and the extension of grassland nearby, perhaps for pasture. Wild grasses do occur, such as Agropyron (couch grass), which produce pollen grains similar to those of cereals (Anderson 1979), but many of these are coastal and are unlikely to have occurred at this site. The morphology of the Titlington example is of Triticum (wheat) type and, in association with the rest of the pollen assemblage of this phase, is most probably cereal. After this a period (Vegetation Phase 4) occurred in which human activity was reduced or absent and abandoned areas regenerated a rough grassland and heather moor flora. The effect of a further, but much less intensive, period of land use in Vegetation Phase 5 was to encourage this trend, and in the final, post mound, Vegetation Phase 6 in which human activity seems to have been absent, the landscape was dominated by moorland vegetation with some regeneration of scrub.

It is likely that the transition from scrub woodland to open moorland may have been a direct result of the effects of human land use activity involving vegetation clearance, particularly that of Vegetation Phase 3. The pollen data cannot give answers as to the purpose of the mound or to its date of construction. It's creation was clearly associated with a period of major human impact on the environment, however, during which the local landscape was considerably transformed.

APPENDIX 2: THE PALAEOBOTANICAL SAMPLES FROM TITLINGTON MOUNT BY J. P. HUNTLEY

Introduction

Pollen samples from below and within deposits of a burnt mound were analysed by Jim Innes, Department of Geography, University of Durham, which demonstrated changes in the local vegetation from scrub woodland to open moorland. From the pollen there were clear indications of agriculture and therefore bulk samples were taken in order to investigate any macrofossil remains of such agriculture.

Methodology and results

The site was dry and it was therefore considered any evidence for direct human activity would have been preserved through burning and hence carbonised cereal grains and/or chaff were sought. A bulk sampling procedure was therefore recommended.

Bulk samples of whole earth were processed in the Biological Laboratory, Department of Archaeology, University of Durham by manual floatation with both flots and residues being retained upon 500 mesh. The >2mm fractions of the residues were sorted for artefactual and ecofactual material and all of the flots were sorted for plant macrofossils. The latter were examined under a stereomicroscope at magnifications of up to x50 and identified by comparison with reference material held in the laboratory.

Most of the flots were moderate in size (>500ml) and the bulk of the material was a mixture of charcoal and flaky fragments of modern bark and twigs.

With respect to the flots, all samples produced

Table 2: Processing details of samples.

Site	Context	Weight processed (kg)	Material
site 1	002 Phase 3 burnt stone mound	7.565	loam/sand, black with roots
site 1	005 Phase 4 tree-holes	6.241	as above
site 1	006 Phase 4 tree-holes	3.324	as above
site 1	007 Old ground surface	3.461	as above
site 2	003 Mid-layer of burnt stone mound	5.971	loam/sand, black with roots
site 2	005 Pit-hearth	5.446	black sandy loam
site 2	005 Pit-hearth (SE end)	4.762	as above
site 2	005 Pit-hearth (NW end)	3.057	as above

charcoal in varying amounts - not surprising given the nature of the site. Much of it was oak but there were moderate amounts of Betula (birch), Alnus (alder) and Corylus (hazel) in context 007 in site 1 (an Old Ground Surface beneath the mound) and in the SE end of 005, site 2 (a shallow pit-hearth). The latter context, and also context 001, site 1 (shallow peat layer overlying mound), tended to have more abraded fragments suggesting that they may have lain on the surface for some time prior to burial.

Carbonised seeds were disappointingly few and only one context produced more than one item. Context 007 from site 1 (Old Ground Surface beneath the mound) produced two fragments of burnt hazelnut shell, one hulled barley with a twisted embryo, one undifferentiated barley grain, one indet. cereal grain and one tear-drop shaped wheat grain which was tentatively identified as emmer. It is emphasised as being very tentative since the grains are not reliably distinct although such a shape is characteristic of emmer. All of the material was abraded with surface textures only clear in protected areas such as the ventral grooves of the cereal grains. Other samples produced single fragments of nutshell which simply reflects use of a local resource.

General conclusions

Although very small in number it is clear that both wheat and barley were being used at the site. The twisted grain of barley indicates that it is the 6-row barley rather than the more modern 2-row variety. The tentatively-identified emmer might suggest that the site is older rather than more recent but nothing can be realistically inferred from such a small assemblage.

It is interesting to note that the sample containing the grain is considered by the excavator to be a probable old ground surface which was sealed by the mound. Innes describes its pollen assemblage as being representative of predominantly local scrub with few indications of either open ground or human activity. The presence of cereal grains in the bulk sample may therefore reflect material which has moved down from above when the mound was in use rather than reflecting local cultivation prior to formation of the mound.

The charcoal almost certainly reflects fuel and was probably obtained from locally grown trees. Although heather pollen dominated the pollen assemblage in some samples there is no evidence for it having been burnt as fuel or, more particularly, kindling.

APPENDIX 3: THE FLAKED STONE ASSEMBLAGE BY D. J. FIELD

Two small pieces of grey unstained and unpatinated flint were recorded from the site.

TM92 I 004 [1] (from hillwash downslope from Mound 1): a spall measuring 14mm x 14mm and representing waste from the retouch of an implement.

TM93 II 012/004 [1] (from layer 4 in upper fill of trough): a small end scraper with fine invasive retouch around its distal end. Measuring 25mm x 22mm x 12mm thick, it is relatively small and would traditionally be assigned to the Beaker - Early Bronze Age horizon on account of its size. However, caution should be exercised with a single example.

APPENDIX 4: THE FAUNAL REMAINS BY D. SERGEANTSON

Two fragments of calcined bone were recovered.

TM92 II 005 [100] (from upper fill of hearth): One small fragment too small to distinguish species.

TM93 II 006 [101] (from basal deposit of burnt stone mound): One small fragment too small to distinguish species.

APPENDIX 5: THE C^{14} DATES

(see Fig. 16)

Mound 1

Phase 1 Early hearth (014)
Beta-71942 3610±60BP cal BC 2130 to 1770 (2 sigma)

Phase 2/3 Burnt stone mound
Beta-58164 3230±60BP cal BC 1670 to 1410 (2 sigma)

Phase 2/3 Basal silt of trough (018)
Beta-71943 3200±60BP cal BC 1600 to 1380 and
cal BC 1340 to 1330 (2 sigma)

Phase 2 Hearth (010; ?contaminated deposit)
Beta-58163 1430±50BP cal AD 540 to 670 (2 sigma)

Mound 2

Hearth (011)
Beta-71944 3600±60BP cal BC 2130 to 2070 and
cal BC 2060 to 1760 (2 sigma)

Burnt stone mound
Beta-58165 3440±70BP cal BC 1940 to 1600 and
cal BC 1556 to 1541 (2 sigma)

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The writer would like to record his thanks to Mr Ian Brown of Titlington Mount Farm for permission to dig and his generous support throughout the excavations. Thanks also go to the NAG committee for voting the necessary funds to complete this excavation, and the NAG members for their fund-raising activities; Keith Blood for much help with logistics, the site plan and digging; Jenny Vaughan and John Nolan for other logistical support and digging; Barbara Esslemont and Gordon Moir for their unstinting help with the supervision of the trenches; and especial thanks to the diggers for making the excavations such a success: Ian Atkinson, Judith Atkinson, Sue Brophy, Jane and Basil Butcher, Robin Callander, Bob Carmichael, Mary Conn, Monica Coulter, Jean Crocker, John Earl, Ian and Irene Hewitt, the late Tom Heyes, Jenny Johnson, J Marshall, Christine Montgomery, Francis Thomson, the late David Noble, Jessica Plane, Emma Topping, Lindsey Weightman. The RCHME also provided much support during the excavations for which the writer is extremely grateful. Thanks go to Dave Cowley for many discussions about burnt mounds and information regarding his work on Beanley Moor. Thanks also go to Dave Field, Jim Innes, Jacqui Huntley and Dale Serjaentson for their specialist reports, and to Trevor Pearson for preparing fig. 16 and assistance with the other illustrations. Al Oswald commented upon my draft text, for which the writer is very grateful. Arguably the biggest vote of thanks goes to Joyce, my wife, who once again turned a blind eye to my eccentricities and allowed me to squander holiday time in the hills. As ever any errors or omissions are the sole responsibility of the author.

