

## Excavation of a Neolithic settlement and ritual complex at Beckton Farm, Lockerbie, Dumfries & Galloway

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### ABSTRACT

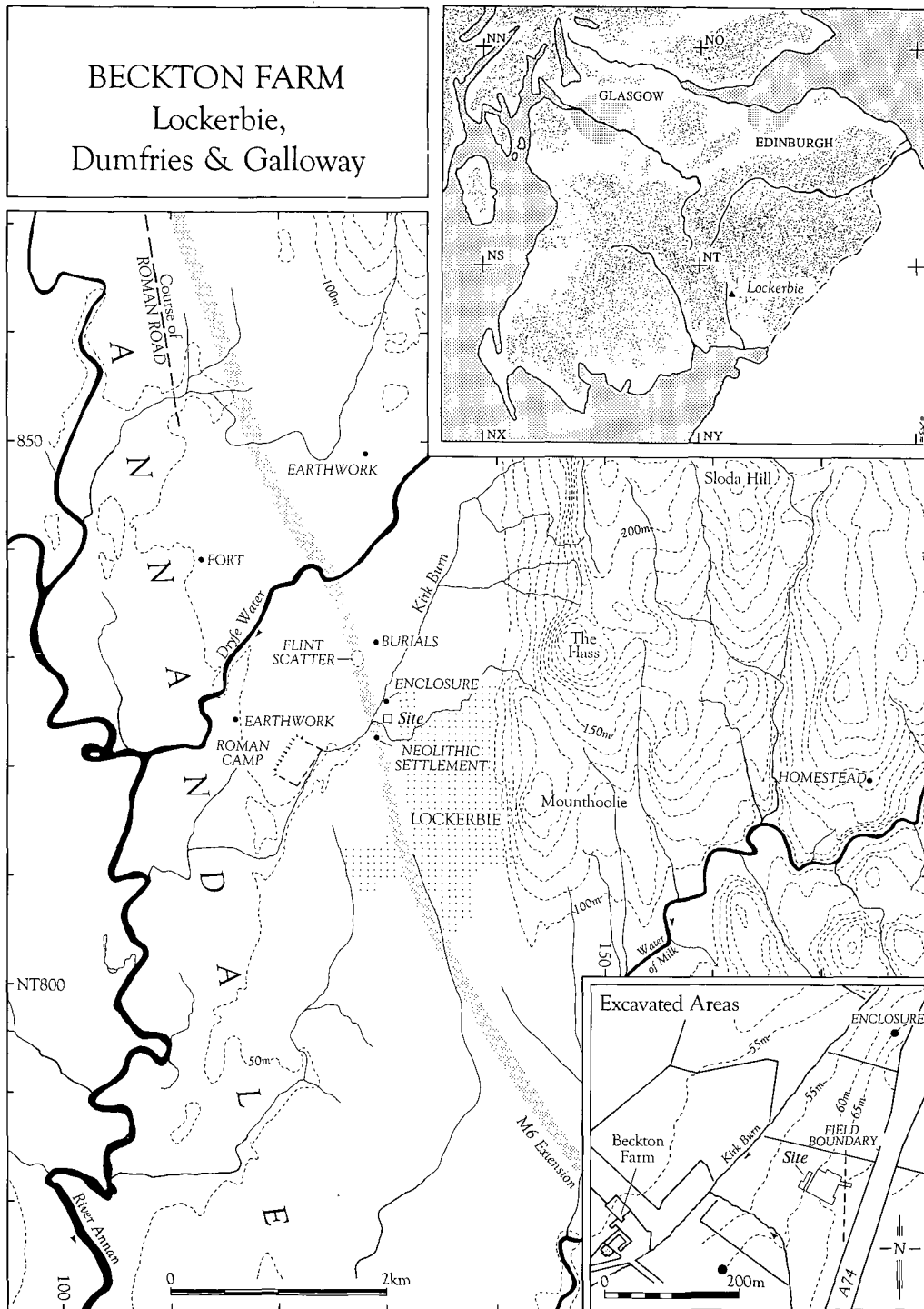
*Excavation of a Neolithic site at Beckton Farm, Lockerbie (NGR: NY 1305 8245), was carried out in advance of work on the M6 motorway extension and was funded by the National Roads Directorate of the Scottish Office Development Department (Roads). The site, initially identified through the recovery of lithics and pottery from the ploughsoil, consisted of several structures, possibly small houses, and various pits and post-holes. Finds included a small assemblage of Grooved Ware which had been deposited in pits. This material, and the presence of cremated human bone in one of the Grooved Ware pits probably represents ritual activity on the site. A series of six radiocarbon dates was obtained, suggesting a sequence of activity stretching from the mid-fourth to the mid-third millennium BC. This paper is published with the aid of a grant from Historic Scotland.*

### INTRODUCTION

During May and June 1992 excavations were carried out at Beckton Farm, near Lockerbie in Dumfries & Galloway, by Glasgow University Archaeological Research Division (GUARD). The excavation was one of a series carried out on behalf of the National Roads Directorate of the Scottish Office Development Department. The project was co-ordinated and managed by Historic Scotland.

This programme of work has included not only the excavation of previously known sites, such as the Roman Camp at Beattock (Leslie, forthcoming), the Bronze Age unenclosed platform settlement at Lintshie Gutter (Terry 1994) and the Neolithic/Bronze Age funerary cairns at Stoneyburn (Banks 1995), but also the discovery and excavation of previously unknown sites, such as the Bronze Age enclosed cemetery at Red Moss (Leslie, forthcoming) and the Mesolithic/Neolithic camp and burnt mound at Kirkhill Farm (Pollard, forthcoming). The site at Beckton Farm falls somewhere between the known and the new, with the presence of prehistoric activity previously suggested by the recovery of lithic artefacts from the vicinity, but the character, date and extent of this activity only becoming apparent with excavation. Other than small quantities of artefactual material, the site at Beckton Farm left no visible remains to aid its detection and its

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

discovery represents clear vindication, if it were needed, of the field walking of ploughed fields as a method of prospecting for sites.

Excavation revealed a number of negative features cut into the subsoil. These included a variety of pits and post-holes, some of which defied satisfactory interpretation. However, several buildings were also identified, at least some of which appear to represent small dwellings. The artefact assemblage was relatively small, consisting of stone tools and pottery. Among the most striking finds were Grooved Ware sherds recovered from two small pits, both of which appear to attest to ritually controlled deposition, with one of the Grooved Ware pits also containing fragments of burnt human bone. The appearance of two substantial four-post structures, apparently late in the site's history, may also have a ritual connotation.

#### SITE LOCATION AND TOPOGRAPHY

The site is located on a fluvio-glacial terrace (NGR: NY 1305 8245), defined by the 60 m contour. To the west it overlooks the floodplain of the Dryffe water, while the route of the former A74 passes the site some 100 m to the east, with the town of Lockerbie lying east of this road. The fluvio-glacial terrace is bounded to the north and south by areas of boulder clay. These drift deposits clearly bear witness to the profound role which glacial action and its aftermath played in shaping the physical characteristics of the area (the implications of glacial retreat on our archaeological understanding are discussed further below). The site sits within a gently rolling flat-bottomed valley. The valley is part of the north-south running artery which for so long has served as a vital communication route in both directions, permitting movement between the central belt of Scotland into the north of England.

#### HISTORY OF DISCOVERY AND PROGRAMME OF WORK

It is largely thanks to the efforts of local archaeologist William F Cormack that the archaeological significance of the area around Beckton Farm is now recognized. In 1962 Cormack excavated the Early Bronze Age cremation cemetery at Kirkburn (1963b), some 600 m to north of the present site (illus 1: burials), which was threatened by the construction of the A74. Soon after this investigation Cormack identified another archaeological site during the stripping of topsoil in the field east of the farmhouse at Beckton Farm. At that time a hill was partly levelled by removing the capping boulder clay for use in the road construction. Closer examination of the stripped hilltop by Cormack revealed a silted curvilinear ditch (illus 1: Neolithic settlement). Unfortunately, time did not allow anything more than the rapid survey of this feature and the recovery of several Grooved Ware sherds from the subsoil surface in the immediate vicinity of the ditch (Cormack 1963a).

Following the construction of the A74, Cormack began to walk ploughed fields in the area, in the hope of detecting further evidence of prehistoric activity. Lithics were recovered from the ploughed surface of several fields. One scatter, covering a relatively wide area (illus 1: flint scatter), was located in fields which lie to the south-west of the cremation cemetery. These lithics, which were collected over a number of years, include a *petit-tranchet*/oblique arrowhead which indicates late Neolithic activity in the area. Later fieldwork by GUARD in this vicinity, including geophysical survey and trial trenching, failed to locate any archaeological features related to this scatter (Terry 1990). Over the years Cormack also recovered artefacts from the ridge on which the Beckton Farm site lies, again collecting them from the surface of the ploughed field. This collection consists of 34 pieces of chipped flint, chert and pitchstone; the majority are small waste

chips or flakes removed during the knapping process. However, a number of larger, irregular flakes, several of which display edge damage and limited retouch, were also recovered.

GUARD first became involved in the site in 1990 when an evaluation was undertaken to confirm the supposed site of a medieval chapel, thought to exist within the line of the proposed motorway. Machine-cut trenches were excavated into the lower slope of the ridge in the area marked as the site of the chapel and chapel well (NGR: NY 1294 8243) on the first edition (1859) Ordnance Survey map of the area. Other than several sherds of green glazed pottery, which may well have found their way into the topsoil as midden material used as fertilizer, no evidence of medieval activity was identified (Terry 1990, 8).

Attention then shifted to the top of the ridge, which seemed a more likely location for a chapel site. It was also known that Cormack had recovered prehistoric flints from this ridge and accordingly the aim of the evaluation was extended to identify, if possible, archaeological features related to this material. The evaluation of the ridge again failed to find any evidence for a medieval chapel, but the discovery of a potentially important prehistoric site, with surviving features, did provide more than a little consolation.

#### EVALUATION OF THE PREHISTORIC SITE

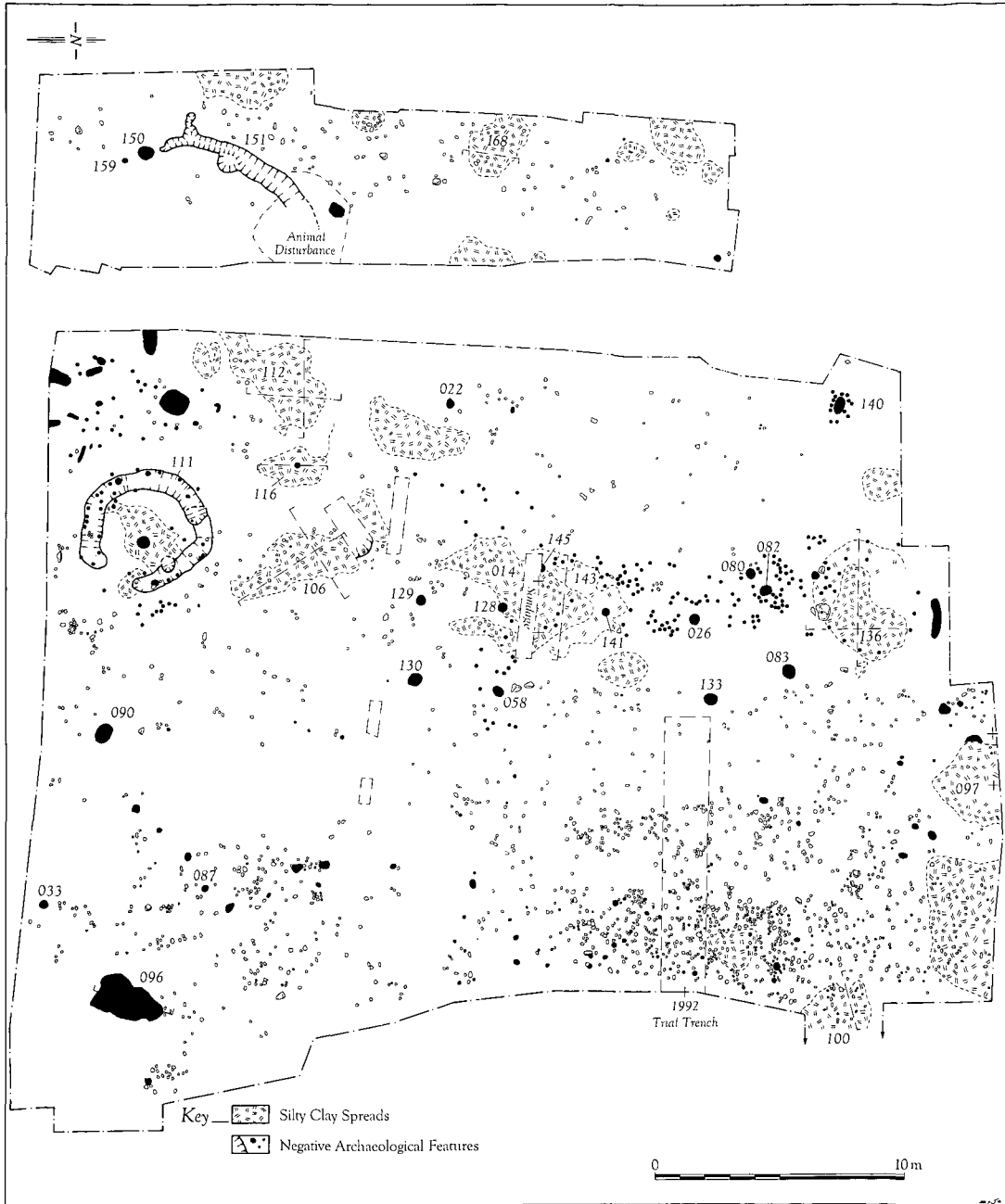
During the evaluation of the higher ground a series of machine-cut trial trenches was cut across the terrace, revealing a ploughsoil varying from 0.35 m to 0.45 m in depth. Lithics were recovered from the lower horizon of the ploughsoil and from the subsoil surface, which consisted of mixed sands, gravels and clays of fluvio-glacial origin. Though the worked stone recovered consisted largely of waste pieces, the collection did include an oblique arrowhead (illus 12: A1), with its snapped point suggesting use. A fragment of scraper edge was also recovered, with a regular fracture also suggesting breakage through use (a similar piece was recovered by Cormack from the ploughsoil surface but this appeared to have fractured after being dropped on a fire). The same fine quality, non-local, grey/brown flint had been used to make both the arrowhead and the scraper.

In one of the trial trenches (illus 2) three small sherds of pottery were recovered from the edge of a silty spread, their dark fabric similar to Western Neolithic Ware (Terry 1990). Further evidence for sub-surface features consisted of what was at first thought to be a silted ditch, although time allowed little more than the excavation of a section across an exposed portion of this feature.

The results of the evaluation — which included negative features surviving in the subsoil, a small assemblage of chipped stone tools, among which was an oblique arrowhead, and sherds of Western Neolithic pottery — suggested not only the presence of a Neolithic settlement, but also earlier Neolithic (from the pottery) and later Neolithic (from the oblique arrowhead) elements. The site was clearly of national importance, as examples of Neolithic settlements in lowland Scotland are still quite rare. The threat of damage by the forthcoming construction of the new M6 was therefore enough to prompt full excavation.

#### PLOUGHSOIL SAMPLING

It is ironic that the agricultural process of turning soil which brought about the discovery of the site, thus allowing it to be excavated in advance of damage caused by motorway construction, would eventually have removed much of the evidence for prehistoric activity on the ridge. Despite the extra effort involved, the opportunity to examine the relationship between artefacts removed



ILLUS 2 Plan of excavated areas

from their original context by the plough and archaeological features surviving in the subsoil through a programme of ploughsoil sampling was considered too important to miss. Therefore, prior to the start of excavation a series of test-pits was dug and the removed ploughsoil sieved in an attempt to recover artefacts.

The chequer-board sampling grid, which measured 24 m by 20 m, was centred on the area occupied by the trial trenches, which had been reopened prior to laying out the sampling grid. Every other metre square within the grid was emptied by hand to the surface of the subsoil. Two buckets of ploughsoil from each of the emptied squares was put through a 4 mm mesh using a pressure washer. Any finds observed during the removal of ploughsoil from the pits were recovered and their position within the ploughsoil logged.

The test-pitting programme resulted in the recovery of relatively few artefacts, with only 53 pieces of flint and chert found in the ploughsoil (and several of these were on the surface of the subsoil). This figure is greater than the 20 pieces recovered during the evaluation but cannot be regarded as a substantial assemblage. Even though the sieved samples represented only around 15–20% of the material removed from the metre square pits, it is noteworthy that over 50% of the lithics were actually recovered by hand during the excavation of the ploughsoil pits, not from sieving.

The lack of finds from Scottish Neolithic sites has been commented on by Sharples & Sheridan (1992) but the reasons for this apparent scarcity are as yet poorly understood. It may be that lateral movement caused by ploughing may have dispersed artefacts over a wider area than that covered by the sampling grids, but this is unlikely to account for the pattern detected here. We may, therefore, have to turn to behavioural factors such as depositional patterning and site cleaning to explain this, and these issues will be discussed in more depth below.

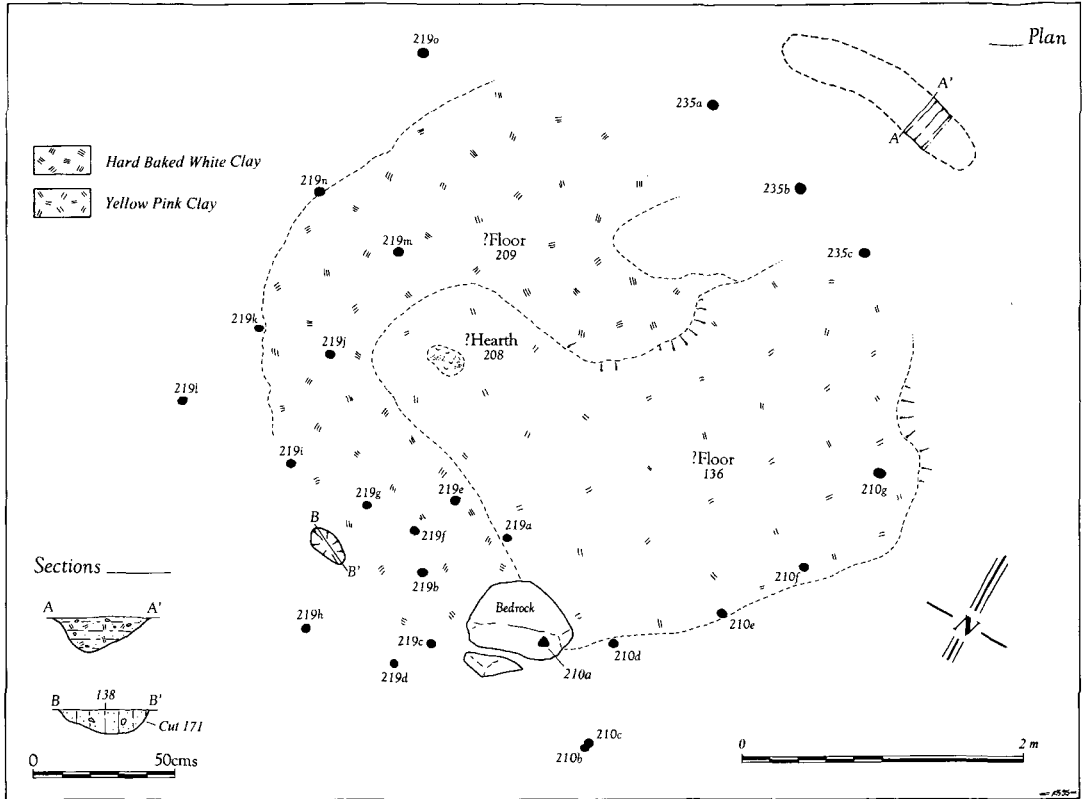
## EXCAVATION RESULTS

A mechanical excavator equipped with a toothless ditching bucket was used to remove topsoil over an area 30 m by 35 m, and a smaller extension trench, 25 m by 5 m, was opened to the west of the main trench (illus 2). The primary motive for opening the smaller trench, which ran north/south along the crest of the ridge, was to locate any trace of a palisade like the one defining the ditched enclosure previously identified by Cormack (1963a) at a neighbouring site on a hilltop to the south. Although no convincing evidence for a palisade was detected within this trench, a number of archaeological features were present, one of which was a small pit containing Grooved Ware, a type of pottery which Cormack had recovered near the ditched enclosure.

## SOILS

Removal of the topsoil revealed a highly mixed subsoil of fluvio-glacial origin, with gravels, sands, clays and silts appearing across the open area, in both localized and mixed deposits. The difficulties inherent in identifying archaeological features in mixed sub-soils have been commented upon by other excavators working in areas where geomorphology has been heavily influenced by fluvio-glacial processes (eg Barclay 1982; Ralston & Reynolds 1981).

Examination of the surrounding soils established that the greater part of the terrace consisted of deposits of red, sandy clay. These deposits were derived mainly from Permian sandstones, with large quantities of either broken or rounded stones of this rock present. Even more abundant was greywacke, the source of which is located some distance away from the terrace. These deposits have probably been subject to both glacial and fluvio-glacial action at different periods. The latest of these fluvio-glacial events is evident



ILLUS 3 Structure F136

near the edge of the terrace, where the parent material just described is overlain by up to 0.6 m of red-brown sand and rounded gravel.

Fluvioglacial processes involve the transport of large quantities of material in glacial meltwater, sometimes over considerable distances. The mechanisms which control deposition are complex and heavily influenced by factors such as topography, fluvial velocity and the nature of the material being transported. Deposition can take place over considerable periods of time, with earlier deposits often reworked and mixed by the continual action of moving water. Both of these processes were evident at Beckton Farm, where gravels, sands and silts in places appeared as isolated patches while in others they were heavily mixed.

## BUILDINGS

### *Structure F136 (illus 3)*

A possible clay-based floor layer (F136) was bounded by stake-holes around its perimeter; these enclosed an area about 4 m in diameter. Some of the stake-holes lay outside the area defined by the clay deposit, while others were visible in the upper surface of the outer edge of the deposit. The most striking stake-hole (F210a) was carved into a block of stone protruding through the natural subsoil. The hole had a rectangular outer edge but penetrated the rock as an inverted pyramid, for a depth of around 60 mm. Chisel marks were evident around the edge of the stake-hole (see discussion of worked stone assemblage). The only possible exception to the use of stakes

in the construction of this building appears to be a small truncated post-hole (F171) which sits in line with the wall on its southern side.

Running parallel with the line of the stake-hole wall which defined the northern portion, but sitting just over 0.5 m outside the structure, was a silted slot, some 0.25 m wide and 0.12 m deep. The cut of this feature sloped gently from the north but rose rather more abruptly on the southern (closest to structure) side (A-A in *illus 3*). Its function is unclear, although its proximity to the structure and the fact that it runs parallel to the wall suggests that it was related to the building in some way.

Although it has been suggested that deposit F136 represents a floor, it is equally possible that it is the remains of the building's collapsed daub walls (Patrick Ashmore, *pers comm*). This suggestion may be supported by the fact that the deposit sat proud of the surrounding natural soil, rather than being slightly depressed through trampling. This is the interpretation which has been applied to similar deposits excavated at the Neolithic settlement of Barnhouse in Orkney (Richards 1996). Such an interpretation may explain the presence of two deposits, one (F136) partly overlying the other (F209). It is possible that the lowest of these (F209), which was paler in colour and had a small concentration of charcoal sitting on it, represents the floor, while the upper deposit (F136) represents the collapse of the building over the floor area. Phosphate samples removed from the upper surface produced no evidence for enhancement as would have been expected from a floor, although regular cleaning may have prevented substantial phosphate build-up. These low readings would not, however, be at odds with a collapsed wall, which one would expect to provide lower phosphate levels than a floor.

For most of its circumference the wall was represented by a single row of stake-holes, but there was a marked increase in their density in the south-western portion. The picture here is somewhat confused, as the area to the south of the structure was occupied by an apparently irregular scatter of stake-holes which extends across the ground occupied by the two four-post structures. This scatter appears also to extend into the area occupied by the stake-built structure (F136), thus making it impossible to distinguish those stake-holes representing the structure from those belonging to the scatter.

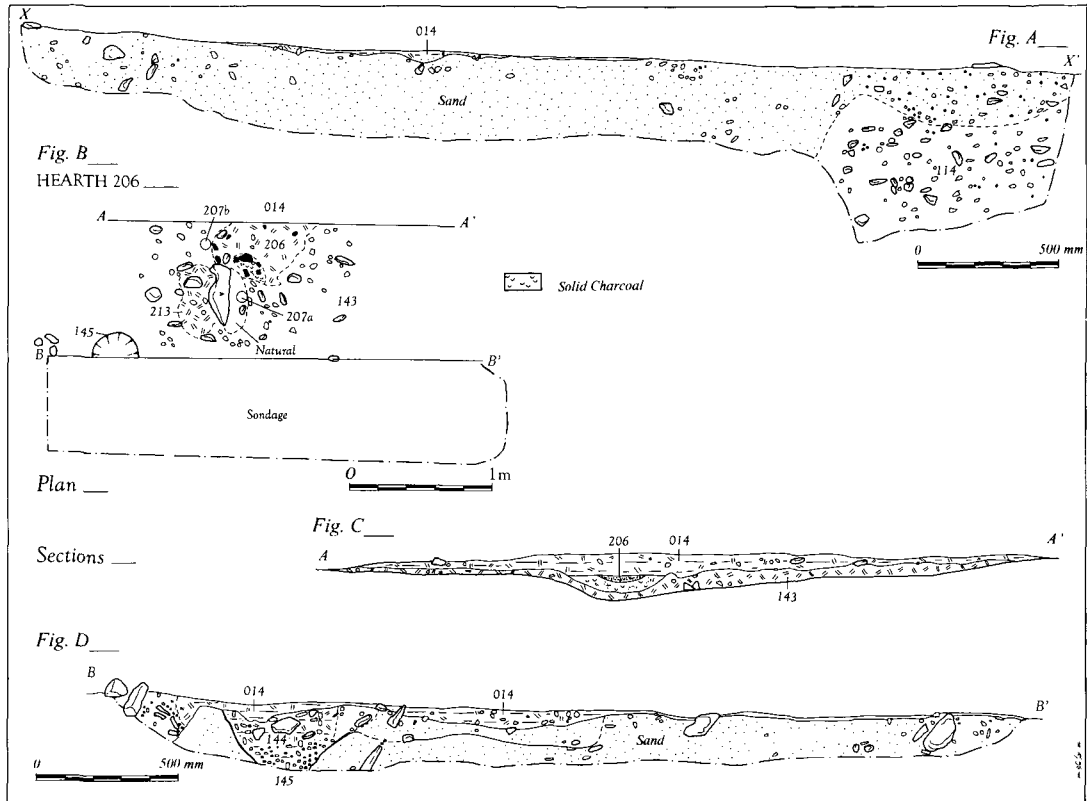
No evidence for internal features was identified, other than several intruding stake-holes in the south-eastern portion, some of which may post-date the structure and relate to the stake-hole scatter mentioned above. The very ephemeral remains of an internal hearth may have been represented by charcoal fragments and a patch of dark staining on the surface of the lower floor deposit (F209).

Although charcoal was recovered, plant remains were generally sparse in the clay-silt spreads. Most common here, as in the charcoal assemblage as a whole, were *Corylus* (hazel), Pomoideae (hawthorn and related berry-bearing species) and *Quercus* (oak). A few fragments of *Prunus avium* (wild cherry) or *Prunus padus* (bird cherry) were also recovered from five of the six sampled clay-silt spreads. The evidence for the local woodland is discussed in greater detail below. Pomoideae fragments were particularly numerous in sample S101 from spread F136, the possible floor. A sample from F136 also contained hazel-nut shell fragments, the remains of probable food debris that may have been discarded onto domestic fires.

### *Structure F143 (illus 2 & 4)*

More convincing evidence for a hearth, albeit one associated with a poorly defined structure, was found some 10 m to the south of structure F136. This feature was first detected during cleaning of a section of a narrow slot trench cut into the sub-surface during the evaluation phase. A grey silt deposit visible on the surface (F014) was found to be 0.01–0.08 m thick (*illus 4: A & C*). This evidently accumulated within the slight depression created by a trampled floor. Two stake-holes (F207a/b) had been cut into this surface in close association with the remnants of a hearth (F206). Here charcoal fragments were found within an area of discoloured clay which appeared to have been burnt. A stone slab set at an angle along with the two stake-holes may represent the remains of a hearth setting and armature related to the use of the hearth, perhaps to support cooking vessels.





ILLUS 4 Plan and section of Structure F143

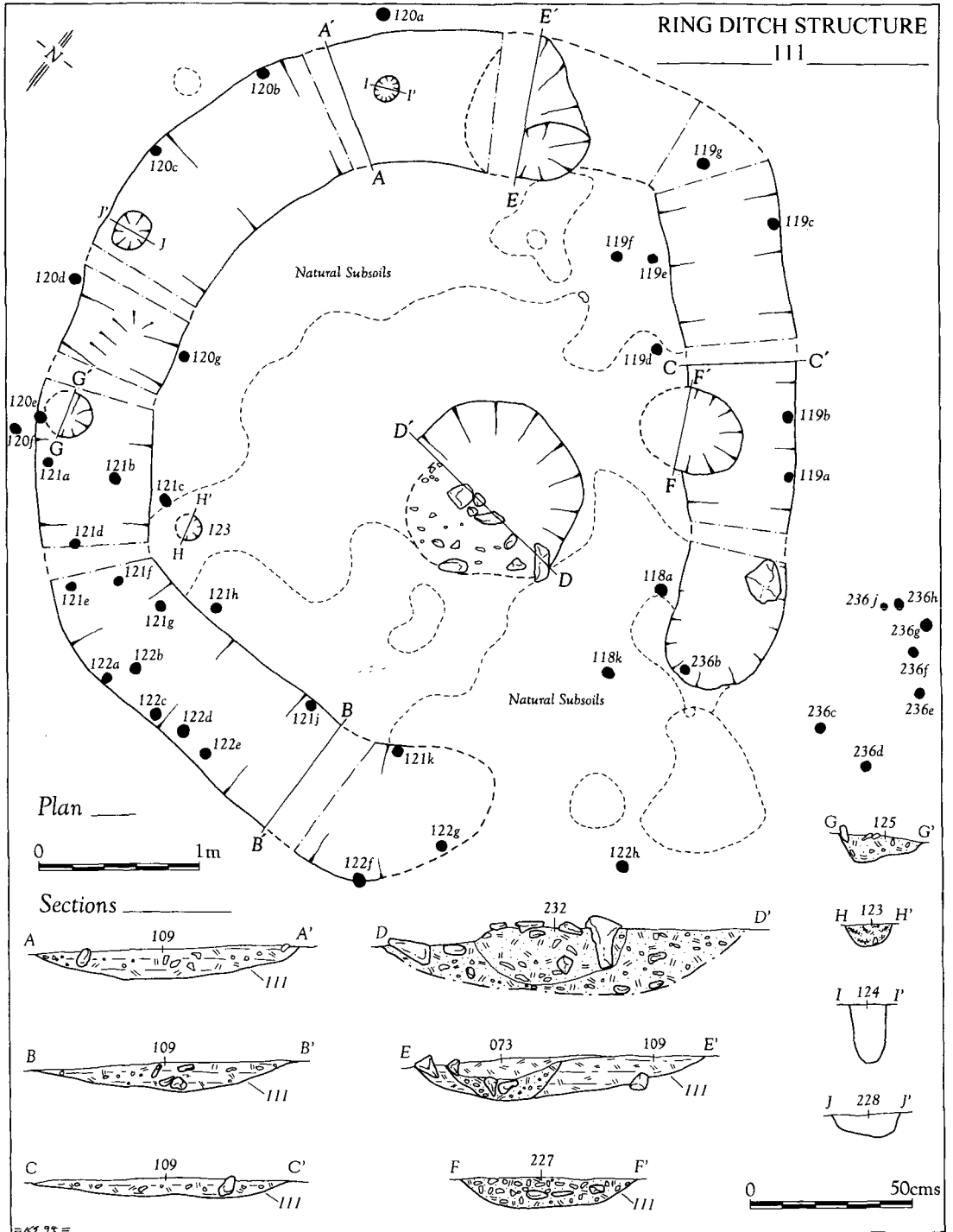
The few charcoal fragments in the hearth fill (F206) were largely oak, with some hazel. This charcoal provided an accelerated radiocarbon date (AA-12588) of  $4660 \pm 95$  BP (3650–3100 BC), which was the earliest determination from the site. This early date would also be in keeping with the recovery of fragments of what have been described as Western Neolithic type pottery from this area during the evaluation (Terry 1990).

The presence of a post-hole (F145), also sealed below layer F014, suggests that the hearth and the surface upon which it sits may have sat within some sort of structure. However, it was not possible to establish a relationship between the post-hole and other structural features and so the suggested building must remain hypothetical. The only find from this series of features was a flint core rejuvenation flake (AFT) recovered from the upper fill (F144) of the post-hole (F145).

A number of stake-holes were observed on the upper surface of the overlying silt deposit and a small pit (F141), possibly a post-hole, was cut through the floor deposit toward its northern edge. Although these features may provide further evidence for a building related to the floor, it is equally likely that they were created at a later date.

*Structure F111 (illus 2 & 5)*

This feature represents the clearest evidence for a building on the site. It was defined by silts which filled a penannular-shaped cut (F111) in the subsoil enclosing an area roughly 4 m in diameter (illus 2). Various sections were cut through the yellow silty sand fill, which included what



ILLUS 5 Structure F111: the ring-ditch

appeared to be packing stones, to reveal a shallow foundation trench or ring-ditch, with a curved base. Cut into the base of this ring-ditch and along its inner edge were a number of stake- and post-holes. Along the eastern and southern sides of the trench the stake-holes appeared in double rows, the outer row cut into the outer edge of the ring-ditch base while the inner row tended to be cut into the area defined by the ring-ditch near its inner edge. Three small post-holes were identified within the base of the ring-ditch, two of them (illus 5: sections I-I & J-J) in the north-eastern portion where only a single row of outer stake-holes was found. At least one small post-hole (F171) sat within the structure itself, but again located near the inside edge of the ditch (illus 5: section H-H).

Some evidence for an off-centre post-hole perhaps related to roof support (illus 5: section D-D) was found within the area defined by the ditch. This feature was not as well defined as those within the ditch itself and required considerable over-cutting before the subtle change between the natural subsoil and the silty fill (F232) could be discerned. The deposit which partly covered the internal area did not, as in the case of the clay deposit in the stake-built house (F136), represent a residual floor or occupation surface, but silt which lay directly upon natural subsoils. Any remains of internal flooring or occupation deposits appear to have been removed by the plough, and this may well explain the lack of a hearth within the structure.

The entrance was located in the south-eastern side of the structure, where stake-holes defined the termini of the ditch. A series of external stake-holes (F236a-g) on the northern side of the entrance formed an irregular arc in plan which may relate to a small lean-to built against the outer wall of the structure, perhaps representing part of the entrance.