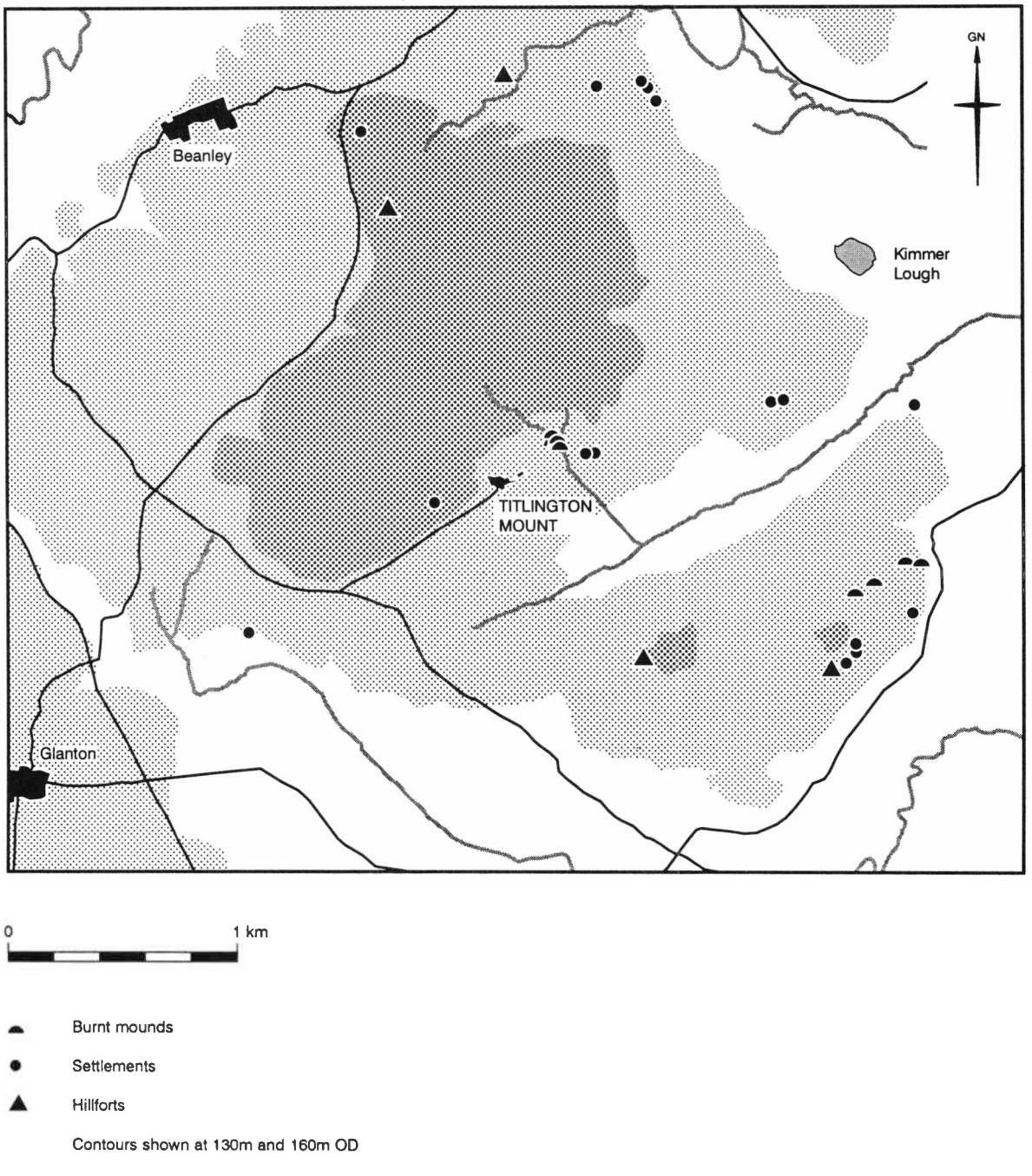


Fig.1. The location of the Titlington Mount group of burnt mounds. The Jenny's Lantern group lie some 1.5kms to the south-east. Beanley Moor lies to the north of the Titlington burnt mounds.

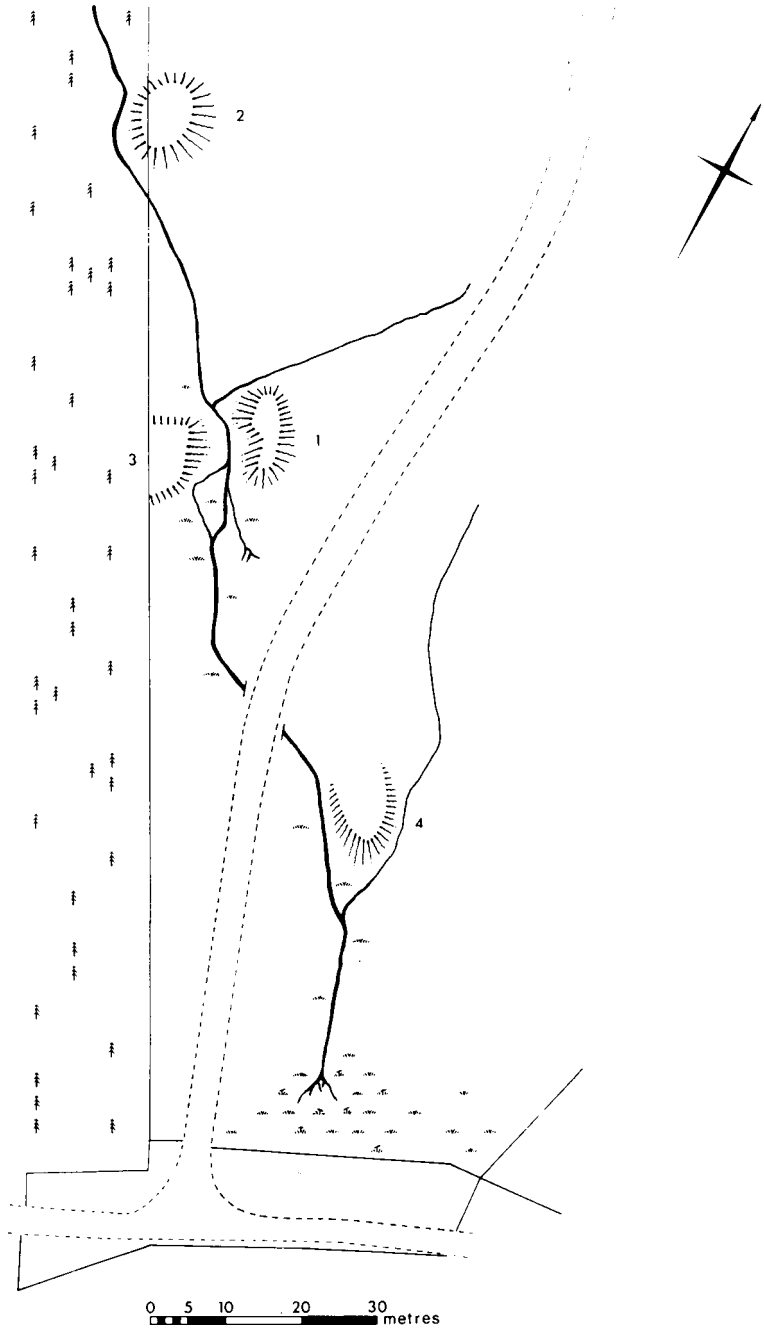


Fig. 2. Site plan of the Titlington Mount group of burnt mounds.