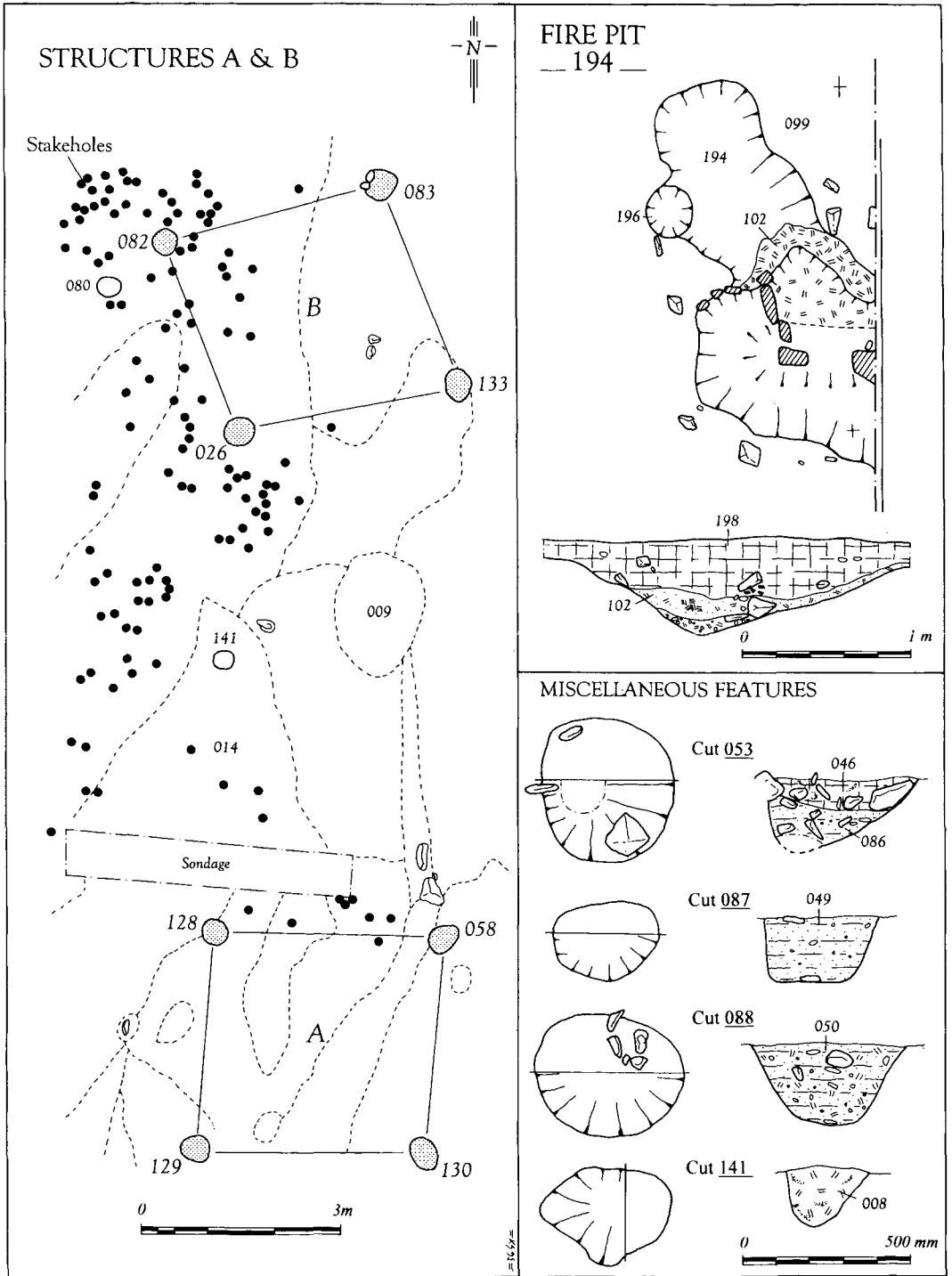
Despite extensive sampling, the ring-ditch house proved relatively poor in plant material, and this again may be due to the truncation of the feature by later activity which included ploughing. Small quantities of *Corylus* (hazel), Pomoideae and *Quercus* (oak) charcoal were recovered from the stake-holes, post-holes and ditch fill. Single *Betula* (birch) fragments were present in two contexts (F120 & F228). Caution is required when interpreting the material present in post-holes and stake-holes, as this may have entered the deposits long after their original use, perhaps after the posts and stakes had been removed or had rotted away. (It was for this reason that charcoal from the inner post-hole (F171) was not submitted for radiocarbon assay.) Sample 134 from a later, silt surface overlying the ring-ditch house produced only three fragments of charcoal (hazel, hawthorn/crab apple/rowan).

Despite the lack of a radiocarbon date from this structure, the presence of a Grooved Ware sherd (P10) within the fill of the ring-ditch provides a late Neolithic *terminus post quem* for this feature, which is interpreted as the construction or foundation trench for the walls of the building. Analysis of the pottery has further established that this sherd came from the same vessel represented by sherds in a pit (F80) which also contained cremated human and animal bone (below).

#### *Four-post structures (illus 6 & 7)*

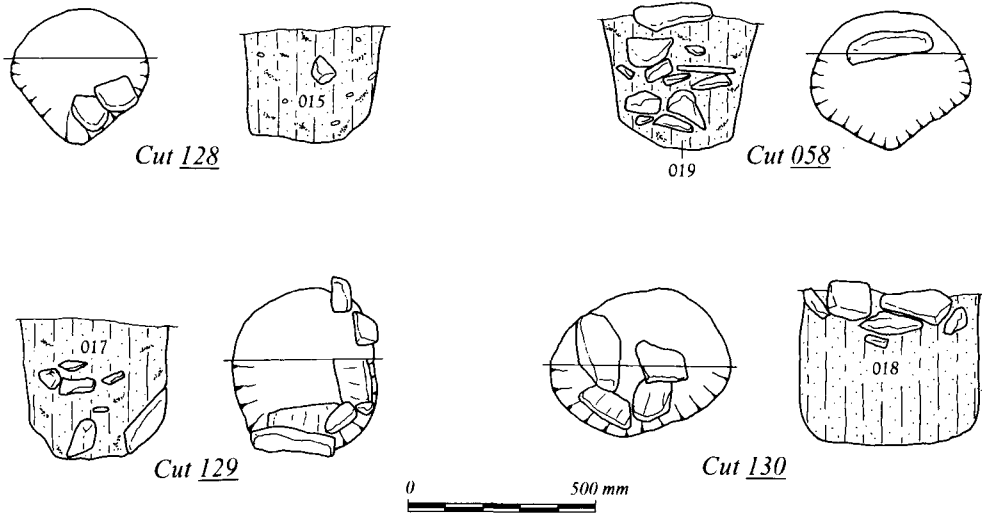
Each of these structures was represented by four post-holes, approximately 0.4 m in diameter and 0.5 m deep, which roughly defined a square with sides 2 m in length. The fills were, variously, grey or brown silty loams with occasional charcoal flecks. Probable or possible packing stones were present in all of the pits, although a post-pipe could be identified with any confidence only in one example (F133); this represented a post with a diameter of 0.15 m.

Sixteen charcoal samples from the post-hole fills were examined. The majority of these contained a mixture of species with overall weights of less than 1 g. Two slightly richer fills (F008 & F081) had a mixture of *Corylus* (hazel) and Pomoideae (including rowan fragments). *Quercus* (oak) was generally less well represented than in other feature groups. Proportionally, there were more *Alnus* (alder) and *Betula* (birch) fragments in these samples, although the constant taxa were again hazel, Pomoideae and oak. As with alder, *Salix* (willow) may represent wood collected from damp or low-lying ground. A single fragment of *Ulex* (gorse/furze) type from one charcoal-poor fill (F006) may represent *Ulex europaeus* or *Ulex gallii*, although the former is more likely.

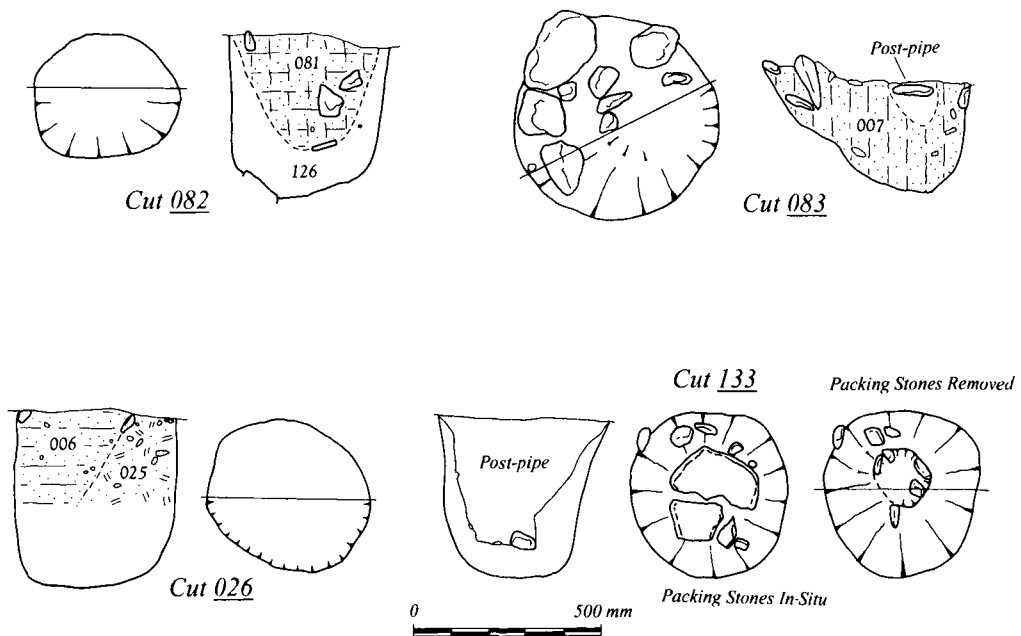


ILLUS 6 Four-post structures A & B; 'fire-pit' F194; miscellaneous cut features

STRUCTURE A



STRUCTURE B



ILLUS 7 Pits of the four-post structures

Five *Hordeum* (barley) grains and 21 *Corylus avellana* (hazel-nut) shell fragments were recovered from these deposits. Where it could be determined, the cereals were of naked type. Although this represents the largest concentration of cereals from the site, it provides very limited evidence of an agricultural function for the four-post structures. The recovery of only slightly more cereals here, than from other parts of the site, may simply reflect the very detailed sampling carried out in this area.

## OTHER FEATURES

### *Post-holes*

A number of other post-holes were found scattered across the site. On the whole these appeared in apparent isolation or in haphazard arrangements and it is difficult, therefore, to assign them to particular structures or purposes.

One group of five post-holes which did appear to be associated with one another was found toward the south-eastern corner of the main excavation trench, where they formed a linear arrangement, extending east/west over a span of 6 m, at equal intervals of 1.5 m intervals. No evidence was found to suggest that these post-holes were related to a building, although plough truncation may of course have removed more ephemeral traces. As with other features on the site, providing a ready interpretation is difficult, with the limited extent of this group of features suggesting that it does not represent a fenceline, perhaps the most obvious explanation for a single row of post-holes.

Two post-hole fills (F049 & F050) contained single finds of hazel charcoal and hazel-nut shell. Fill F046, from cut F053, contained over a hundred small birch charcoal fragments. Although the overall weight is low (1.5 g), the cleanliness of this deposit may point to an *in situ* burnt post.

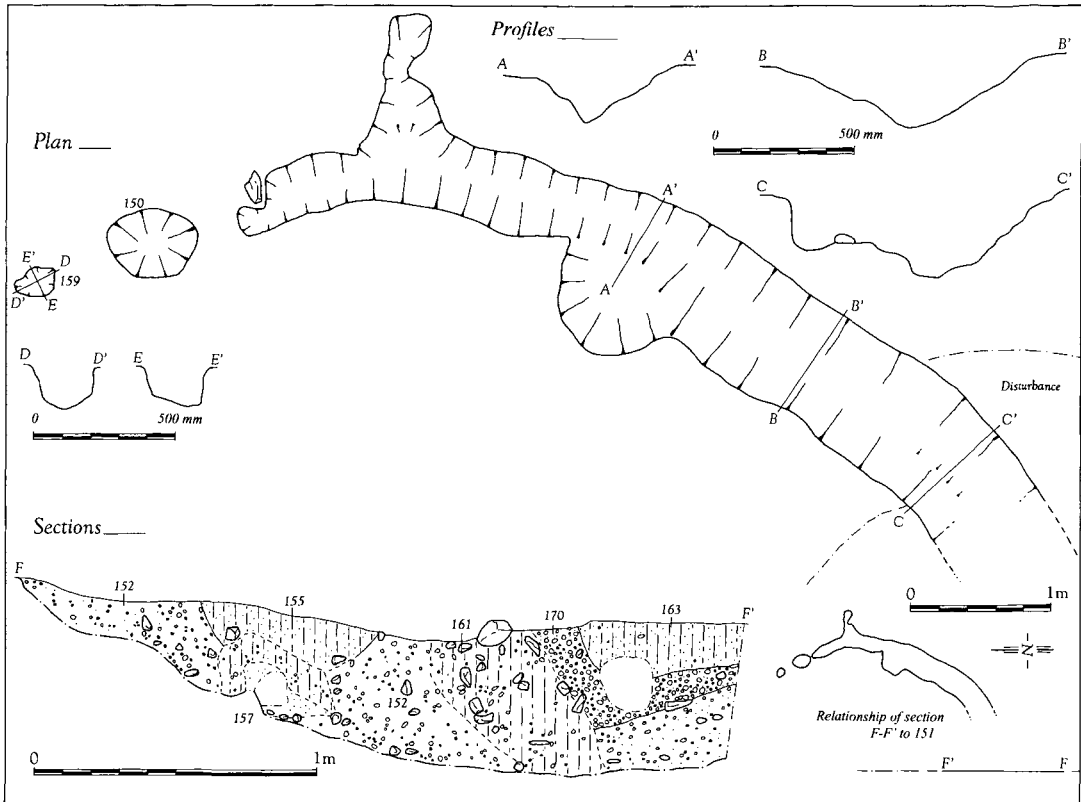
### *Stake-holes*

It has already been shown that stakes driven vertically into the ground played an important role in the construction of buildings at Beckton Farm. However, the vast majority of stake-holes scattered across the site were more difficult to interpret. Many of these appeared in irregular groupings, from which, on the join-the-dots principle, any number of patterns could be picked out. Many became visible only after the repeated trowelling of the subsoil surface. As it was not possible to clean the entire site to the degree required before stake-holes became readily visible, it cannot be stated with confidence that all stake-holes present were identified during the excavation. The area occupied by the four-poster settings was selected for intensive cleaning and this resulted in the identification of numerous stake-holes. The high density of stake-holes and their irregular pattern strongly suggests that this scatter represents a palimpsest.

### *Curvilinear ditch F151 (illus 8)*

Among the most enigmatic features on the site was the curvilinear ditch located at the southern end of the extension trench. This extended over an arc of about 6 m and was filled with a red gravel which was quite distinct against the lighter natural sand into which it was cut.

The profile of the ditch varied along its length: it was generally 'V' shaped (illus 8: sections A-A, B-B), although in places the southern side appeared to have been stepped (illus 8: section C-C). Unfortunately, the northern end of the ditch could not be defined as this area was heavily disturbed by a number of rabbit burrows. This curvilinear cut yielded little clue as to its date or function. The western extension trench in which it was discovered had been opened in an effort to locate any trace of a palisade. However, the small scale of the curvilinear trench and the lack of evidence for upright posts within it make this feature an unlikely candidate. It is even more unlikely, given its V-shaped profile and its gravel fill, to have been either



ILLUS 8 Curvilinear ditch F151

a naturally sedimented or animal dug feature. One other possibility, which cannot be confirmed on present evidence, is that it is a remnant of the wall trench for a large, heavily truncated round-house.

*Other possible hearths or fire-pits*

Although small amounts of charcoal were present within most of the archaeological features scattered across the site, only a few appeared to represent locales at which burning actually took place. The majority of these features consisted of pits or shallow scoops. This containment within pits or hollows may be one reason why the majority of fires appear to be outside while the structures themselves appear in general to be bereft of hearths. If hearths inside structures were raised up from the floor, perhaps on stone slabs, then all trace of these would quickly be removed by the plough. Thus the concentrations of charcoal which were found inside Structures 111 and 136 may have originated, after all, from truncated hearths.

As the fire-pits, recessed fire-spots and possible hearths described below are generally external and apparently unrelated to structures, it is difficult to assign them any particular function. It is possible that external fires may have been used like indoor hearths, providing cooking facilities, light and a social focus. It is also possible that more specialized functions belonged to these external fires, such as pottery production or refuse burning, but these uses are not apparent from the evidence available.

**F090 (illus 9)** This oval, basin-like pit contained an upper fill of red brown clay-silt (F052) with frequent small rounded stones but also six larger stones, including two flat, irregular slabs which may represent some form of hearth setting. Also recovered from this fill were a number of highly abraded sherds of coarse ware, apparently from three vessels (nine sherds of P17; two each of P37 and P46.)

The fill beneath the flat stones differed from that above. It was a lighter grey silty clay (F089) with a heavier charcoal content distinctly concentrated toward the western edge of the pit. This fill overlay a basal deposit of loose gravel in a silty matrix, though this appeared somewhat mixed with the underlying gravel subsoil.

Both of the major fills were found to contain a mixture of hazel and oak charcoal, with a few bird or wild cherry fragments. A sample from the lower fill (F089) was dominated by hazel, but also produced the largest single deposit of alder from the site (3.4 g), as well as charcoals of oak heartwood and a few hazel-nut shell fragments. Charcoal from the upper fill (F052) provided a radiocarbon date of (GU 3538)  $4070 \pm 90$  BP.

**F022 (illus 2)** This charcoal-rich deposit was found to sit within a shallow hollow scraped into the subsoil. Analysis of the charcoal recovered from this feature established that most of the wood burnt in the fire was oak.

**F194 (illus 6)** The most complex feature associated with the use of fire was situated against the northern baulk of the main excavation trench. Before excavation the feature appeared as a clay-silt spread (F097) similar to many of the others scattered across the site. In section it was revealed to be the silty fill of an irregular pit, which contained a sub-rectangular clay-lined trough. On the eastern side the clay wall of the trough was replaced by a linear arrangement of set stones (F199). This may represent the lining of a stoking hole or flue, with the presence of large quantities of charcoal clearly suggesting a fire-related use for the feature.

A single post-hole (F196) lay to the south-west of the trough and was itself cut into the base of the irregular pit. Establishing a function for this post-hole is difficult. It may either directly relate to the function of the fire-pit or represent the remains of the structure which once housed this feature.

The function of the fire-pit itself is far from clear, although the radiocarbon date of (GU-3535)  $3960 \pm 60$  BP from charcoal in the uppermost clay silt spread certainly makes an association with any form of metalworking unlikely. The trough itself has some affinity with those found beneath so-called burnt mounds. Although many of these appear to be Bronze Age, their use now appears to extend back at least into the Neolithic (Pollard, forthcoming). However, the absence of burnt stones at Beckton Farm makes this an unlikely function. Alternatively, the trough may have been used as a pottery kiln, a corn-drying kiln or perhaps an oven; unfortunately, no specific function can be identified on present evidence.

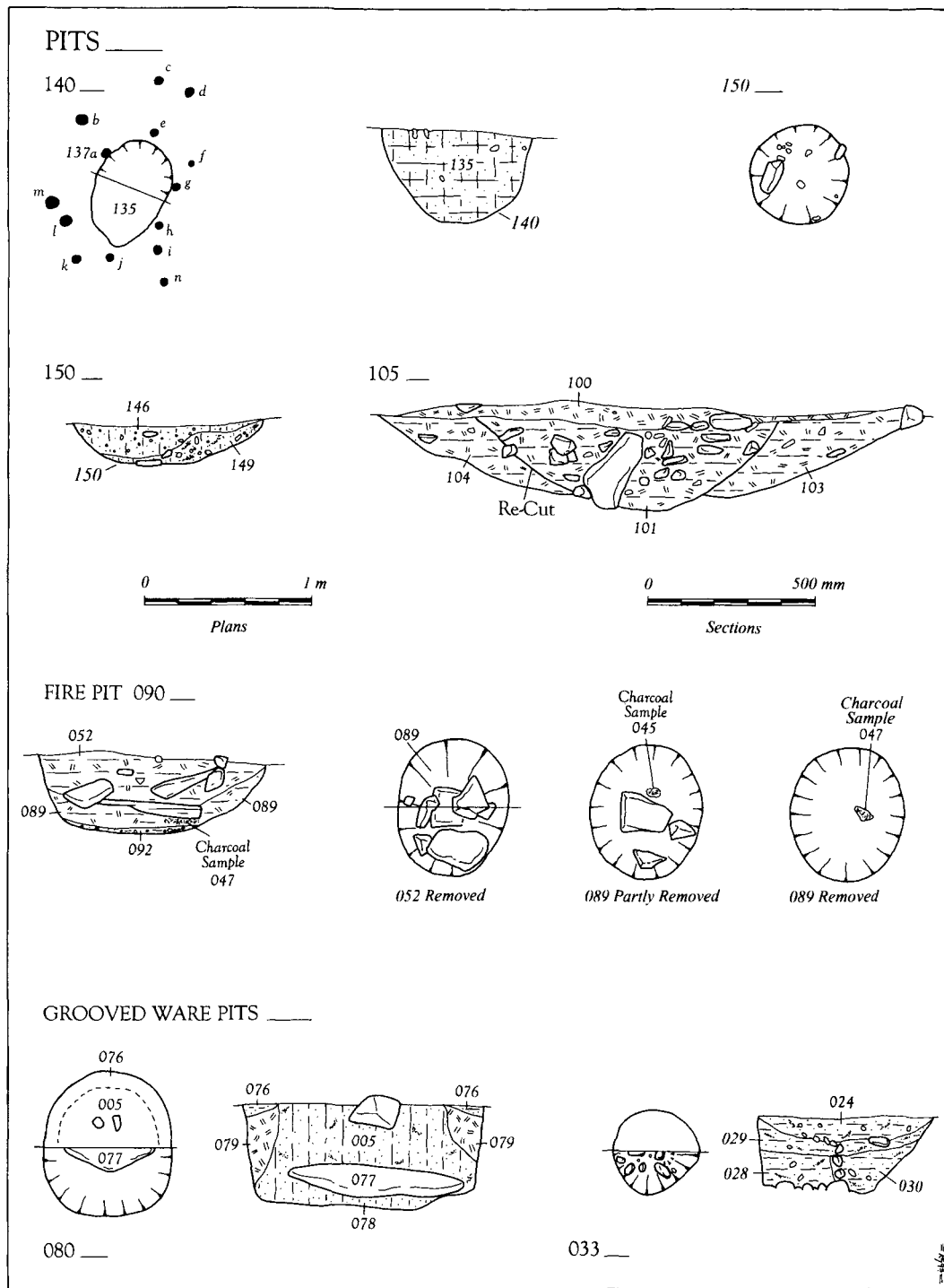
Samples containing charred plant remains were recovered from the fill of the clay-lined trough and the clay-silt spread which overlay it. Charcoal from both deposits was almost entirely oak, with a few hazel and wild or bird cherry fragments. The burning of mature oak timber is indicated by the presence of oak heartwood. The pattern of growth rings on many oak fragments from the upper layer (F097) suggests that only a few pieces of timber were present. This implies a limited number of burning episodes, with evidence for earlier burnings probably cleaned away during the use of the feature. As noted above, a single charred grain of *Hordeum vulgare* var. *nudum* (naked six-row barley) was recovered from the lower deposit (F197). Two hazel nut shell fragments were present in the upper fill.

The only artefact recovered from this feature was what appears to be a fragment of broken saddle quern (AGF), which along with a single grain of naked six-row barley may suggest some association with grain processing.

### *Grooved Ware pits*

**F080 (illus 7)** This feature was one of the first identified following initial surface cleaning, as its dark humic fill was highly visible against the lighter sandy background. Excavation revealed a deposit of Grooved Ware





ILLUS 9 Grooved Ware pits and other cut features

sherds concentrated within the centre of the fill, which was also found to contain fragments of cremated human and animal bone. The dark loamy fill (F005), which was rich in charcoal fragments, rested upon a flat stone which covered pit bottom; a thin deposit of silty earth (F078) lay beneath the stone.

The pit contained 30 highly abraded sherds of a single Grooved Ware vessel (P8). Other sherds from this vessel (P10 & P12) were found both in the fill of the ring-ditch described above (F109) and as a stray find on the subsoil surface toward the western edge of the main trench. The pit also contained a single sherd of coarse ware (P9) in a similarly abraded condition.

Fragments of very immature animal bone were identified within the upper fill (F005), together with probable human long bone fragments, possible antler fragments and an animal tooth (McKinley, below). One fragment of immature, probably animal, bone was identified within the lowest or basal fill (F078), together with other unidentified bone fragments. All of the bone appeared well oxidized, being uniformly buff/white in colour. The bone fragments were all small — maximum fragment 13.2 mm — doubtless in part due to burial conditions. Only very small quantities of bone were recovered, with a maximum amount of 7.4 g from the upper fill, which would represent no more than 0.7% of the expected bone weight from an adult cremation (McKinley 1993).

Analysis of the charcoal recovered from the central fill of the pit provided a radiocarbon date of (GU-3534) 4220 ± 60 BP. The hazel, Pomoideae and oak charcoal was found in association with cremated bone, and may represent the wood used in the original cremation fire.

**F159 (illus 8)** This small irregular pit, with a sandy loam fill (F069), contained sherds of Grooved Ware from at least two different vessels. The first (P1) was a small, thin-walled vessel, decorated with incised triangular chevrons with stab-drag infill below. Most of the pot was represented by the sherds deposited in the pit. This vessel appears to stand apart from the rest of the assemblage in terms of decoration, relative preservation and the distinctive form of fabric which contains inclusions of grog (crushed fragments of pottery used as temper). The second vessel (P2) was represented by a large fragment displaying applied and incised cordons. (Decorated sherds P3, P4, P5, P6 and P7, as well as 12 other, undecorated sherds were deposited elsewhere in this pit may also come from vessel P2.) Neither vessel was abraded. This, along with the deposition of a large water-rolled stone directly above vessel P2, suggests the pots were deliberately smashed before the sherds were placed in the pit. There were no coarse ware sherds in this context.

As in the case of the fire-pit (F080), charcoals of hazel and Pomoideae were recovered from pit F159 and yielded a date of (AA 12587) 4150 ± 95 BP.

**F150 (illus 8 and 9)** One further pit containing Grooved Ware was found just 1 m to the north of pit F159, described above. This had been cut into the western edge of an earlier rectangular depression which was found to contain a few fragmentary charcoals of hazel, oak and Pomoideae. The later pit (F150) was sub-circular and had a shallow, basin-like profile. It was found to contain a medium brown sandy loam (F146) which overlay a deposit richer in charcoal (F149), though the distinction between the two was not well defined. Both the upper and lower fills contained pottery and lithics.

Six abraded sherds of coarse ware (P18, P19, P20 & P21[3 sherds]) and a single sherd of Grooved Ware (P11), were recovered from the upper fill, and two further sherds of coarse ware (P15 & P36) from the lower fill. The Grooved Ware sherd had applied cordons and was unrelated to the vessels recovered from other pits. Numerous additional small fragments of coarse ware were recovered by sieving a sample of the upper fill. This fragmentation, along with the abraded nature of the larger coarse ware sherds, strongly suggests that the material in this pit represents rubbish redeposited from other parts of the site.

The lithics from this feature consisted of six pieces from the upper fill (ADW, ADX, ADY, ADZ, AEB & AEC) and two from the lower fill (AEG & AEJ). Most of this material represents waste produced in the manufacture of stone tools, with many irregular flakes and fragments of flint, one of which displays a hinge fracture (ADW). Sieved soil samples from the pit yielded numerous fragments of micro-waste, providing further evidence for flint knapping on the site. A flint end scraper (ADW) is a rare example of a formal tool type on the site.

The charcoal from the lower fill (F149) produced a radiocarbon date of (GU-3533)  $4360 \pm 60$  BP, the second-earliest date from the site, placing the activity represented by the various pit contents within the middle Neolithic. The presence of late Neolithic Grooved Ware in the upper fill suggests that the pit was used over a considerable period of time; alternatively, the fills incorporated material from several periods which were incidentally redeposited within the pit. A number of charred hazel-nut shells were identified within the fills; these were perhaps the sweepings from domestic fires. Whatever the original purpose of the pit, its contents may result from the disposal of refuse, including the waste produced in stone tool manufacture.

### *Other pits and hollows*

**F033 (illus 9)** This feature lay close to the southern baulk in the south-eastern portion of the main trench (illus 2). In section it was found to contain a number of fills, principally charcoal-flecked sandy silts of varying hues which contained both coarse pottery and flints. Within the basal fill a number of stones appeared to represent post-packing. The lack of evidence for a post-pipe in the upper fills suggests that the post may have been removed and the pit subsequently used as a repository for pottery sherds and other material which occurred in the upper fills.

The artefactual material in the upper deposits consisted of two sherds of coarse pottery (P14) with similar fire-reddened fabrics, one of which was totally unabraded, thus suggesting rapid deposition after breakage. The lithics included a secondary core rejuvenation flake of grey flint (ALM), which displays a prominent hinge fracture, and a small waste flake of yellow/brown flint (ALM). A burnt flake of flint/chert and three pieces of flint waste were also recovered; the latter indicate the manufacture of stone tools on the site.

Some unidentifiable fragments of burnt bone were recovered from one of the upper fills (F029). Two fills (F024 & F029) produced charcoals of alder and oak, with traces of birch and Pomoideae, with wild or bird cherry present in one of these (F024).

**F140 (illus 9)** The fill of this round-based pit consisted of a yellow/brown sandy silt which gradually dried out against the surrounding natural red sand occupying the south-western corner of the main trench. It contained some small charcoal fragments and a few small stones. The pit was surrounded by a series of 14 stake-holes (F137 A–N), although at least one of these (B) may have been an animal burrow or a stake-hole damaged by burrowing. Animal burrows were also visible in the fill of the pit.

Although less than 0.5g of charcoal was identified from the fill of pit F140, this included charcoals of birch, hazel, Pomoideae, wild or bird cherry and oak. Four hazel-nut shell fragments were also present. A few fragments of oak charcoal were recovered from one of the surrounding stake-holes (F137).

**F106 (illus 2)** Like the clay-lined fire-pit previously described, a number of features initially appeared as silty spreads, some of which were provisionally interpreted as floor spreads. The first of these to be investigated was linear fill F106, a fine, compact sandy silt (F106) with occasional small stones. Some very denuded sherds of pottery and pieces of flint were recovered from this deposit. The lower fill (F107) was a pale sandy silt containing some occasional grit. In places it was difficult to distinguish the boundary between this deposit and the underlying subsoil.

The cut of this feature was found to consist of a series of shallow irregular hollows extending to an overall span of 6.5 m north/south, with an average width of 1.5 m and a depth of 0.03 m.

During excavation the structure and texture of the silt deposit suggested some affinity with the clay floors identified elsewhere on the site. The presence of heavily denuded fragments of pottery and lithics within the deposit seemed consistent with this interpretation, perhaps representing material dropped and then trampled into a floor. However, the only evidence for a structure here took the form of three stake-holes cut into the base of the gently sloping depression. These stake-holes were covered by the clay/silt deposit and do not appear to bear any direct relationship to this layer. Micromorphological analysis carried

out on a column sample removed from the deepest part of the deposit (Carter below) established that this had formed as a result of natural processes, with artefactual material finding its way into the matrix from other parts of the site.

The original function and appearance of what was ultimately found to be a series of shallow hollows is difficult to ascertain. The presence of stake-holes cut into the base of one of these hollows points to an anthropogenic rather than a natural formation process.

**F231** This second silt-filled shallow depression lay some 2 m west of F106. Again, the feature was initially defined by an irregular patch of grey silt, although in this case a charcoal stain was visible in the upper surface of the spread. Excavation revealed an elliptical hollow filled with a compact clay silt which contained 20% gravel and frequent fragments of charcoal. A lower deposit contained less gravel but did contain some larger stones.

Other pit-like features included shallow, compact silt fills which were probably natural sediments (eg F113) or, alternatively, natural sediments which had formed within the surface of subsided or re-cut pits (eg F100: illus 9).

### *Stone spread (illus 2)*

The dominant characteristic of the subsoil surface was its variability, with the fluvioglacial sands, gravels and clays creating a complex multicoloured patchwork punctuated, here and there, by archaeological features. However, the eastern edge of the main trench stood out in some contrast to the mixed palette of earth visible elsewhere. The most striking characteristic of this area was the large number of stones scattered across the subsoil surface. Stones were present on other parts of the site, but not in the concentrations in which they occurred near the eastern baulk, and most strikingly in the north-eastern corner of the main trench.

As with other features on the site, offering a hard-and-fast interpretation for the stone scatter is difficult. However, despite these difficulties there is some evidence to suggest that the stone scatter represents little more than the clearance of stone from other parts of the site and the movement of stones through the action of ploughing. Experimental work has established that artefacts and other objects, including stones, are subject to lateral movement by the plough (Yorston *et al* 1990). This movement at Beckton Farm may have been accentuated by the gradient, with stones gravitating toward the eastern part of the trench, at the bottom of the gentle slope. The presence of stones over a number of negative archaeological features (including pit F101) may further suggest that they were deposited in this vicinity after the abandonment of the prehistoric settlement, possibly when ploughing began.

## RADIOCARBON DATES

Six radiocarbon dates were obtained from the site, two of which were, due to the small size of the samples, obtained using the AMS technique.

The minimum possible period of activity defined by these dates is 450 years (in the case of minimal date-range overlap) and the maximum some 1350 years (if one takes into account the full range, starting with the oldest end of the earliest date's standard deviation and ending with the youngest end of the latest date's standard deviation). There is every possibility, however, that site activity was not confined within these dates, with undated features relating to later or perhaps even earlier periods. Furthermore, although the choice of sample material involved a careful screening and selection process, the small size and abraded condition of some of the charcoal

TABLE 1  
Radiocarbon dates

Lab code	Context	Years BP	Calibration to one-sigma level	Calibration to two-sigma level
GU-3533	Pit fill F149 in Grooved Ware pit F150 <i>Quercus</i> (oak) <i>Corylus</i> (hazel) Pomoideae (hawthorne etc)	4360 ± 60	3074–2915 BC	3298–2890 BC
GU-3534	Fill F005 in Grooved Ware pit F080 Pomoideae <i>Corylus</i> (hazel) unidentified charcoals	4220 ± 60	2912–2701 BC	2923–2617 BC
GU-3535	Fill F197 in fire pit F194 <i>Quercus</i> (oak) <i>Corylus</i> (hazel) <i>Prunus avium/padus</i> (wild/bird cherry)	3960 ± 60	2577–2404 BC	2855–2290 BC
GU-3538	Fill F052 in fire-pit F090 <i>Quercus</i> (oak), <i>Corylus</i> (hazel), <i>Prunus avium/padus</i> (wild/bird cherry)	4070 ± 90	2577–2404 BC	2855–2290 BC
AA-12587	Fill F069 in Grooved Ware pit F159 Pomoideae <i>Corylus</i> (hazel), unidentified charcoals	4150 ± 95	2886–2611 BC	2910–2501 BC
AA-12588	Hearth fill F206 Pomoideae <i>Corylus</i> (hazel) <i>Quercus</i> (oak) unidentified charcoals	4660 ± 95	3614–3345 BC	3650–3100 BC

means that some residual charcoal (ie soil inclusions from an earlier period) may have been present in the dated features.

## SPECIALISTS' REPORTS

### CERAMICS

Andrew Jones

The ceramics from Beckton Farm represent two basic types: Grooved Ware and coarse ware. Both form fairly discrete groups, each of which appears to have been subject to a specific depositional strategy. The material was analysed in several different ways in order to elucidate both the manner of use and depositional strategy. Although the assemblage is fairly small, a number of interesting points emerge, particularly concerning the use and deposition of the Grooved Ware.

One salient observation which emerges from a consideration of the depositional patterns at Beckton Farm is that ritual activities cannot be viewed as isolated, decontextualized events but as the structured playing out of an existing set of social relations which are part of the everyday life of the community (Barrett 1991). It is unsurprising, from this perspective, to find evidence for highly specialized activities occurring in the everyday or domestic sphere, represented by a ceramic assemblage which suggests that such events were perceived as different, and were understood through the production, display and destruction of highly specialized vessels.

### *Grooved Ware*

The analysis and interpretation of Grooved Ware throughout Britain relies very much on the study undertaken by Wainwright & Longworth (1971) in which they considered the Grooved Ware from Durrington Walls in its wider context. This scheme continued in use as a means of understanding the form and decoration of both the southern and northern English material (Manby 1974), even though the categories as originally defined overlapped considerably. While the southern sub-styles of Durrington Walls, Woodlands and Clacton were seen to be related to the southern Scottish material, with the excavation of more Grooved Ware assemblages, particularly in southern Scotland, distinct categories of sub-style clearly begin to break down.