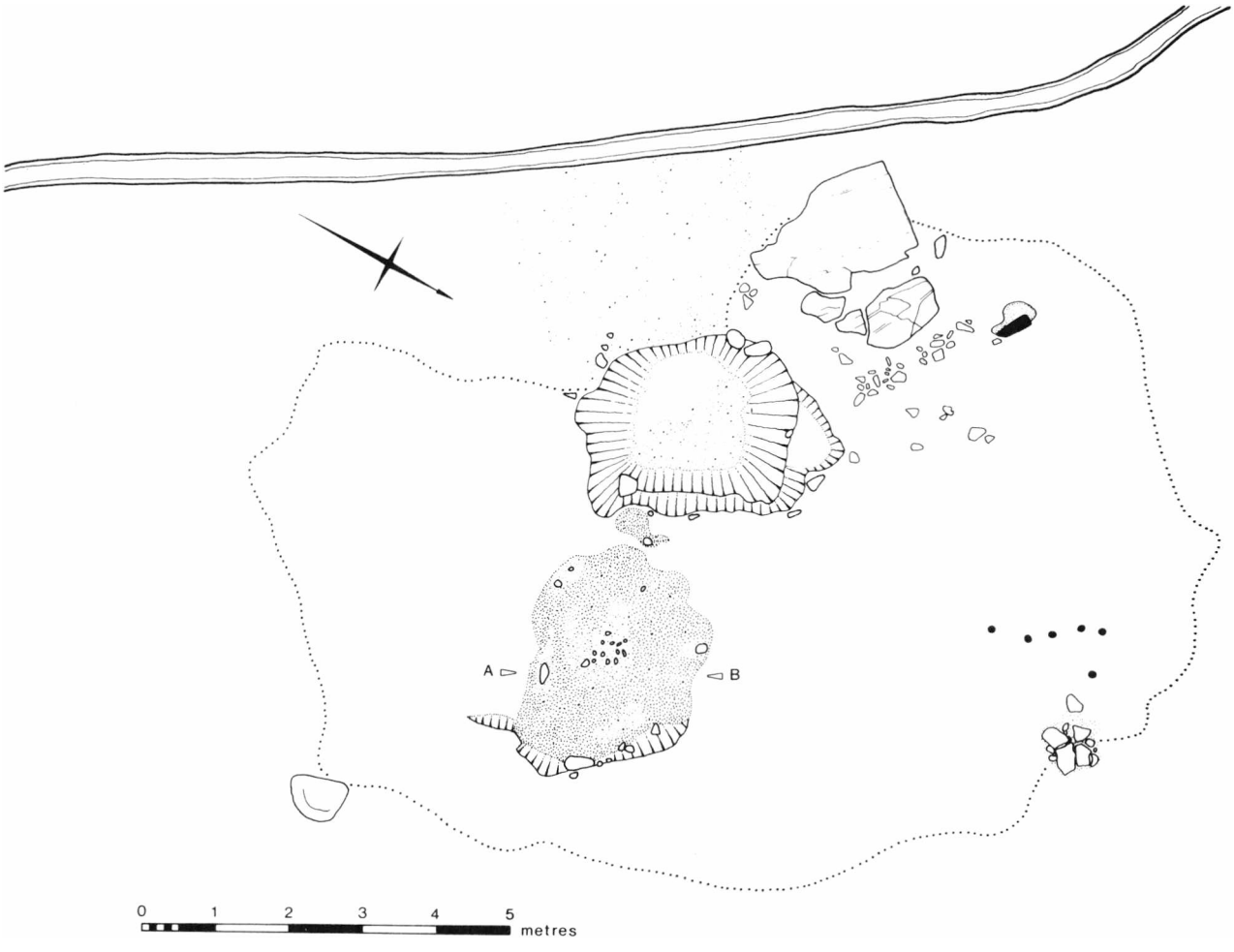


Fig.3. Titlington Mount Site 1, Phase 1: ground plan showing earliest pit-hearth (014), trough (018), the stone setting (021) and the vertical slab (022; shown in black). The position and extent of the burnt stone mound is shown by the dotted line.

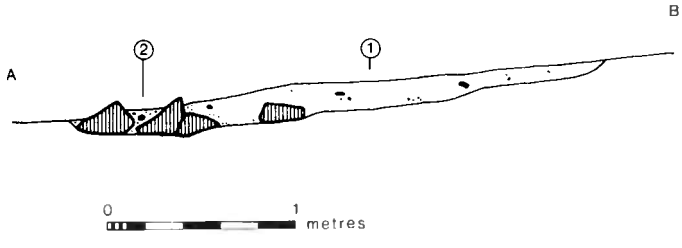


Fig.4. Site 1, Phase 1: pit-hearth (014) section. 1 = charcoal-rich black loam; 2 = mid-brown sandy loam.

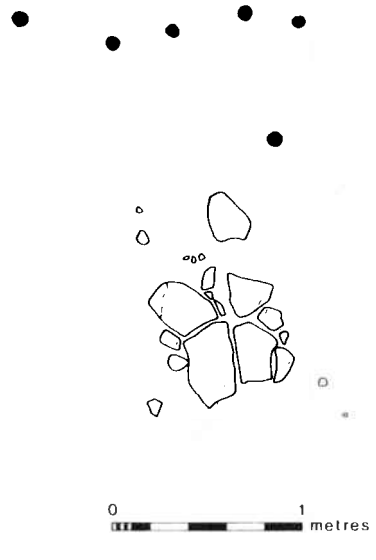


Fig.5. Site 1, Phase 1-2: stone setting (021).

Fig. 6. Site 1, Phase 2: ground plan showing secondary hearth (010) overlying the Phase 1 pit-hearth (014). The position and extent of the burnt stone mound is shown by the dotted line.

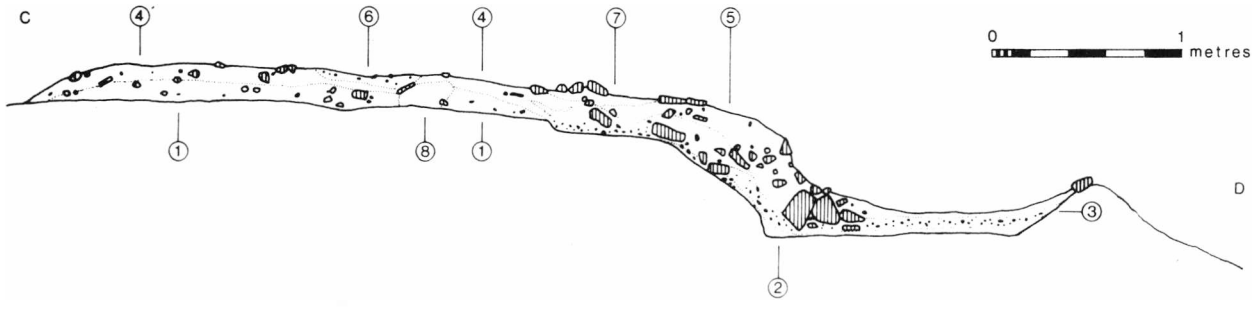


Fig. 7. Site 1, Phase 2: section across secondary hearth (010) and trough (018). 1 = light-brown sandy loam; 2 = dark-brown/red speckled loam/clay matrix with much charcoal; 3 = dark-brown loam; 4 = mid-brown/ black sandy loam; 5 = dark-brown sandy loam; 6 = black sandy loam with much charcoal; 7 = black sandy loam with much charcoal; 8 = small mammal disturbance.

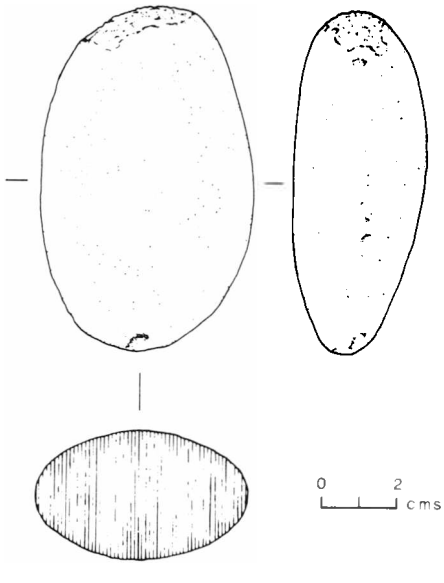


Fig. 8. Site 1, Phase 2: stone pounder discovered on northern edge of trough (TM93 I 002 [2]).

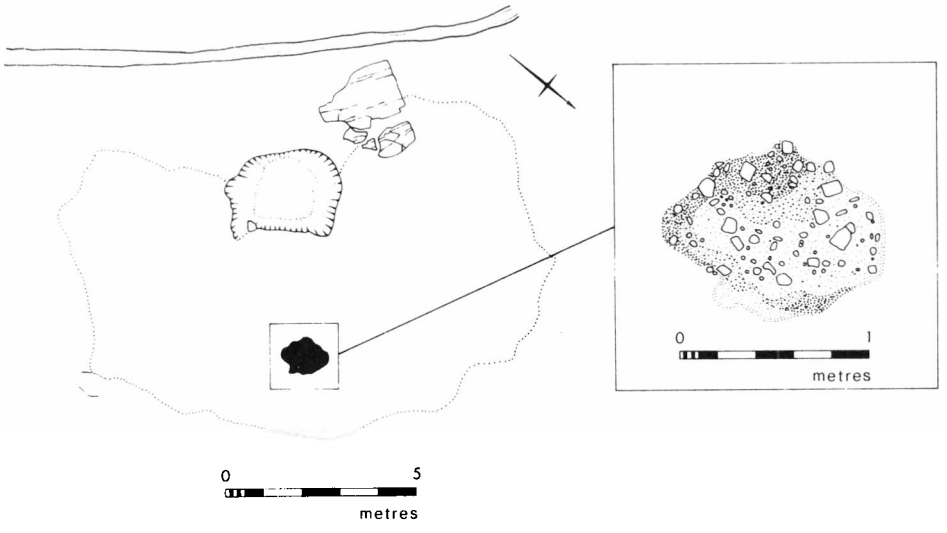


Fig. 9. Site 1, Phase 3: showing late hearth (019) built upon upper levels of burnt stone mound.