The southern Scottish Grooved Ware does not appear to fit in stylistically with the earlier material from Orkney (MacSween 1992) and has only some of the elements of the southern English material. Thus, we are left with the assemblages being discussed in a mix and match fashion (see Armit *et al* 1994) which fails to further our understanding of the use of Grooved Ware and the decorative schemes used on the vessels.

It is now clear that a more contextual approach is appropriate. Rather than seeing Grooved Ware culture as fixed and divided into four artificial sub-styles, we should see it as consisting of a series of overlapping elements which are applied according to exigencies of use and meaning. While certain elements may predominate in certain geographical areas and at particular times, we need not see them as fixed sub-styles or sub-cultures. Instead, we should begin to understand Grooved Ware decoration and use according to a series of factors, such as manner of deposition, traces of use, fabric type and condition of vessel, rather than reifying decoration and form and abstracting these from context of deposition or geographical location.

If we take the Grooved Ware assemblage as a whole, a number of contrasts are evident. P8, the Grooved Ware from pit F080 — which also contained coarse ware sherds and burnt human and animal bone — represents a thin-walled vessel with a fair degree of abrasion on its surface. The decoration on this vessel consists of primary decoration with a simple series of incised lines. Some of the sherds from this vessel appear to bear sooting, possibly indicating use.

The Grooved Ware sherds from fill F069 (in pit F159) differ in terms of wall width (P1: 8.5 mm; P2–P7: 10.25–12.4 mm) and type of decoration (P1 has incised chevrons with infilled stab and drag, while P2–P7 have applied cordons with stab and drag incisions every alternate cordon). However, all display similarity in their complex secondary decoration. Unlike the previous example, none of these sherds display any visible signs of charring or use and they are also unabraded. P1, on the other hand, has a completely different fabric, suggesting production at a different time, in a different area or for a highly specialized task.

Here, it is worth noting recent analyses on the Grooved Ware assemblage from Barnhouse, Orkney (Richards 1996), where the comparison of fabric type with wall thickness showed that fabrics with finer inclusions were generally thin-walled vessels and were assumed from their context of deposition to be associated with cooking, while fabrics with large inclusions were generally far thicker walled and likely to have been used for storage. Although such conclusions may be valid when based on the analysis of such an extensive domestic assemblage, as indicators of use for far smaller assemblages in widely different contexts, such as those recovered from Beckton Farm, they are less convincing. However, it is interesting to note that both thin-walled and thick-walled vessels are here deposited in the same context.

The ceramic material at Beckton Farm appears to have been the subject of two different types of depositional practice. The first of these is exemplified by fill F005 (in pit 080) where Grooved Ware is associated with coarse ware, partly echoing the fairly haphazard deposition of these less elaborate ceramics across the site. It would appear from sooting on a number of sherds that the vessel was used repeatedly. Similarly, the Grooved Ware's extreme abrasion and large number of fragments, not only in this context but dispersed across the site, including one sherd in the foundation cut of the ring-ditch house, suggests that the vessel was allowed to fragment for some time prior to its final deposition.

The form of decorated rim on this vessel is paralleled by vessel 19 from the Machrie Moor post-circle (Haggarty 1991) while the use of multiple incised grooves parallels the Grooved Ware vessel from the nearby cemetery site at Kirkburn (Cormack 1963a). This association of similarly decorated vessels with ritual/funerary contexts may suggest that the deposition of Grooved Ware at Beckton Farm took place under similar circumstances, albeit on a smaller scale. Although the

nature of this ritual activity remains somewhat obscure, it is reasonable to suggest that the decorated rim would have enhanced any display and also served to emphasize the vessel's contents.

Whereas the pot sherds in context F005 suffered abrasion before their final deposition, the pottery from the smaller Grooved Ware pit (F069) appears to be the product of a single event, despite the contrasting forms of Grooved Ware deposited. Here the form of deposition is very different; two or more vessels were deposited almost intact and bearing no visible signs of use. All of the vessels have highly complex decoration. The thin-walled bowl appears particularly distinctive, and the inclusion of earlier ceramics in its fabric may indicate the continuation of a ritual ceramic tradition.

The deposition of animal bones with abraded Grooved Ware sherds in a pit suggests an association with the ritualized consumption of food, and additionally may indicate two contrasting notions of purity. The first of these is represented by vessel P8, which was repeatedly used and only deposited after a considerable amount of time, while vessels P1–P7 seem the result of a single, brief act, followed by immediate destruction and deposition.

In conclusion, it can be suggested that some Grooved Ware was used often and only deposited at the end of its use-life or when it was eventually perceived as impure, while other more specialised forms were deposited after one episode of use and may have been perceived to have been defiled by that act. It is interesting to note that this act involved a combination of Grooved Ware styles and forms. This suggests a complex form of ritual, utilizing a number of different substances (vessel contents) in combination. However, it should also be noted that the abrasion on the sherds in the pit which contained human and animal bone, and those elsewhere on the site, was at least partly due to post-depositional factors rather than incurred through use (this latter point being important in the overall consideration of this material in the wider context of the site).

### *Coarse Ware*

Coarse ware sherds were found across the site and were generally associated with occupation spreads or silt fills. Their deposition in a number of pits, post-holes and clay/silt spreads may indicate particular areas of concentrated activity, with the variety of activities reflected in the incidence of different fabric types. Overall, however, the coarse wares do not appear to have been treated and perceived in the same way as the Grooved Ware vessels. Deposition appears far less structured and, in contrast to the Grooved Ware, coarse ware appears to have been repeatedly used and allowed to fragment in areas of continuing human activity rather than rapidly buried after breakage.

**Pit F080 (F005)** contained remnants of coarse bowls P13 and P41, highly fragmented into 12 sherds; this fill also contained sherds of Grooved Ware vessel P8, as well as burnt animal and human bone fragments.

**Context F024** is the fill of a large pit which contained P14, P43 and P47, all of which appear to be of similar fabric (Fabric 5). P14 is a remarkably unabraded sherd suggesting rapid deposition after breakage. Most of these sherds appear reddened by fire.

**Context F052** filled a pit which contained fragments of vessels P17, P37 and P46 (nine sherds of P17; two each of P37 and P46 two each). Although two distinct fabric types are present, all the sherds are highly

abraded. This suggests they were deposited fairly casually along with other occupation debris, after becoming abraded in their primary contexts of deposition.

**Context F089** is the lower fill of the fire-pit and produced a single sherd, P45. Its highly abraded state suggests this deposit was refuse from another part of the site.

**Context F106** is an extensive clay spread, relatively rich in ceramic material and containing sherd groups P24, P26, P27, P31 and P39. While P24 and P26 appear relatively well-preserved, the rest of the material is highly fragmented and abraded, suggesting the intensive use of this area. All the sherds are of Fabric 5.

**Wall trench F109** (the ring-ditch house) contained P10, P25 and P32. Here two groups of highly abraded coarse ware (P25 & P32) were associated with an extremely abraded sherd of Grooved Ware (P10). This pattern of deposition closely resembles that in pit F080 (above), where both Grooved Ware and coarse ware underwent abrasion and fragmentation prior to deposition. The Grooved Ware sherd belongs to the same vessel as that in pit F080.

**Context F135** is a pit fill which contained a single vessel, P44, consisting of six abraded sherds, presumably incorporated after spending some time as part of a midden.

**Context F146** is a spread of clay/silt rich in ceramic material, from which sherds P11, P18, P19, P20, P21 and P35 were recovered. P11 is a Grooved Ware sherd with applied cordons. It is unrelated to any of the Grooved Ware vessels deposited elsewhere. All of the coarse ware is abraded and is of fabric types 4 and 5.

**Context F149** is the fill of a pit which contained P15 and P36. Both have fairly similar fabric types and were well abraded; these presumably represent a single depositional act.

**Context F166** is a pit fill which contained only P45, a relatively unabraded sherd presumably deposited rapidly after breakage.

### *Fabric analysis*

Six petrological thin-sections were made and from these four fabric types were identified, with one further fabric type distinguished in hand-section.

Beckton Farm is close to two large spreads of boulder clay of grey to red-brown deposits which contain mixed cobbles of greywacke, sandstone and granite. It appears to sit on the alluvial deposits of the River Annan. While boulder clay is relatively unsuitable for pottery production, it does seem to have been used to make the coarse ceramics in this assemblage. However, if mixed with more suitable alluvial clays it would be sufficient as a tempering agent. The angular fragments of granite and quartz chips seem to result from some selection of local material rather than natural occurrence in boulder clay.

**Fabric 1 (T-S from P1)** An anisotropic clay background with <10% of angular granite chips with low feldspar content. Also around 30% grog, some pieces angular, others abraded. This fabric type is only observed in this vessel.



**Fabric 2 (T-S from P2, P5 & P6)** An anisotropic clay background with around 50% frequency of angular granitic rock. The granite has predominantly alkali feldspar groundmass with high frequency of garnet phenocrysts. This rock (granite) is fairly uniform throughout all thin-sections and appears to have been deliberately chipped for the purpose of tempering, although some of the inclusions are of considerable size.

**Fabric 3 (T-S from P8)** An anisotropic clay background with around 50% frequency of minute (<1mm) angular quartz chips, possibly the debitage from quartz knapping.

**Fabric 4 (T-S from P15)** An anisotropic clay background with very low <10% frequency of angular rock inclusions, two forms of granite. The smaller inclusions have a lower frequency of alkali feldspar and therefore a paler groundmass, the larger inclusions having far darker groundmass. Both had high frequency of garnet phenocrysts. This fabric is distinguished from Fabric 2 due to the finer ground inclusions.

**Fabric 5** Distinguished only in hand section. This fabric was found only in the coarse wares and consisted of extremely large (8–10 mm) rock inclusions in a hard clay fabric.

#### POTTERY CATALOGUE

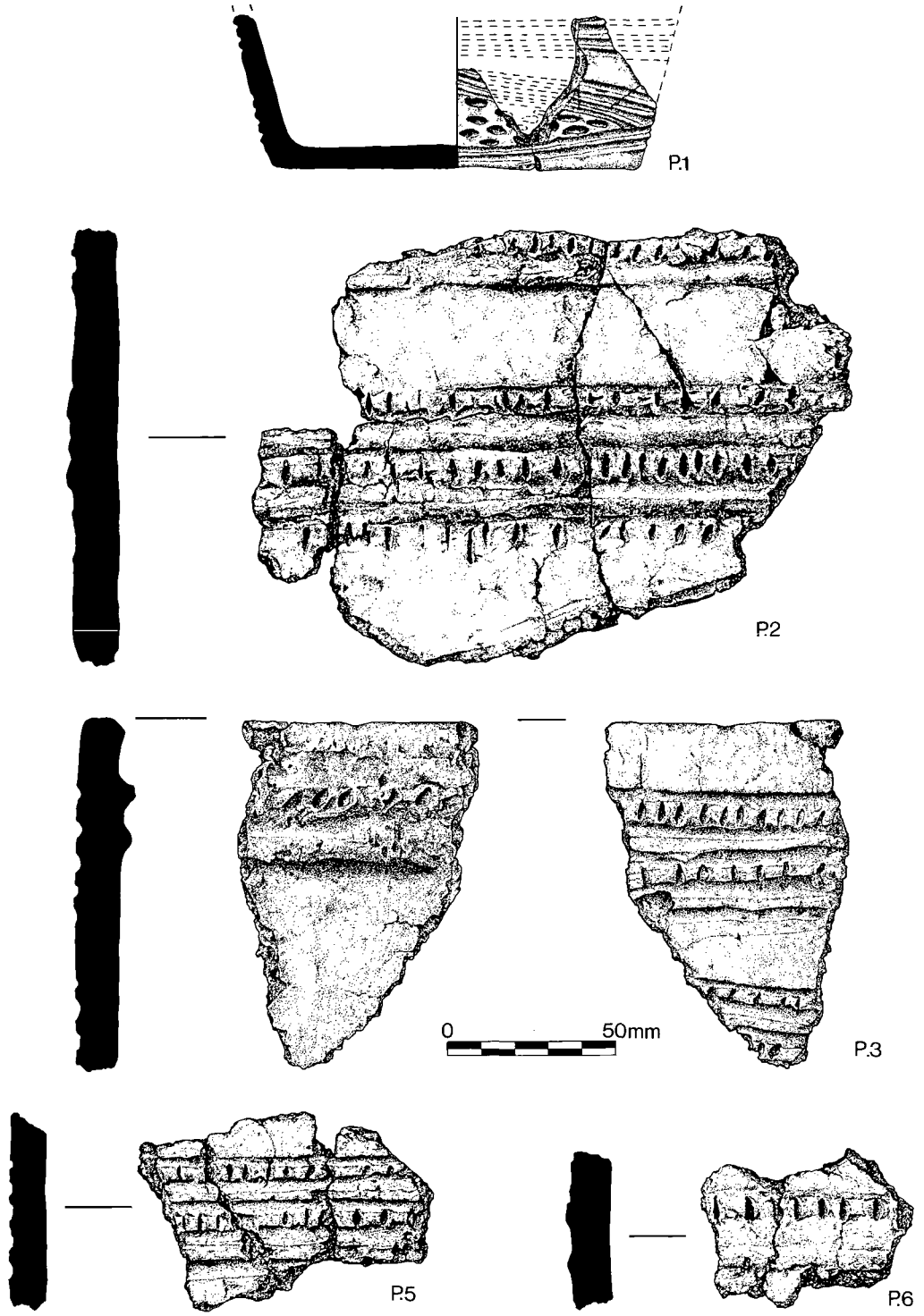
The following is a catalogue of the illustrated sherds only (illus 11 and 12). A full catalogue appears in the archive of the project records at the National Monuments Records of Scotland.

#### *Grooved Ware*

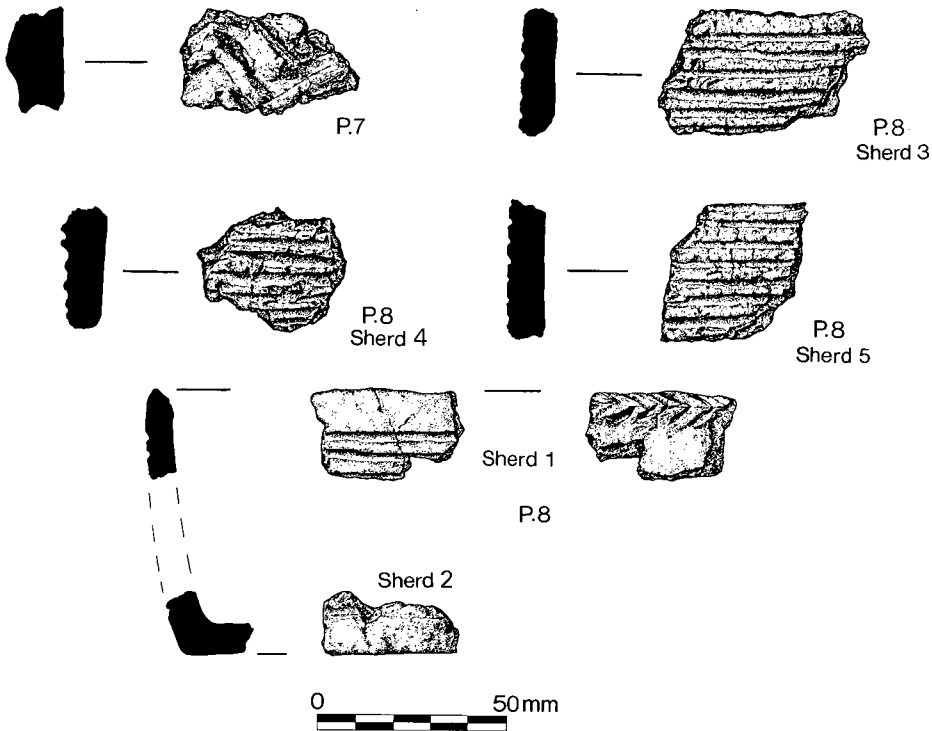
**P1: Context 069** This vessel is a thin-walled flat based bowl, the walls of the vessel splay at a roughly 45° angle. The decoration is incised into the slip and consists mainly of a grooving technique: a band of three grooves runs parallel to the rim, while a second band of four grooves runs across the vessel at a series of alternating 45° angles creating a series of lozenge shapes with the lower band of grooves this time of two incisions which run from the edge of the base to meet the second band. The series of triangular zones created by these two bands are themselves filled by further stab and drag decoration. Total weight of vessel: 129.5 g, width of wall: 8.5 mm, width of base: 7.75 mm, basal diameter: 110 mm. Fabric 1 (determined from T-S).

**P2: Context 069** This vessel is represented by four conjoining pieces, all wall sherds which are part of a large straight-walled vessel. The decoration on this vessel is of cordons of clay applied horizontally which are then altered. The top cordon of applied plastic decoration has been incised with a series of vertical stab-drag incisions. Below this is another applied cordon, this time unaltered. An undecorated zone runs for 26.5 mm, this is followed by two analogous bands of applied and altered and applied unaltered cordons. Below this a series of stab-drag incisions into the slip run in a vertical direction directly below the lowest undecorated cordon. Total weight of sherds: 302.8g, width of wall: 11.9 mm. Fabric 2 (determined from T-S).

**P3: Context 069** Rim sherd from large vessel, possibly P2. The rim itself is internally bevelled while the top of the rim is smoothly rounded. The sherd has both external and internal decoration. External decoration consists of applied cordons both altered and unaltered. The first applied cordon begins 21 mm below rim and has stab-drag incisions in a vertical direction across its surface, this is followed by a plain applied cordon. This pattern is repeated directly below, in this case however the stab-drag decoration is both spaced wider apart and of a slightly different character, the incisions being far wider. After this an undecorated zone runs for 22 mm before another band of similar decoration. Below this the edge of a further altered cordon is



ILLUS 10 Grooved Ware



ILLUS 11 Grooved Ware

evident. This form of external decoration would appear to be very similar to that of P2. Internal decoration begins 15.75 mm below the rim and consists of two cordons wider than those on the exterior, the upper cordon has been altered with stab-drag incisions, the lower cordon is unaltered. Total weight: 103.4 g, width of sherd: 12.4 mm. Fabric 2, with around 30% frequency of angular rock inclusions.