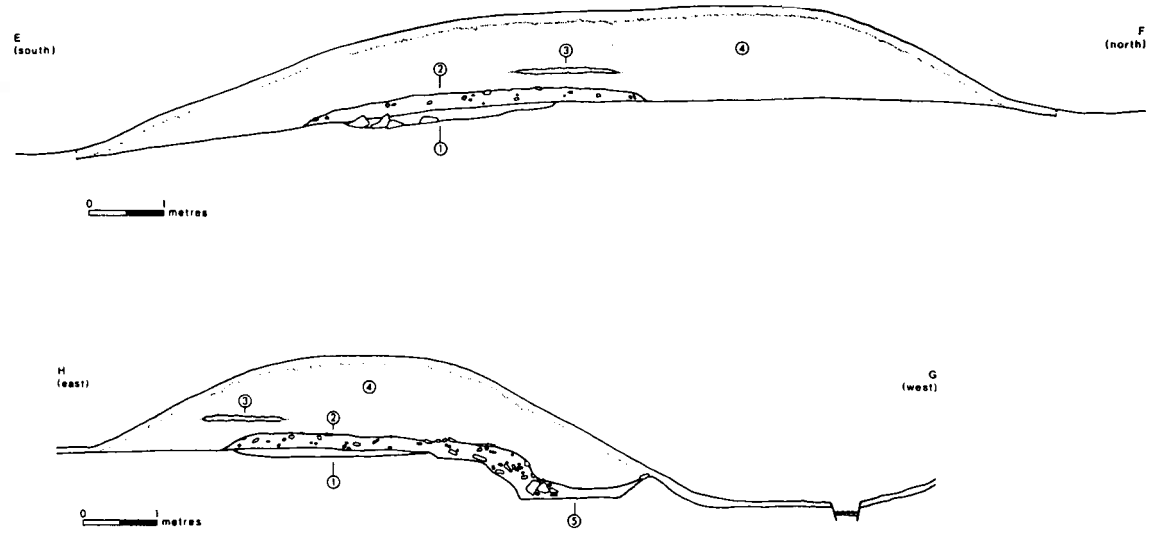


Fig. 10. Site 1: cross sections. 1 = earliest pit-hearth (014); 2 = secondary hearth (010); position of phase 3 hearth (019) projected into sections. The matrix of the burnt stone mound was a black silty loam with a ratio of stone to earth of roughly 90:10.

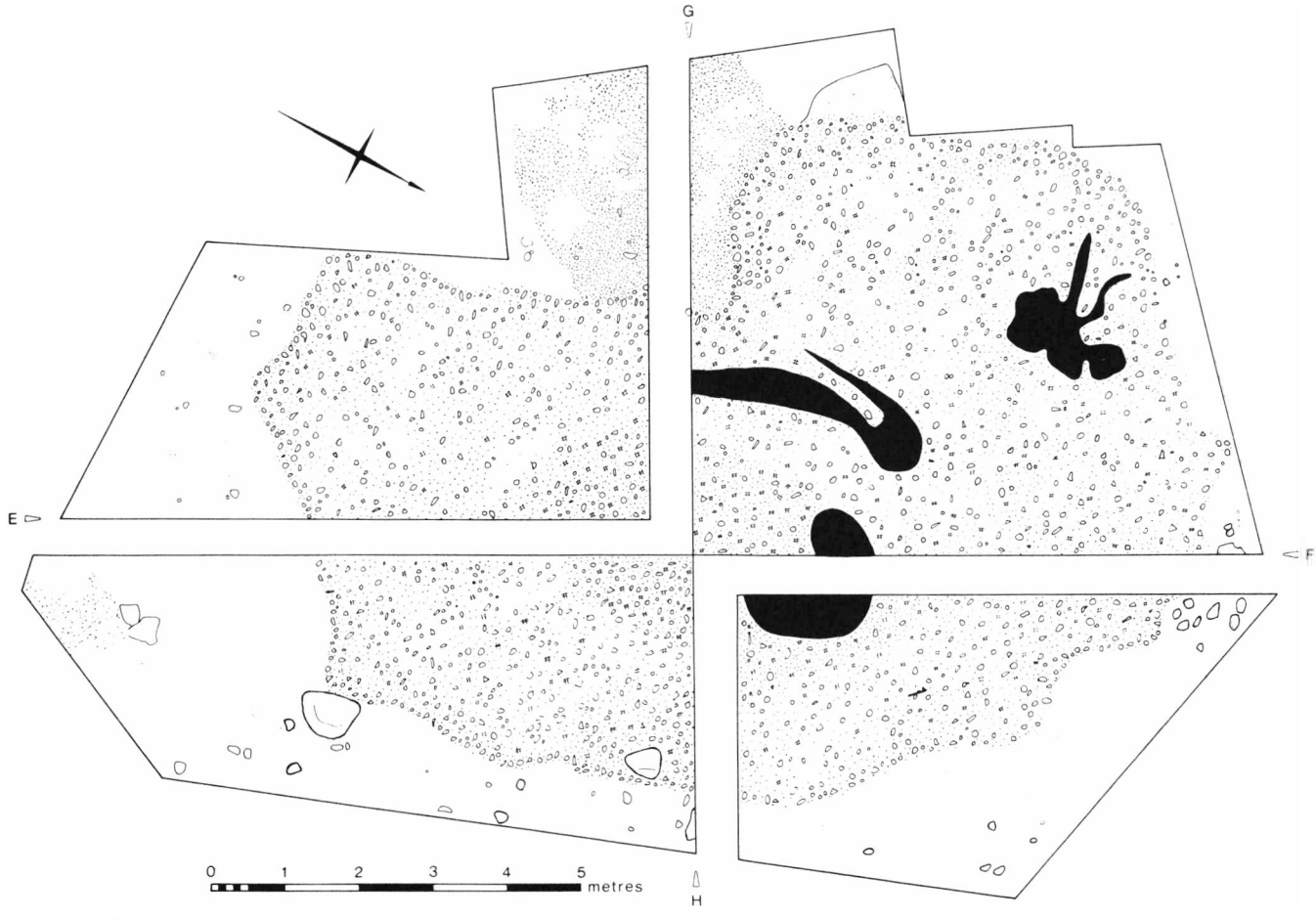


Fig. 11. Site 1, Phase 4: abandonment phase, tree holes shown in black.