**P5: Context 069** Three conjoined sherds with external decoration. Thin applied cordon with precise stab-drag incisions running vertically across cordon, this is followed by a plain cordon. This pattern is repeated again, although the lower cordon is abraded. Although the patterning here appears similar to those on other sherds the decoration appears far more well defined and precise, the stab-drag is cut deeper and the cordons finer. Total weight: 53.7 g, width of sherd: 10.25 mm. Fabric 2 (determined from T-S).

**P6: Context 069** This single wall sherd appears to have been highly oxidized, although it has similar decoration to P2, P3 and P5 due to the width of the vessel it would appear that this may constitute another vessel. The decoration consists of an applied cordon altered with vertical stab-drag incisions cut very deeply into the cordon itself and in places cutting into the vessel wall beneath. This cordon is very prominent and raised well above surface of vessel. A plain cordon would appear to be suggested below the altered cordon, partly smoothed into the surface of the vessel. Total weight: 30.8 g, width of sherd: 10.5 mm. Fabric 2 (determined from T-S).

**P7: Context 069** Small wall sherd with unusual decoration of applied cordons which would appear to follow a zigzag arrangement. Both cordons are undecorated and abraded. The upper cordon dips at a 45° angle then turns at a point near the edge of the sherd to make a right angle. The second cordon appears to make a right angle in the opposite direction. Total weight: 17.5 g, width of sherd: 13.1 mm Fabric 2.

**P8: Context 005** This vessel constitutes a substantial part of the ceramic assemblage since it is found scattered throughout the site in a number of contexts. Here I will deal only with the material deposited in context 005. There are 30 sherds from this vessel deposited in this context, those sherds that are illustrated will be discussed.

Sherd 1: Two conjoined rim sherds, rim is internally lipped with incised decoration in a herring-bone pattern running horizontally around the lip. The rim itself is pointed. Externally the sherds are decorated with a band of three incised lines running horizontally beginning 10.9 mm below the rim.

Sherd 2: Base sherd. Flat base which is, of course, characteristic of Grooved Ware. The sherd is decorated externally with a single incised line running horizontally 10.8 mm above base. The sherd is reddish in colour which is suggestive of the vessel being inverted when fired. The external base of the sherd is darker which may be indicative of use. Total weight: 9.3 g, basal diameter: 180 mm, base width: 8.95 mm, wall width: 8.20 mm. Fabric see below.

Sherd 3: Wall sherd with total of six incised lines running horizontally across surface. Appears to be internally discoloured possibly through use. Total weight: 18.2 g, width of sherd: 8.15 mm.

Sherd 4: Wall sherd with six incised lines running horizontally across surface. Discoloration at base of interior. Total weight: 11.9 g, width of sherd: 9 mm.

Sherd 5: Wall sherd with seven incised lines running horizontally across surface. Total weight: 15.1 g, width of sherd: 8.9 mm.

Of the remaining sherds of P8 there are 16 more decorated wall sherds and one rim sherd with herring-bone decoration. The rest of the vessel consists of one abraded rim, an undecorated base and six undecorated wall sherds. Of these six decorated wall sherds and five undecorated wall sherds were recovered from the >4 mm residue. None of the sherds could be joined due to extreme abrasion. Fabric 3 (determined from T-S)

#### *Coarse ware*

**P13: Context 005** Coarse rim sherd with an internal lip, pale yellow/brown in colour with large number of angular rock inclusions visible on surface. Part of very small vessel as the curvature of the sherd is tight, would appear to be part of shallow bowl as it thickens towards bottom of sherd. Total weight: 6.4 g, rim diameter: 90 mm, width of sherd: 7.55 mm. There are 10 sherds of this vessel, all abraded, recovered from the >4 mm residue. Total weight: 8.2 g, max. width: 8.2 mm. Fabric 4.

**P15: Context 149** Coarse base sherd, highly abraded. Reddish colour. Would appear to be from small shallow vessel since wall thins out towards rim. Weight: 16.1 g, basal diameter: 120 mm, width of base: 10.5 mm, width of wall: 8.3 mm. Fabric 4 (determined from T-S)

#### FLAKED STONE OBJECTS (ILLUS 12 & 13)

Tony Pollard

#### *W F Cormack's surface collection*

The surface collection previously made by W F Cormack consisted of 34 pieces, of which eight were chert, 23 flint and three pitchstone. The majority are irregular waste flakes and chunks which display no evidence for retouch or utilization. Among the flint pieces, eight out of 23 display retouch and/or use damage. Most of these are flakes and flake/blade fragments with modified cutting edges. One is the proximal end of a snapped blade/flake with a snapped notch penetrating one edge, thus creating a tang. The opposing edge of this piece has been partly blunted with steep retouch. Steep retouch is present on two other pieces, one of which is a burnt scraper fragment which, prior to breakage, appears to have had a curved/circular working edge. The irregular

fractured surface suggests that the piece may have broken after being dropped on a fire rather than during use.

Five of the flint flakes exhibited some degree of cortex (secondary flakes) providing limited evidence for the reduction of imported raw material on the site. The closest source of flint is likely to have been the south-west coast of Scotland, where plentiful evidence exists for the exploitation of beach flint resources. Despite the presence of two bipolar types, cores were conspicuous by their absence within the overall assemblage. This absence is somewhat at odds with the dominance of the assemblage by waste flakes, and may suggest that a number of factors may have confused the picture (discussed further below).

Although flint had been transported to the site, probably from the south-west coast, local chert is also present, and despite its poorer quality two of the eight pieces display edge retouch. Steep retouch was found on two irregular flakes, one of these perhaps representing a small scraper, while on the other the retouch forms a blunted back to a flake which displays a sharply retouched and damaged cutting edge.

One of the three pieces of pitchstone is a small irregular waste flake, the dulled edges of which display a number of fresh-looking scars, which may have been caused by post-depositional damage rather than use. The other piece is a fragment/core, which like the flake appears to be somewhat rolled and dulled, its edges smoothed and the surface lacking the gloss characteristic of flaked pitchstone.

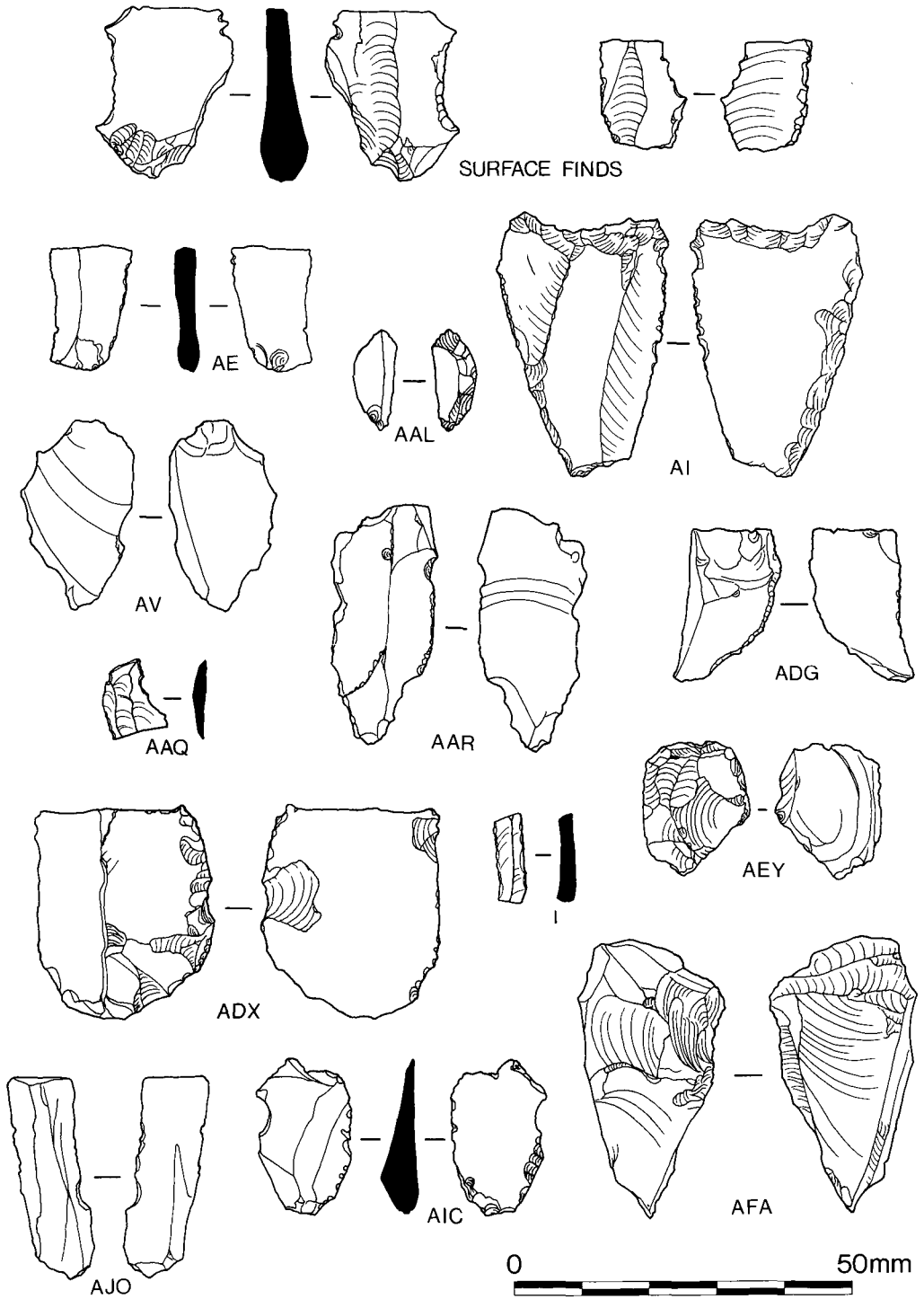
#### *The evaluation assemblage*

The programme of evaluation trenching, carried out in 1990, resulted in the recovery of 20 pieces of chipped stone, of which 17 were flint, two chert and one agate. A large proportion (seven) of the flint pieces exhibit retouch and/or signs of utilization, while two flint bipolar cores were also recovered. The most striking artefact here is an oblique arrowhead (A1, illus 12), which indicates late Neolithic activity. The piece exhibits steep retouch along both sides of the proximal end of the flake creating a hollow base with a single barb. The barbed edge displays steep and invasive blunting retouch along most of its length, most obviously on the dorsal face, while the opposing edge is sharp and subtly denticulated. The point has been snapped away, possibly through use. Signs of damage along the sharp edge may have been caused by the same impact which removed the point, but could equally indicate the re-use of the piece as a knife following the loss of the point.

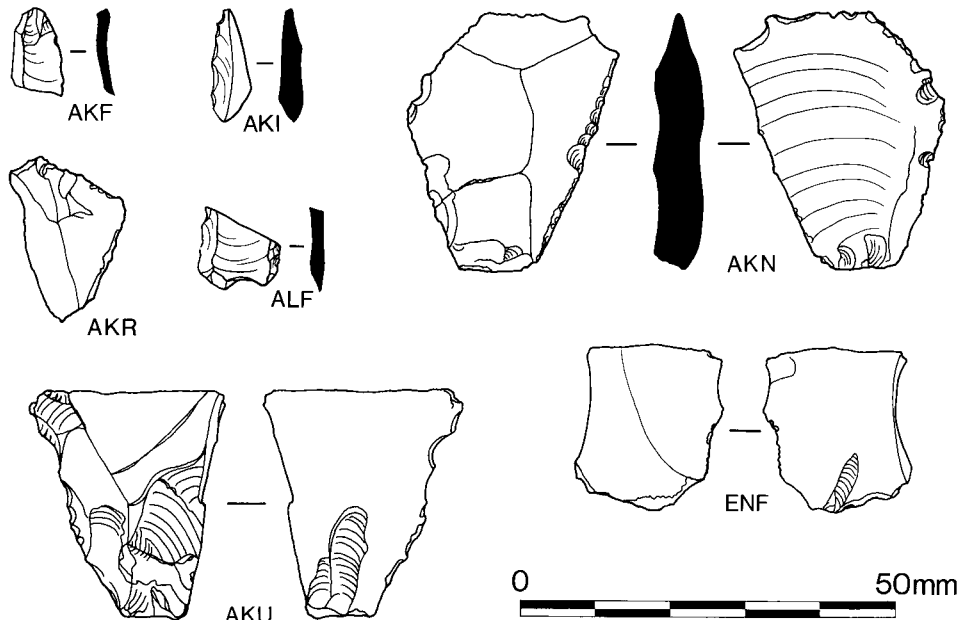
Also present are several snapped blades (eg AE, AJO, illus 12), all of which display edge damage and probable retouch down at least one edge. One flake displays steep retouch along a curved edge and represents the edge of a scraper, apparently snapped during use. A small blade (AE, illus 12) also has steep retouch, but rather than scraper damage this appears to represent a backed blade and as such suggests a microlithic component. This piece may be a remnant of earlier Mesolithic activity on the site, but the maintenance of microlithic technology well into the Neolithic should not be ruled out.

#### *The excavated assemblage*

The sampling of the ploughsoil resulted in the recovery of 53 pieces, while the excavation proper recovered a further 63 pieces, giving a total of 116. For the purposes of this report both of these groups will be dealt with as a single assemblage.



ILLUS 12 Flaked stone objects



ILLUS 13 Flaked stone objects

As in the case of the evaluation assemblage the excavated assemblage is heavily dominated by flint, numbering 86 pieces, with the chert component consisting of 20 pieces. Other materials are present in much smaller quantities, with five pieces of pitchstone, two of shale/mudstone and one of agate. Quartz pebbles were relatively common within the gravels present across the site. Samples of this material were collected but in most cases examination failed to identify positive evidence for human modification. Only two definitely manufactured quartz flakes were recovered during the excavation. It is possible that the quartz *debitage* created in tool manufacture may have been used as temper in some of the pottery recovered from the site (Jones, above).

Although waste flakes were plentiful very few cores were recovered, with only a single example of both flint and chert. The vast majority of pieces are inner flakes with no trace of cortex. From this it appears that the imported flint arrived on site with its cortex already removed, perhaps in the form of clean nodules ready for flaking. Examination of a number of lithic assemblages from the south-west coast has identified large proportions of de-cortical flakes, thus suggesting that beach pebbles were relieved of their cortex prior to their movement inland, and the weight to be carried thus reduced.

An analysis of the distribution of lithics recovered from the surface of the subsoil failed to identify specific patterns or concentrations within the site; finds were generally sparsely scattered.

Although the assemblage is dominated by the waste created by stone tool manufacture, its presence in such low numbers does not suggest intensive industrial activity on the site. However, any such statement must be tempered by the realization that ploughing has undoubtedly disturbed the site and removed elements of the assemblage from their original contexts. It is therefore difficult to make clear statements about the nature of stone tool manufacture and use on the site. However, the recovery of only a small number of stone tools from the ploughsoil strongly suggests that only limited quantities were deposited on the site in the first place. Although the

time-intensive process of plough soil sampling and sieving may have at first seemed unrewarding, it has undoubtedly proved valuable in allowing us to make this latter statement.

Among the very few finished or 'formal' tool types recovered from the site during the evaluation and following excavation is the previously discussed oblique arrowhead (AI). A few pieces (13) display less impressive degrees of retouch; the fact that some of these are on snapped flakes and blades (AAQ & AAR, illus 12; AKF & AKU, illus 13) may indicate their abandonment or loss during use. This is clearly the case with a flint scraper fragment (AAL), which broke from the tool's steeply retouched edge during use. Very few scrapers were recovered during the excavation proper, a factor which may again be due to site disturbance rather than the pattern of tool use and discard.

It should also be remembered that snapping may also be a form of lithic modification and tool manufacture. This technique was widely used during the Mesolithic, when blades were snapped into smaller pieces to create microliths. The presence of microliths on the site has already been noted in the discussion of the evaluation assemblage, and further examples were recovered during the excavation. A small chert bladelet (AJT) with signs of blunting retouch along part of one edge may be a backed bladelet or rod-like microlith. A clearer example of microlith type technology took the form of a proximal flint blade/flake fragment (AKR, illus 13) modified into a triangular microlith through the application of retouch along the sloping edges. Again, it can be argued that the piece is residual and represents an earlier phase of activity on the site. However, there is mounting evidence from other sites of this technology continuing into the Neolithic. The site at Kirkhill (Pollard, forthcoming), some 10 km to the north, produced a lithic assemblage based on snapped blades apparently associated with a burnt mound, from which came a series of radiocarbon dates broadly contemporary with those from Beckton Farm.

A Neolithic provenance for the few microliths at Beckton cannot be established on any stronger grounds than their recovery from an area dominated by evidence relating to the Neolithic. However, the temptation to write off these pieces as residual Mesolithic artefacts is resisted. It is becoming increasingly apparent that the idea that microlith technology was rapidly abandoned at the end of the Mesolithic in preference to flake technology is over-simplistic, and partly a result of the archaeologist's desire to detect difference and change rather than recognize similarity and continuity.

The limited nature of the lithic assemblage may be due to the nature of the site, which has provided evidence for ritual activity, in the form of structured deposition and human remains. However, as has been demonstrated elsewhere, the overtly ritual nature of a site need not inhibit the deposition of relatively large quantities of stone tools; the recovery of some 145 lithics from the Bronze Age cairns at Stoneyburn is a prime example (Pollard 1995).

### *Catalogue*

A complete catalogue of the lithics from Beckton Farm appears in the archive of the project records at the NMRS.

### COARSE STONE TOOLS

Tony Pollard

Relatively few coarse stone tools (hammer stones, pounders, rubbers) were recovered during the excavation. All of the worked stones described here are fine to medium grained, well sorted,



sub-artosic, micaceous sandstones. The material would have been available locally and over large tracts of the Southern Uplands and Midland Valley. All of the samples are semi to moderately well rounded, probably due to water rolling; they were probably collected locally from the bed of the river Annan or the closer Dryfe Water.

Only three stones displaying damage or modification were recovered from archaeological features. Two were found in F110, the fill of the ring-ditch cut. One of these was a water-worn egg-shaped pebble (AFU) which displayed fracture scars on one end consistent with heavy percussion. The other, a struck flake of sandstone (AHP), demonstrates that flint, chert and pitchstone were not the only types of stone modified through flaking. It is becoming increasingly apparent that this type of stone tool was quite widely used and is certainly not confined to Orkney, where the 'Skail knife' bears some similarity to it.

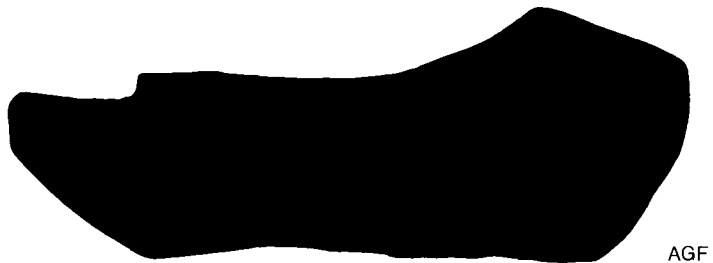
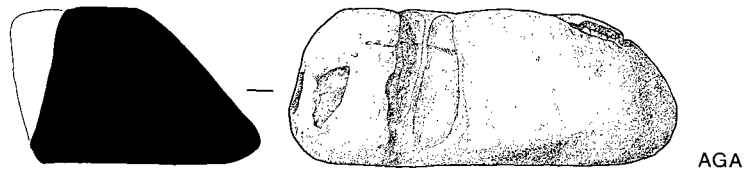
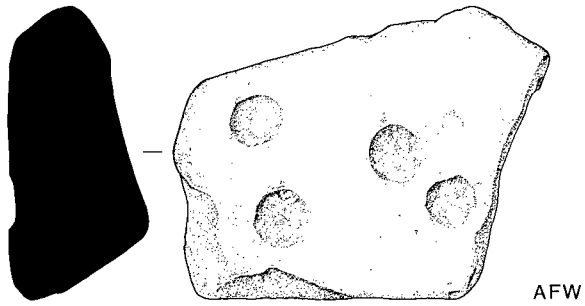
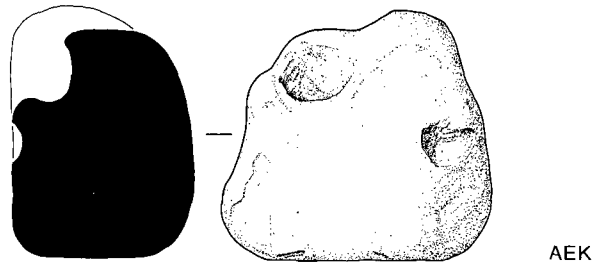
### *Cup-marked stones*

Among the most striking elements of the worked stone assemblage are the 'cup-marked' stones, of which three were recovered. The largest of these was a water-rolled piece of sandstone (AGC: 260 mm by 140 mm by 130 mm) into which a single 'cup mark' had been carved (diameter 25 mm). The most remarkable (AFW, illus 14) was a sub-rectilinear fragment (160 mm by 110 mm by 60 mm) of the same material, which rather like a stone domino bore four circular depressions of similar size (diameters c 22 mm). These depressions were slightly round-bottomed and penetrated into the rock to a depth of 3–4 mm. Close examination revealed that the holes had been pecked rather than drilled into the rock, with scars and grooves around the edges and base of the holes providing clear evidence for the use of a chisel, most probably of stone. The third stone (AEK, illus 14) is slightly different in that its single depression is considerably deeper than in the other examples, penetrating into the small rounded fragment of sandstone for some 10–12 mm rather than just 3–4 mm. This hole has also been pecked into the stone rather than drilled, but this does not necessarily mean that it served the same function as the other pieces.

It is difficult to offer a convincing explanation for these enigmatic pieces. Most of the recorded cup-marks in south-west Scotland have been recorded on exposed outcrops of bedrock, but some are mobile forms. Of these, most occur in funerary contexts, on cist slabs or urn covers (Simpson & Thawley 1974). Thus, their incidence here — like the burnt human bone and the ritual deposition of Grooved Ware — can be cited as further evidence for episodes of funerary as well as settlement activity at Beckton Farm.

The relatively simple form of the motifs identified at Beckton fits well with the model for Neolithic/Bronze Age rock art proposed by Bradley *et al* (1993). In this model rock art designs attest to a complex relationship between the sites they occupy in the landscape and the people moving through that landscape, more complex designs occurring farther from areas of probable settlement. There can be little doubt, judging from the nature of the local topography and geology, that the area around Beckton Farm would have been an attractive location for settlement and, in this model, would have been identified with correspondingly simpler designs.

Another two stones displayed evidence for human modification. The first of these (AGA, illus 14) was a water rolled stone, roughly triangular in shape (150 mm by 100 mm by 50 mm). A pair of parallel grooves have been worn into one side, one impinging upon the other and therefore probably later (the diameter of this being around 16 mm). The grooves seem to have been worn into the stone through the repeated drawing of a wooden shaft across its face, perhaps to smooth and straighten the shaft. Shaft straighteners have been associated with the manufacture of arrows and the tranchet arrowhead recovered from the ploughsoil appears to corroborate this evidence



ILLUS 14 Cup-marked stones and other modified fragments

for the practice of archery here. However, it is interesting here to consider the context of deposition. The modified stone was recovered from the fill of the ring-ditch wall trench, in which a series of stakes had been set. The same technology which straightened the shaft of an arrow would equally lend itself to the straightening of a stake to be used in a building such as that represented by the stake-holes and ring-ditch.

The final piece (AGF, illus 14) is also of sandstone and appears to be a large fragment (270 mm by 260 mm by 90 mm) broken from a saddle quern, possibly representing half of the quern. It was recovered from the fill (F092) of the clay-lined fire-pit, which may have been used for charring grain, although only a single charred grain was present. Although minimally modified, one surface does display a round-edged depression, very much as one would expect on a saddle quern.

#### BURNT BONE

Jacqueline I McKinley

Burnt bone from four contexts (eight samples) was examined. The main aim of the analysis was to establish whether the bone was human or animal in origin. The bone was analysed using the writer's standard procedure for cremation contexts (McKinley 1994).

All the bone is extremely worn and degraded due to burial in acidic soil without any permanent external protection. In consequence the bone morphology was unclear and identification difficult. Nevertheless, one fragment of human bone could be identified in fill F005 (in pit F080) and suggests this material was in some way related to cremation. The inclusion of animal bone in no way detracts from this conclusion, as mixing of the two is not uncommon in such contexts. The very small quantity of bone and the fact that bone, pot and charcoal were mixed homogeneously would imply that the context is likely to represent a dump of pyre debris, not a burial. The burnt/cremated bone from other contexts may represent a scatter of material from the same source as pit fill F005.

#### MICROMORPHOLOGICAL ANALYSIS

Stephen Carter

Excavations at Beckton Farm revealed three classes of feature: broad silty clay spreads forming surfaces or filling large pits; well-defined, small cut features; and ambiguous or natural soil features. The purpose of this report is to advance the interpretation of the first of these three classes, the silty clay spreads. The spreads contained charcoal, lithics and abraded pottery and in some cases overlay stake-holes, post-holes and concentrations of charcoal interpreted as hearths. The field interpretation was that at least some of the spreads infilled the floors, or were refloorings, of insubstantial Neolithic structures. Further analysis of the spreads was proposed in order to clarify their composition and mode of deposition.

#### *Methods*

A soil monolith (sample 88; 0.28 m long) was collected from the one of the silty clay spreads (F106/F107) which formed the fill of a large shallow cut (F108). The monolith was prepared in the lab and sawn into four smaller blocks. These were impregnated with resin and then cut to produce thin sections (30 µm thick) by the Department of Environmental Science, University of

Stirling, using standard methods (Murphy 1986). The thin sections were then examined and described using the methods and terminology of Bullock *et al* (1985).

### *Results*

Four distinct layers could be identified in thin section, corresponding to the upper fill F106 (two layers), lower F107 and underlying natural subsoil (descriptions of the thin sections are presented in full in the archive of the project records at the NMRS). All layers are very dominantly mineral in composition with only a few fragments of wood charcoal and modern roots contributing to the organic fraction. The mineral fraction consists of variable proportions of silt- and sand-sized quartz grains and larger rock fragments (greywacke and mudstone). The coarse material (larger than 20 µm) is randomly arranged, except in one layer where it is distinctly clustered. The structure of all layers is dominated by channels (probably root channels) but there is sufficient invertebrate excrement in the top two layers to create areas of crumb structure.

Textural, depletion, and amorphous pedofeatures are all represented in the thin sections. The textural pedofeatures may be divided into two main groups: the first is a highly variable group of coatings, infillings and intercalations with textures varying from impure clay to silt. These are increasingly abundant from the top of the sequence down to the base of thin section 3 (0.12 m) and then decline down to section 1 (0.25 m). In section 1 they overlie a second group of limpid clay coatings which only occur below 0.23 m. Depletion hypocoatings on the rock fragments are best developed in the stony layer at the base of fill F106. Amorphous pedofeatures are represented by furruginous impregnative nodules in all four layers, but these are only abundant in the top two layers.

Analysis of the thin sections has resulted in the collection of information relevant both to the composition of the spreads and their mode of deposition. These two topics will be discussed in turn, followed by a reassessment of the archaeological interpretations.

### *Composition*

The fact that the dominant rock types are greywackes and mudstones indicates that the parent materials for all of the layers are the widespread Lower Palaeozoic sediments rather than the nearby Permian sandstones. The basic composition of the layers recorded in thin section is similar: all are predominantly mineral and consist of silt with some clay and fine sand-sized quartz grains mixed with variable quantities of rock fragments. Fills F106 and F107 could, therefore, have been derived from the undisturbed till, with little or no alteration other than some size sorting. This is reflected in a relatively stony layer observed at the base of F106.

The similarity between fills F106/F107 and the undisturbed, natural till demonstrates that there have been no significant inputs of organic materials, ashes and other occupation debris to these layers. Rare fragments of wood charcoal form the only component apparent in thin section that could be considered occupation debris, but this could equally have a natural origin. The fragments of pottery and flint recovered from F106 during the excavation are therefore isolated finds in an otherwise 'clean' sediment.

The colour distinction noted in the field between fills F106 and F107 is caused by the depletion of iron in F106 (the iron has accumulated lower down the profile in the top of the till). The presence of frequent ferruginous nodules in F106 suggests that gleying is responsible for the depletion and this conclusion agrees with the field interpretation (Mike Jarvis, pers comm).

*Mode of deposition*

Evidence for the history of these layers comes from the fabric, microstructure and pedofeatures described from the thin sections. The evidence of artefacts recovered from F106 demonstrates that it must have been deposited since human occupation occurred on the site. This conclusion is supported by the clustered fabric of the coarse material at the base of F106. This is a sedimentary fabric indicating rapid deposition of soil fragments. The absence of a sedimentary fabric in the underlying layer F107 suggests that F107 is, in fact, an undisturbed natural sediment.

Severe disruption of F106 is indicated by the presence of silty textural pedofeatures. The movement of such large grains is interpreted as evidence of the physical break-up of the soil (Courty *et al* 1989) and in this case the presence of silty infillings and intercalations suggests the total collapse of the soil structure. This in turn could have created the conditions suitable for gleying and the depletion of iron from F106. These textural pedofeatures are most abundant towards the base of F106 but some sediment has been moved deeper into the undisturbed layers. Here it forms silty coatings that clearly overlie pre-existing clay coatings.

*Archaeological interpretation*

The field evidence was initially interpreted as indicating the presence of insubstantial structures with irregular hollowed floors. It was thought that these were subsequently filled with a deposit of silty clay, either as deliberate re-flooring or through the accumulation of occupation debris. Composition, as determined in thin section, indicates that these spreads are in fact derived from the underlying undisturbed sediments with no identifiable anthropic inputs. This would seem to rule out an origin for the spreads as gradually accumulating silt deposits. Gradual accumulation is also excluded by the evidence from fabric and textural pedofeatures for rapid accumulation followed by loss of structure. This history is consistent with deliberate re-flooring, although it may be asked why a series of structures with eroded, sunken floors were all levelled up. Deliberate re-flooring should also imply a preceding period of occupation, and this should be marked by evidence for intensive disturbance and contamination by occupation debris at the base of the sediments (this argument would also apply if the spreads represented collapsed wall fabric). This evidence is lacking in the example studied: there is no concentration of debris at the interface of F106 and F107, and the peak of textural pedofeatures (indicative of disturbance) occurs within F106 rather than F107. It is, however, possible that this silted hollow is not representative and that other scoops had different histories. The one feature linking the various shallow hollows and deeper pits is the presence of a grey silty clay fill. Both field and thin section analysis concludes that this phenomenon is the product of post-depositional gleying, and the thin-section evidence indicates a link between loss of soil structure during deposition and subsequent gleying. Therefore they mark the location of a past disruption of the soil profile (by any agent, human or natural) and, in pedological terms, all of these grey fills may be viewed as deeper pockets of a soil Bg horizon (a gleyed subsoil) that has otherwise been destroyed by cultivation.

## PHOSPHATE AND MAGNETIC SUSCEPTIBILITY SURVEYS

## Iain Banks

The general distribution of soil phosphates at Beckton Farm was examined from a sample grid at 5 m intervals. Within this, local profiles were also taken across particular features at 1 m intervals. All samples were also submitted to laboratory analysis of magnetic susceptibility. The features

which were subject to detailed investigation (ie sampled at 1 m intervals) were the two four-poster structures, the two clay spreads F106 and F136, the ring-ditch house and the curvilinear ditch in the western trench. The aims were to assess levels of enhancement of these attributes due to human activity on the site and, where possible, to augment the interpretation of particular structures.

### *Methodology*

In the laboratory, the samples were air-dried and sieved to 106 microns and then sub-divided to provide material for the separate magnetic susceptibility and phosphate analyses. Phosphate samples were divided into two sub-samples and analysed using Anderson's ignition method (Anderson 1976). The concentrations of phosphate present were measured colorimetrically at a wavelength of 470 nm and determined using a calibration curve based upon stock solutions.

The magnetic susceptibility samples (25 ml) were measured using a Czech hand-held Kappa-meter, reading to two decimal places. This is not a particularly sensitive system and only relatively broad changes could be determined. It was for this reason that the phosphate results are the main focus of interpretation.

### *Phosphates*

Overall levels across the site were relatively high and indicate a general enhancement of phosphate levels across the site. Average readings were  $450 \pm 175$  ppmP. These generally high levels contrasted with detailed profiles from some individual features. The levels in the small extension trench to the west were all low, reflecting the relative paucity of archaeological features here.

**Round-house** Phosphates found in the profile across the floor of the round-house matched the pattern of the site grid very closely with levels averaging  $450 \pm 168$  ppmP. A likely explanation is that enhancement across the house floor reflects general activity across the site rather than specific activities within the structure. Higher levels, however, were recorded around the exterior of the house, and it is possible that this pattern reflects the regular cleaning of the house floor.

**Four-posters** The western four-poster structure had an average level of  $557 \pm 282$  ppmP; readings here included some of the highest on site. In contrast, the adjacent, eastern four-poster had an average of  $425 \pm 103$  ppmP, which reflects the average levels for the site. It is possible that these different levels relate to two different kinds of activity pre-dating or post-dating the four-posters and do not relate to the structures themselves.

**Stone spread** There was a minor enhancement around the stone spread on the eastern side of the trench. This was not sufficiently high to suggest that there had been structures here which were not observed in excavation. It is likely that this concentration of stone was a result of plough action, as suggested by the excavator, with the minor enhancement of phosphate levels relating to the movement of phosphate-rich soil by the plough.

**Clay-silt spreads** The clay-silt spreads produced particularly low phosphate levels compared with the rest of the site (eg F136 had an average level of  $364 \pm 74$  ppmP). In the present context, these results correspond to subsoil levels without significant enhancement by human activity and do not support the interpretation

of these sediments as floor layers. Clay is particularly good at retaining phosphates and the low levels here clearly indicate a lack of contact with phosphates. Again, however, if these sediments formed floor surfaces within buildings then regular sweeping could have prevented phosphate enhancement.

**Linear post-hole group** Finally, a minor enhancement near the row of post-holes running north/south may represent a build-up of dung against a fence-line, if this interpretation of the features is correct.

### *Magnetic susceptibility*

The results of the magnetic susceptibility survey were rather disappointing. There was little variation across the site, or between the site grid and particular features. The site grid gave an average reading of  $0.05 \pm 0.016$ , the four-posters  $0.05 \pm 0.016$  and  $0.05 \pm 0.02$  respectively, the clay spreads (F106)  $0.04 \pm 0.016$  and (F136)  $0.05 \pm 0.016$  and the profile across the house floor an average of  $0.04 \pm 0.012$ .

Plotted on the site grid, the results broadly matched those of the phosphate survey. There was a slight enhancement of magnetic susceptibility in the vicinity of the roundhouse, again outside the structure. An area of enhancement appeared in the north-west corner of the main trench, in an area of few archaeological features. It might be possible to explain this in terms of activity away from known sites of structures, with either fires or midden material increasing the magnetic susceptibility of the soil. However, the enhancement is very minor and this explanation is not favoured. The area of the stone spread gave higher than average readings, including the highest reading on site, but this probably reflects geological conditions.

## PLANT REMAINS

### Sheila Boardman

In the course of the excavation, bulk soil samples of 15–20 l were collected from all secure contexts. Smaller features were totally sampled and several large sub-samples were collected from the more extensive deposits. Standard water separation techniques were used to extract the plant material. Flots and residues were retained down to 0.5 mm. The flots were completely sorted. The heavy residues were dry sieved at 4 mm and 2 mm and the larger fractions then sorted for charred plant remains.

### *Charcoal*

More than 3700 fragments of charcoal were identified. The bulk of the charcoal probably represents fuel debris; some fragments came from hearths and others from within heavily trampled or partly reworked occupation surfaces. Few clearly structural elements appear to be represented and no roundwood fragments survived. The fragmentation and truncation of deposits was such, however, that some residual structural elements may have been missed altogether.

### *Local woodland*

While all of the tree and shrub taxa represented as charcoal are native to Scotland, little natural woodland remains today in the area of Beckton Farm, due to past and recent agricultural and grazing practices.