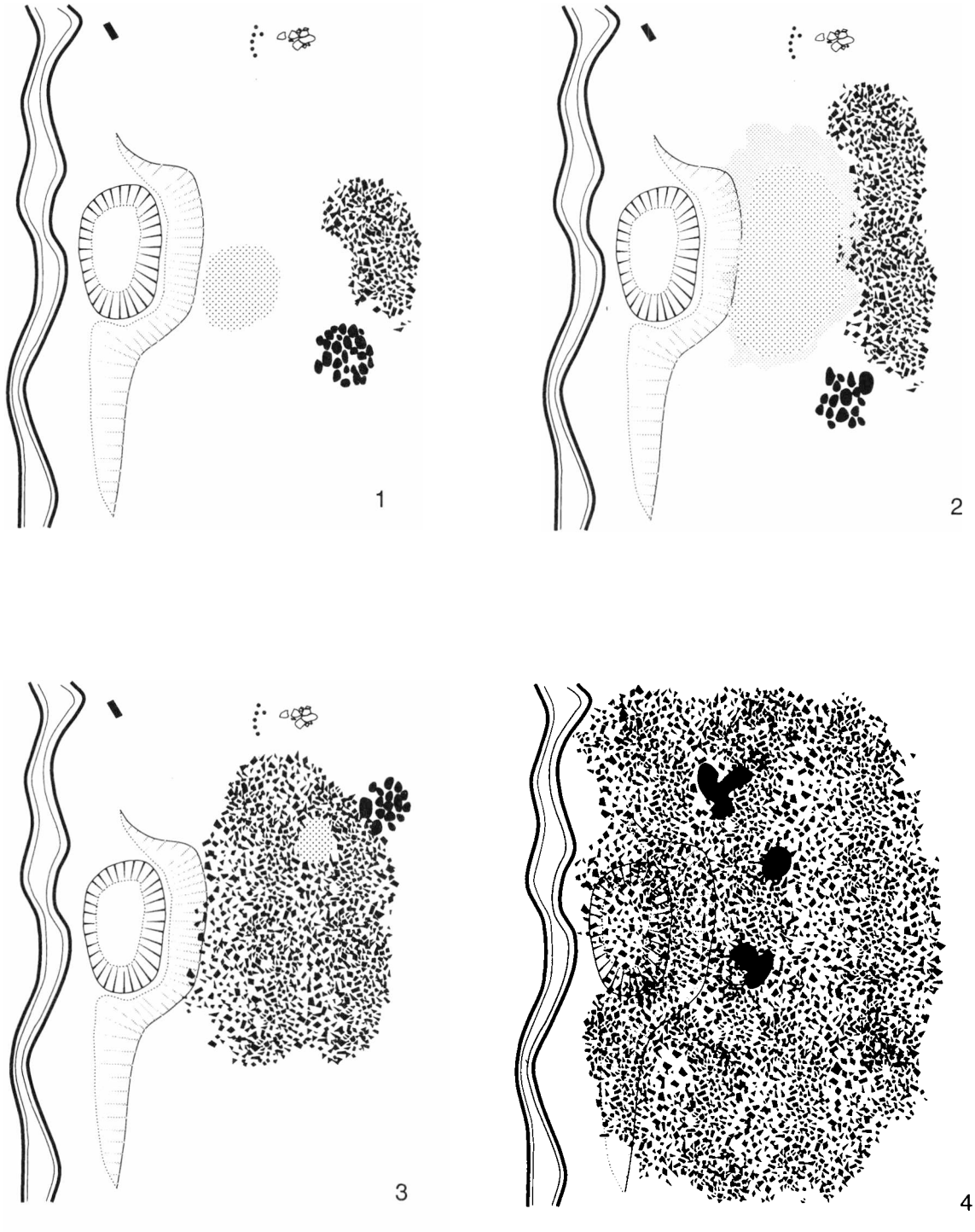


Fig. 12. Site 1: phasing diagram showing site development.

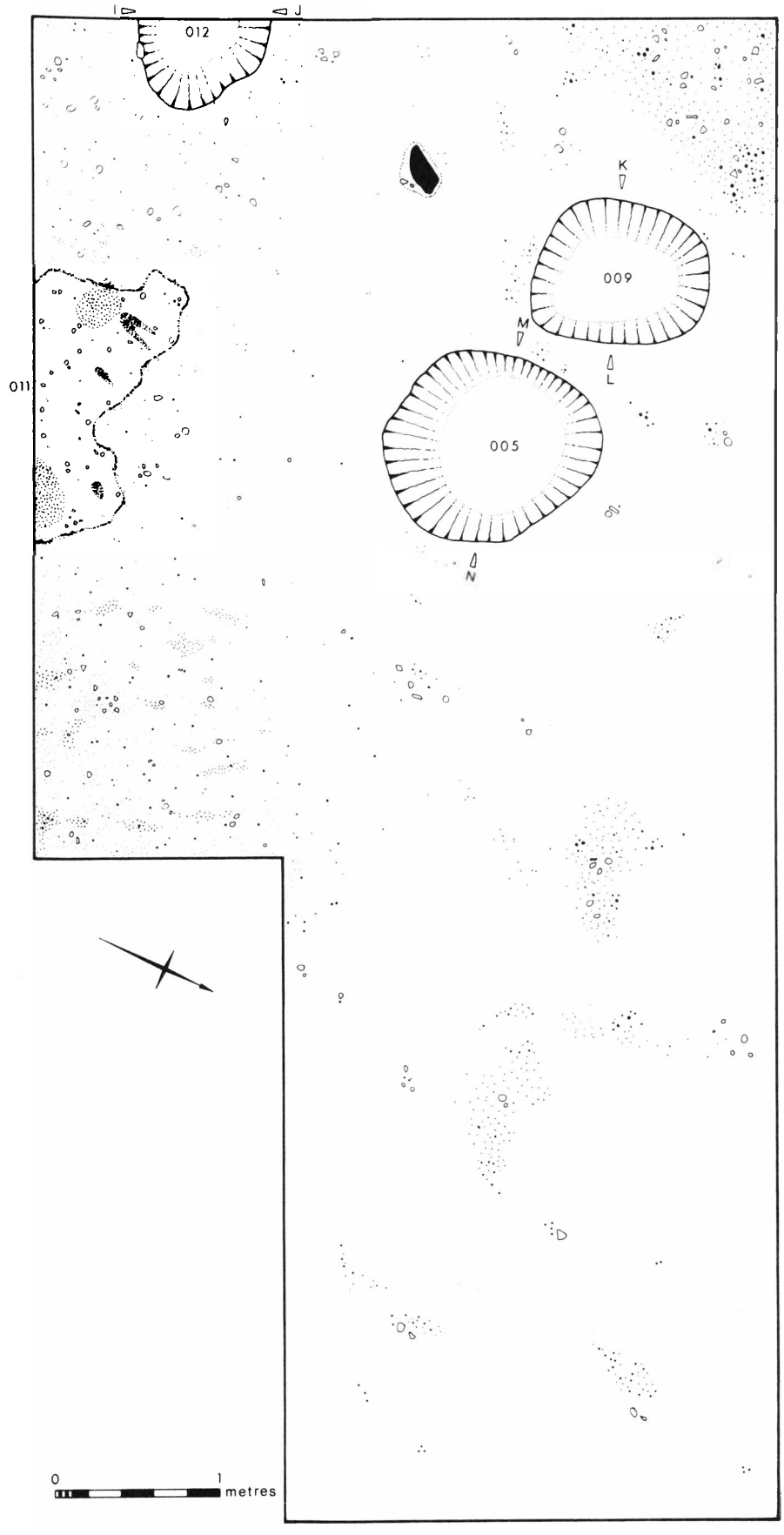


Fig. 13. Site 2: ground plan showing pit-dug features (005, 009 & 012), vertical slab (017; shown in black) and hearth (011) to the south.

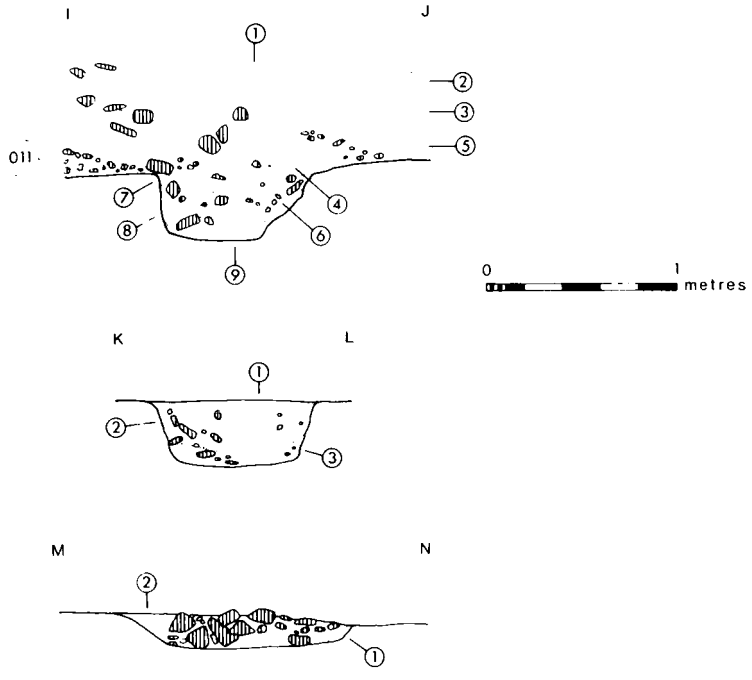


Fig. 14. Site 2, sections: Feature 012, I-J, 1 = lens of light brown sand, 2+4 = dark brown sandy loam, 3+7 = very dark brown sandy loam, 5 = compact deposit of small burnt stones in a dark brown sandy loam, 6 = charcoal-rich black sandy loam, 8 = dark brown/black sandy loam, 9 = red/black mottled clay silt (the hearth 011 lies on the lip of the feature beneath I); Feature 009, K-L, 1 = charcoal-rich black loam, 2 = black silty loam, 3 = dark brown sandy loam with small amounts of charcoal; Feature 005, M-N, 1 = dark brown silty loam, 2 = charcoal-rich sandy loam.

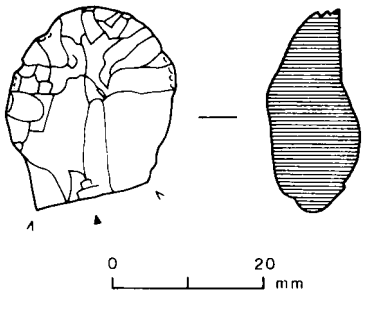


Fig. 15. Site 2, end-scraper (TM93 II 012/004 [1]) discovered in layer 4, feature 012.

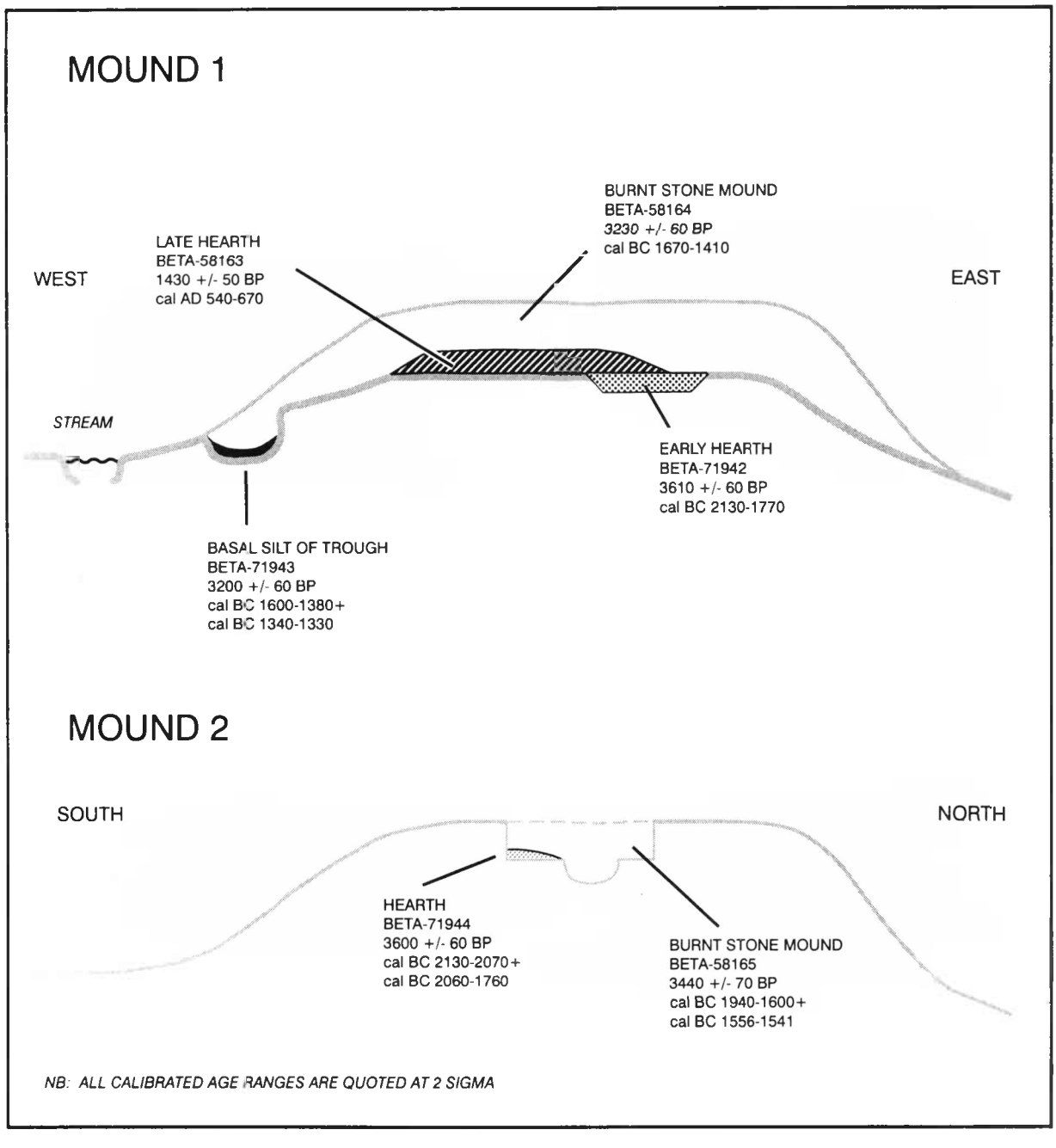


Fig. 16. C14 contexts sampled at Titlington Mount.

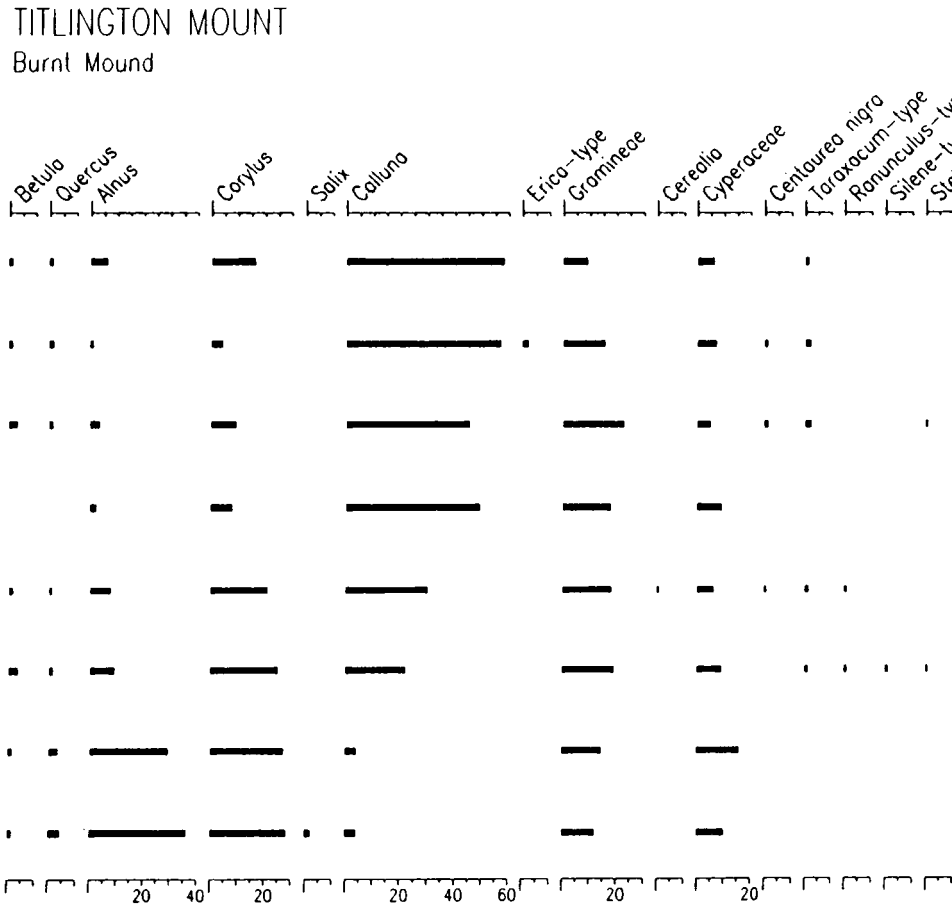
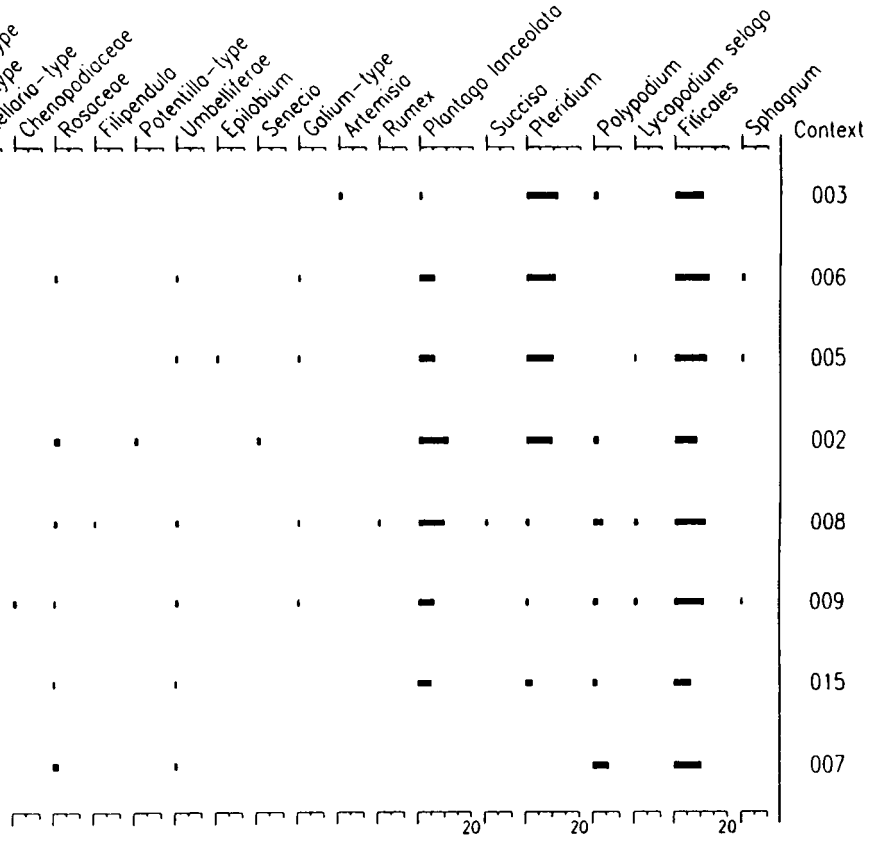


Fig. 17. Pollen spectra diagram prepared by JB Innes.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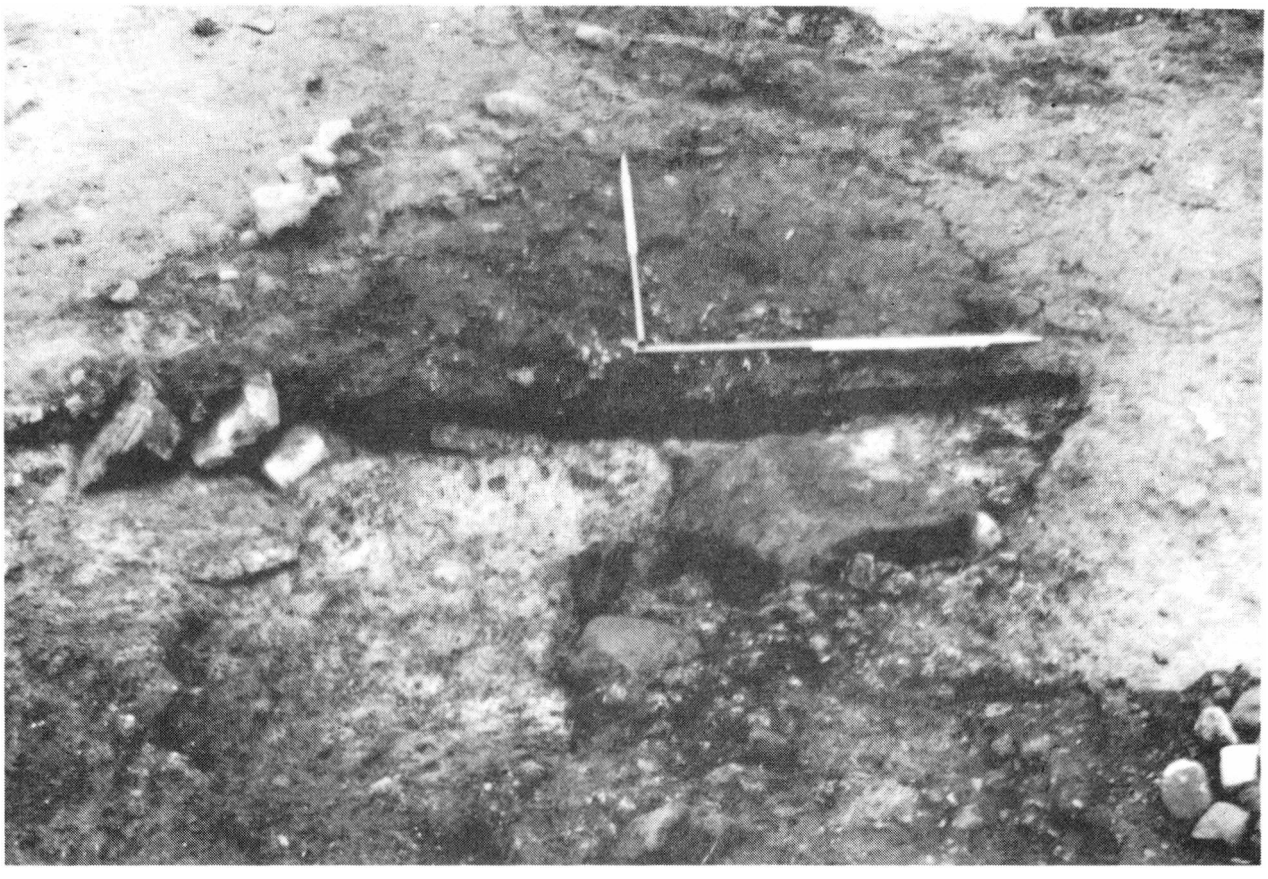

Plate 1. Site 1, Phase 1 pit-hearth 014.

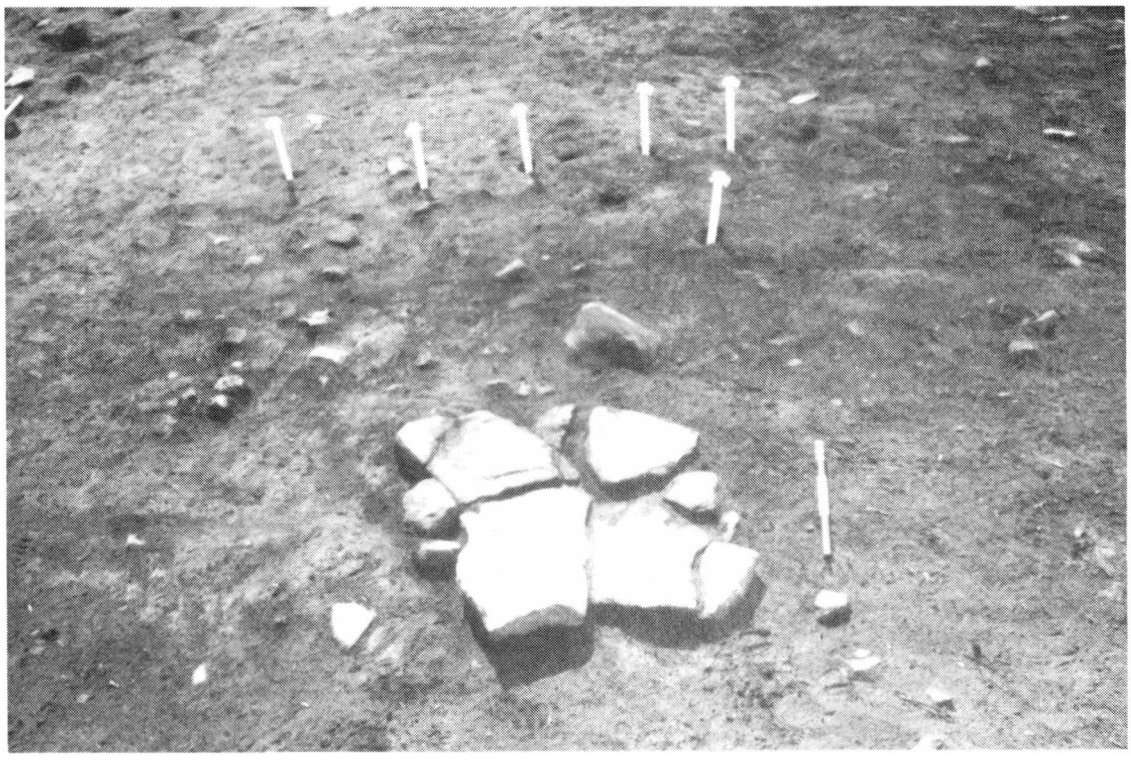

Plate 2. Site 1, Phase 1/2 stone setting 021. The stake-holes are marked by pegs.

Plate 3. Site 1, Phase 2, view of site from the west showing hearth debris spilling into the trough.

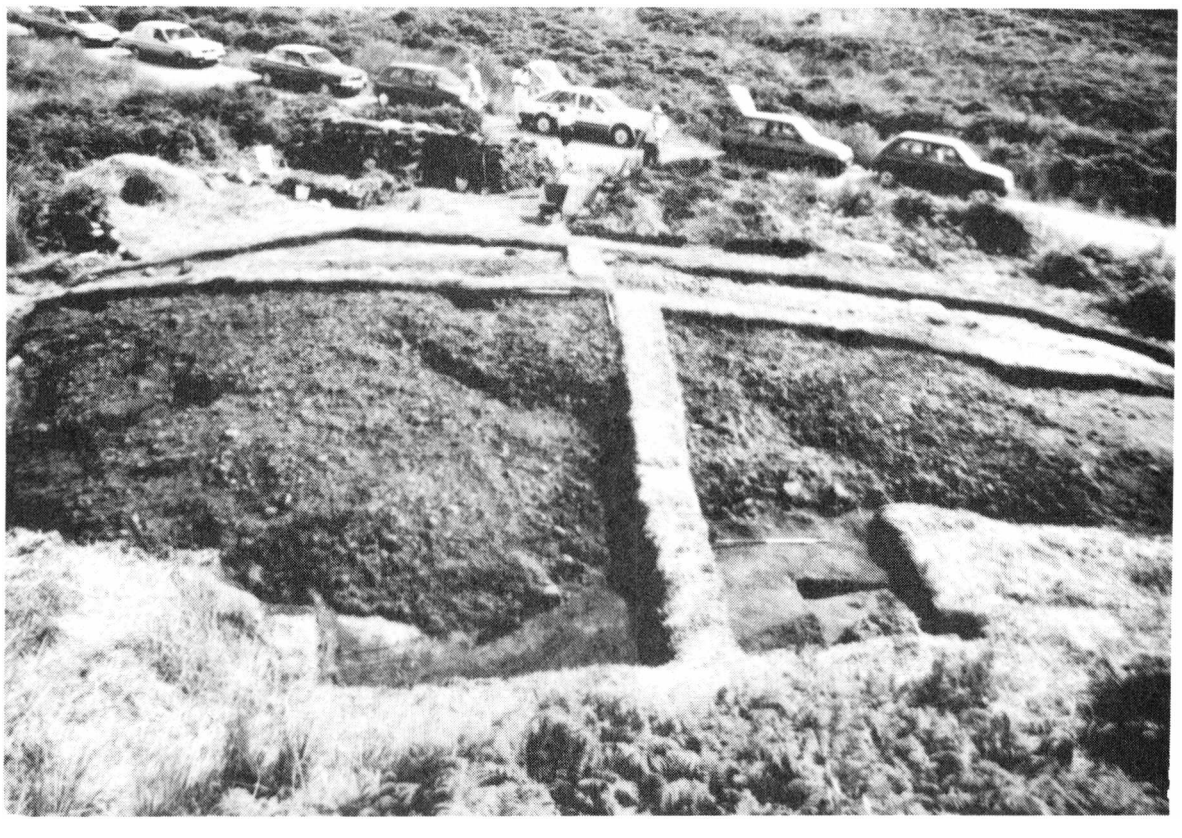

Plate 4. Site 1, Phase 4, the burnt stone mound with tree-holes visible in the surface.

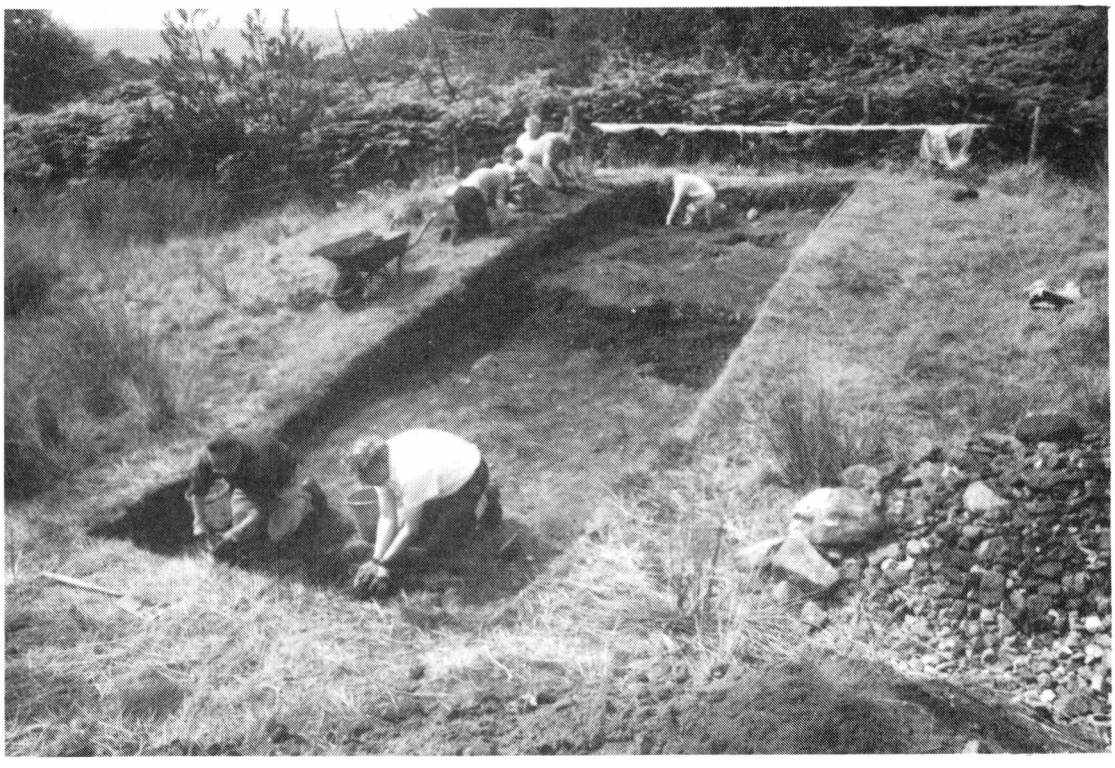

Plate 5. Site 2 under excavation.

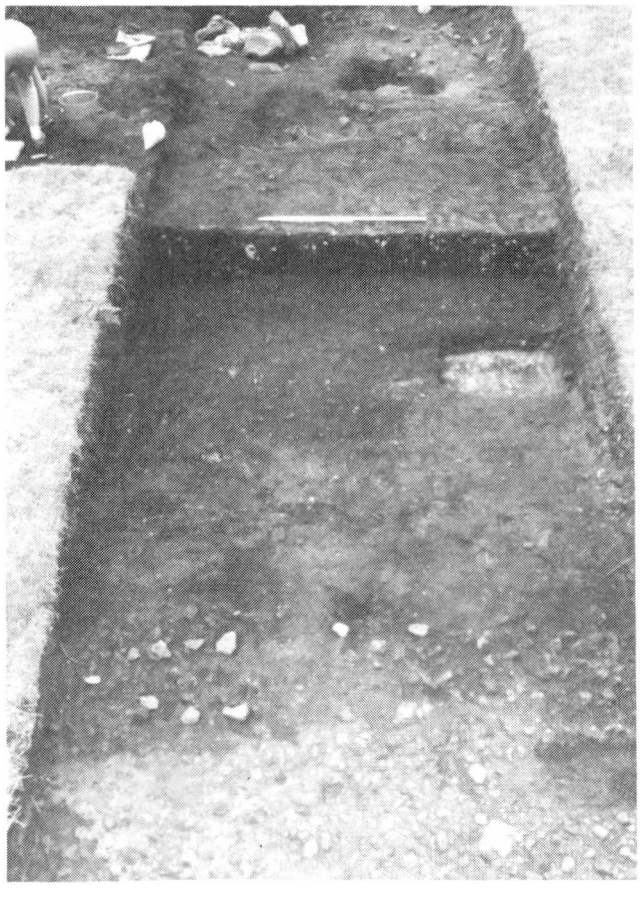

Plate 6. Site 2; natural deposits nearest the camera, almost stone free basal mound deposits next, then medial deposits of the burnt stone mound with 50% burnt stone. The uppermost layer of the burnt stone mound with 80% stone inclusions has been removed. Trough 009 can be seen at the top with trough 012 protected by plastic. The vertical slab 015 is protected by two stones to the left of trough 012.