The dating samples contained the same three major taxa in varying proportions: *Quercus*, *Corylus* and Pomoideae. Of the 70 samples with identifiable charcoal, *Quercus* and *Corylus* were present in 43. They are found together with Pomoideae charcoal in 20 samples, 13 of which also contained *Prunus avium* or *Prunus padus* charcoal. This range of species suggests mixed deciduous woodland, with *Corylus*, the Pomoideae and *Prunus* species probably forming part of the understorey trees and/or growing towards the edges of denser oak woods. *Ulmus* (elm), which was not present as charcoal, was probably confined to the more favourable, base-rich soils of the area. *Corylus* and the *Prunus* species are also trees of better soils. *Sorbus* type, the most frequent taxa among the Pomoideae charcoal, may be *S. aucuparia* or *S. aria*. On ecological grounds this is more likely to be rowan.

*Alnus* and *Salix* may have been collected from the wetter valley bottom, or perhaps from the base of the steep slope west of the site. *Salix* is represented by a single fragment (also see below), and *Alnus* by 54 fragments from nine contexts. *Betula*, present in 11 contexts, may include *B. pendula* (silver birch), *B. pubescens* (downy birch) or both species. These sometimes grow together and hybridize in Britain. Assuming that the woods used as fuel at Beckton Farm were in roughly similar proportions to the trees available in the local woodland, variations in the charcoal taxa may reflect some small scale changes to the local woodland.

*Betula* is a rapid colonizer which frequently dominates in lighter secondary woodland. At higher altitudes in the Southern Uplands, *Betula* and *Corylus* were probably the dominant trees (Tight 1987; Dickson, unpublished). *Betula* was probably also a minor component of the lowland woods, so its presence in small quantities in the samples does not mean that the local woodland was being depleted. The slight increase in birch in the later samples may reflect its use in a limited number of structural contexts (specifically the four-post structures).

*Ulex europaeus* is a spiny shrub which grows up to 2 m in height and is commonly found in rough grassland, not woodland, on light, generally acid soils. It is a valuable winter feed for stock and historically was planted for this purpose. *U. gallii*, a smaller, strongly calcifuge shrub of heaths and siliceous hill grasslands, is more characteristic of open moorland and remote heaths. *U. gallii* is not common north of Galloway today (Clapham *et al* 1987; Nicholson & Clapham 1979). *Ulex* type charcoal may therefore represent more open conditions at the site, at least by the time that the four-post structures were in use.

#### *Evidence from regional pollen studies*

Regional pollen evidence suggests occupation at Beckton Farm took place during a period of widespread woodland regeneration. Elsewhere in Britain, woodland regeneration between about 4400–3700 BP has been linked to soil exhaustion brought about by overpopulation (Bradley 1978); but in south-west Scotland the pollen evidence suggests only limited disturbance of the natural woodland prior to 3750 BP, where small clearances, possibly for pastoral farming, appear to have been surrounded by fairly dense woodland (Tipping in press a & b).

Pollen diagrams have been derived from several lowland sites in south-west Scotland, clustered around the shores of the Solway Firth (see Tipping, in press a). One recently dated diagram comes from Burntfootill Moss, located at about 100 m OD, around 20 km south-east of Beckton Farm (Tipping in press b). Post-glacial colonization of *Quercus* and *Ulmus* at Burntfootill Moss is dated to around 8060 BP. The rise of *Alnus* to dominance is dated to 7700–7200 BP, when the earliest woodland disturbances occurred. The first occurred at about 7800–7700 BP and was accompanied by a corresponding small peak in microscopic charcoal. Further woodland disturbances, at 7500–7350 BP, are associated with plants indicating more



open conditions. While the initial clearance was implemented through fire, it appears to have been sustained without firing, perhaps through grazing (Tipping, in press a & b).

A small bog beneath the Iron Age site at Over Rig, at 190 m OD and around 17 km north of Beckton Farm, is situated only metres from 'dry' ground. Near continuous records of *Crataegus* (hawthorn), *Sorbus* (rowan) and *Prunus* type (wild cherry type) pollen are noted above at around 6300 BP (Tipping & Boyd in press). All the major tree taxa identified as charcoal at Beckton Farm were present in the region, therefore, by the mid-seventh millennium BP, if not earlier.

Two *Ulmus* declines are recorded at Burnfoothill Moss. The first was short-lived and is dated to about 5500 BP. Its rapidity and an absence of evidence for anthropogenic activity suggests elm disease (Tipping in press b). A more prolonged elm decline at Burnfoothill Moss and Over Rig is dated to around 5300 BP. This was associated with anthropogenic clearance, in part for cereal cultivation. A marked reduction in microscopic charcoal at this time suggests that early farmers did not use fire to clear woodland. Sustained grazing is the most likely means, although elm seems to have been selectively removed around Burnfoothill Moss (Tipping in press a & b; Tipping & Boyd in press).

From about 5050 to 4150 BP, the intensity of land use around Burnfoothill Moss and other sites in the region decreased. (The features at Beckton Farm date to the second half of this period.) On the basis of the wide geographic area over which regeneration occurred and bog conditions at Burnfoothill Moss, Tipping suggests that wider climatic shifts were taking place. Bog conditions became wetter around 5200 BP, before a drier climate was re-established about 4800 BP. A major shift to wetter conditions occurred again at approximately 4500–4200 BP. Renewed clearance at Burnfoothill Moss and other sites in the region dates from about 4250 BP. This preceded a prolonged period of agricultural activity, over several hundred years, in which cereal pollen is consistently recorded, particularly above 3750 BP (Tipping in press a & b). After 3750 BP there is evidence for some stability in the overall proportion of land utilized, particularly in the lowland zone. Mostly this was partial, with substantial parts of the land around most sites still under woodland.

### *Cereals, seeds and nut shells*

All of the cereal grains identified probably represent *Hordeum vulgare* var. *nudum* (naked six-row barley), the principal species represented at Neolithic and Bronze Age sites in northern Britain. No cereal chaff fragments or weeds or cultivation were recovered. There was a single seed of *Plantago lanceolata* (ribwort plantain), a species which is particularly associated with pasture, but is also frequently recorded in early crop assemblages.

As the site was intensively sampled, the low number of cereals or weeds recorded may indeed reflect the small part played by cultivated plants in the local diet. Regional pollen evidence for the period post-dating the elm decline up to about 4250 BP suggests that early clearances may largely relate to pastoral rather than arable farming. However, unburnt animal bone did not survive at Beckton Farm and the role played by pastoral farming is difficult to assess.

Hazel-nut shell fragments were recovered in low numbers across the site but there were no other wild food plants. The preponderance of durable nut shells on Neolithic sites, in contrast to cultivated crops, has been noted elsewhere in Britain (Moffett *et al* 1989).

## DISCUSSION

Beckton Farm shares many of the interpretational problems characteristic of plough-truncated sites, where stratigraphic relationships are generally absent and the site as a whole is little more than a scatter of disparate negative features. This means that although radiocarbon dates were recovered from a number of features, these are of only limited use in establishing a chronological sequence for the site, coming as they do from relatively isolated contexts. It would also be a mistake to regard the radiocarbon series as a bracket within which the entire history of the site can be placed; the possibility remains that activity took place before the earliest radiocarbon date and continued after the latest. Despite this uncertainty regarding the beginning and end of activity, no evidence was recovered to suggest activity earlier or later than the Neolithic. Although several Mesolithic 'type' flints were recovered, these may well represent part of the Neolithic assemblage. The four-poster structures are of a type hitherto associated with Iron Age sites, but it will be argued below that these features may also be accommodated within a Neolithic reading of the site.

In the past the tendency, when dealing with Neolithic sites, has been to interpret them as either domestic or ritual. The evidence from Beckton Farm defies the application of clear-cut interpretation, with both settlement and ritual elements present. Several of the features excavated appear to represent small houses, while the placement of Grooved Ware in pits along with burnt human bone clearly attests to ritual activity.

## BUILDINGS

The earliest radiocarbon date (AA-12588)  $4660 \pm 95$  BP was obtained from charcoal recovered from a hearth setting (F206) within a possible clay floor spread (F143); evidence for structural elements related to these features was limited to a single post-hole. In the absence of clear evidence for equally early features it is very difficult to envisage the nature and extent of the site at the time this hearth was in use, but numerous features on the site have produced neither radiocarbon dates nor diagnostic artefacts, and some of these may be contemporary with the hearth.

The ring-ditch located some 15 m to the south of the early hearth can be more confidently identified as remains of a building. This structure is unusual in that it appears to have had a double-skinned wall, with stake-holes cut into both sides of a shallow penannular foundation trench. As such it has few direct parallels in Scotland, where relatively few Neolithic timber-built buildings have been excavated.

Excavations at Lismore Fields in Buxton, Derbyshire (Garton 1986), have revealed a number of ring-slots of very similar dimensions to the ring-ditch at Beckton Farm. As is the case at Beckton Farm, the Buxton structures are specifically dated, but radiocarbon dates from associated features indicate that they may have been part of a Neolithic site. At Gwithian, Cornwall (Megaw 1976), a house which consisted of a double-skinned wall and foundation trench was associated with Beaker pottery. However, this structure had a complex entrance, was twice the size of the Beckton Farm building and exhibited two phases of construction. A closer parallel comes from Lough Gur, in Ireland, where two sub-circular ring-groove houses were excavated on a settlement site with both Neolithic and Bronze Age elements. The ring-grooves at Lough Gur encompass only part of the building circumference, but the double lines of stake-holes in both examples are strikingly similar to those in the Beckton Farm structure and all three buildings are broadly similar in size. In reference to the Irish examples the excavator, Ó Riordáin (1954, 325), suggested that the space between the inner and outer walls was filled with brushwood, presumably for insulation, though this space may also have been used for storage.

The recovery of a sherd of Grooved Ware from the fill of the ring-ditch establishes a late Neolithic *terminus post quem* for the construction of this building, but there is no reason to envisage this taking place any later than this period. The Grooved Ware sherd in the ring-ditch came from the same vessel as those sherds deposited in a pit containing cremated human bone (F080). Comparable degrees of abrasion indicate that no great length of time separated these two events and a radiocarbon date of (AA-12587)  $4150 \pm 95$  BP was obtained from the pit.

A smaller possible structure (F136) is similar to the ring-ditch house in size and shape, but no foundation trench was used in its construction. It had a single- rather than double-skinned wall, represented by stakes driven directly into the ground surface (except for a single stake-hole carved into exposed rock). The area within the stake-holes was sealed by two successive spreads of compacted, charcoal-flecked clay. These deposits may represent trampled floors, although it has been suggested (Patrick Ashmore, pers comm) that the upper spread represents collapsed daub from the building walls rather than a floor deposit. Micromorphological analysis from elsewhere on the site (Carter, above) attests to the difficulty in understanding such deposits in the field and, with hindsight, it is regretted that further column samples were not taken for analysis. The only evidence for an internal hearth was a small concentration of charcoal fragments on the surface of the lower 'floor' deposit. The absence of internal hearth deposits is a common feature in the record of excavated Neolithic houses and may indicate that fires were raised from the floor, perhaps on stone slabs.

At Chapelfield, Cowie (Atkinson, forthcoming) a series of eight small, sub-circular, stake-built structures was recorded. Several of these had clay 'floors' encompassed by stake-holes. This site was plough-truncated and the chronology of the structures is not fully understood, but identification of pottery recovered from pits on the same site points to an early to middle Neolithic date for these structures.

Finally, although the context and comparanda which have been described for this building point to a Neolithic date, the very fact that a clay floor survived in a largely intact state — sitting proud of the surrounding natural subsoil — raises the possibility that it is of a much later period than any of the more heavily truncated features which were excavated elsewhere on the site.

## PITS

At Beckton Farm, as on the majority of Scottish lowland sites, most of the evidence for prehistoric human activity took the form of negative, earth-cut features. Identifying the motives in the creation of these features is in some cases fairly straightforward. The post-holes represent the first stage in the construction of upstanding, positive features raised into the air rather than negative features cut into the earth. The two pits which contained quantities of Grooved Ware appear to have been dug specifically for the purpose of receiving that material as the final stage of ritual practices related to the disposal of the dead. Other pits were created to accommodate fires and hearths, perhaps for cooking. Some of the pits at Beckton Farm contained domestic debris and may have been created as receptacles for rubbish, although one feature (F033) appears to represent a former post-hole later reused as a rubbish pit once the post had been removed.

Despite these examples, providing a ready interpretation for most of the pits on the site is not possible. The majority of pits are also undated, providing neither suitable charcoal deposits nor diagnostic artefacts and their function remains enigmatic. It is not uncommon for Neolithic

sites in Britain to be characterized by a multitude of irregularly cut pits, which in many cases represent the only surviving evidence of prehistoric activity on a site.

In England, the site at Stacey Bushes comprised a series of irregular pits, some of which contained both Grooved Ware and Grimston sherds (REF ). Three possible stake-holes and a post-hole represented the only direct evidence for structures, though a curved pit was tentatively interpreted as a possible drainage gully related to a house. Several undercut pits were interpreted as borrow pits related to the removal of clay for use in either pottery or daub production. Other than one pit which contained pottery and charcoal, interpreted as hearth sweepings, they remain something of an enigma and their original function can only be guessed at. The excavator of this site suggests that these pits relate to a settlement site geared toward pastoral agriculture. Although this interpretation may be criticized for taking the available evidence too far a case can be made for the pits representing the only surviving remains of a settlement site. Had the ploughing at Beckton Farm penetrated several centimetres deeper than much of the evidence, other than pits and substantial post-holes, would have been largely eradicated. If this had been the case then there would certainly have been no trace left of the stake-built 'house', perhaps other than the single stake-hole carved in the rock.

A number of Neolithic sites close to Beckton Farm have also been found to consist largely of pits, many of them very irregular. At Wellbrae pits, some of which contained Neolithic pottery, stone tools and burnt bone were found scattered across the site. A number of these were originally thought to be contemporary with a large rectilinear enclosure. However, radiocarbon dates from grain in a pit sitting within the centre of the enclosure suggests that this structure may relate to activity on the site long after the Neolithic; indeed it appears to be Dark Age (Derek Alexander pers comm; for an account of features at Wellbrae see Alexander & Armit 1993). It appears, therefore, that the Neolithic component at Wellbrae consists exclusively of pits. Unless contemporary structural elements are located outwith the excavated area at this site, it again seems reasonable to suggest that ploughing has removed the more ephemeral evidence for buildings related to the settlement activities suggested by the contents of the pits.

At Blairhall Burn, Nithsdale, just over 20 km to the west of Beckton Farm, excavation in the path of the same pipeline which threatened the Wellbrae site revealed a number of features with parallels at Beckton Farm (Strachan 1993). These not only include a series of irregular pits, some of which contained sherds of late Neolithic Impressed Ware, but also structural elements, most notably a curvilinear slot which bears some resemblance to feature F151 at Beckton. Unlike the Beckton example the curvilinear slot contained packing stones and thus can be more clearly related to some form of structure. Again, however, the ephemeral surviving remains make it difficult to visualize the nature of any such structure.

Attention should be drawn here to two further examples of archaeological activity in close proximity to the Beckton Farm site, both of which are represented by single pits. On the lands of Kirkburn Farm, near the cremation cemetery excavated by Cormack, excavation in advance of motorway construction recorded a steep-sided oval pit filled with angular stones. The largest, flattest stones were pressed into the sides of the pit; smaller stones were tipped vertically into the centre (Bain 1993). Despite the lack of dating evidence, close proximity to the cemetery and to the Beckton Farm site, and the recovery of the Neolithic flints from the field surface all suggest that this feature was also Neolithic. The second site was identified at Carzield, Kirkton, where a pit containing early Neolithic pottery and polished stone axe fragments was found eroding from the banks of a burn (Maynard 1995). The presence of pottery and charred cereal grains suggest that this pit had at one time been associated with a settlement, of which, as yet, no trace has been found.

## FOUR-POSTERS

On purely stratigraphic grounds, the only real clue to the place of the four-posters within the site's history is that the southern example post-dates the hearth which provided the earliest radiocarbon date. Unfortunately, this stratigraphic relationship provides no clue as to how long afterwards the four-poster was constructed; this may have been a matter of a hundred years or several thousand years. Despite this uncertainty, the northern four-poster may yield a further clue to the sequence of activity on the site.

Throughout the excavated area, it can be tentatively suggested that positions of at least some of the pits were influenced by a knowledge of earlier features (thus the recutting of pit F150 and the placing of a Grooved Ware sherd is a possible example of late Neolithic knowledge of previous activities and features on the site). A similar case can be cited for the deposition of Grooved Ware in pit F080, immediately adjacent to the north-westerly post-hole of the northern four-poster. It is possible that the position of this pit was determined or motivated by the presence of the upstanding structure represented by the four post-holes. The obvious implication of this suggestion would be that the structure was erected prior to the deposition of Grooved Ware on the site and that acts of deposition were related to the use or meaning of the four-poster structures.

Assigning a function to the four-posters is as problematic as pinpointing the period during which they were constructed. A considerable number of these structures have been identified on late prehistoric sites in Scotland and elsewhere, and various functions have been put forward (eg Ellison & Drewett 1971). In later contexts, usually Iron Age, these features are commonly interpreted as granaries. A similar feature was detected at Myrehead, Falkirk (Barclay 1982, 67), where the excavator suggested that the feature might relate to a granary or the central component of an otherwise totally denuded round-house. The four-poster at Myrehead was very similar in size and appearance to those at Beckton Farm. However, the site at Myrehead did have Iron Age elements and was situated within a palisaded enclosure. At Beckton Farm there is no obvious evidence for any post-Neolithic activity, nor was there any sign of a palisaded enclosure, though one was identified some 200 m to the south-west and may have been associated with Grooved Ware recovered nearby (Cormack 1963a).

On the basis of the foregoing, it is proposed that four-posters at Beckton Farm are more likely to have been Neolithic features, rather than remains of some much later use of the site. However, the fact that the Beckton Farm four-posters appear within an atypical context does not automatically negate their function as granaries. The possibility that they represent a rare example of pile-built Neolithic granaries or other domestic structures should be given some consideration.

Samples from the post-hole fills included not only carbonized wood but also five grains of *Hordeum* (barley), representing the largest concentration of cereal grains from the site. The direct correlation between post-holes and cereal grains may bolster the granary idea, and has certainly been used to this end elsewhere (Gent 1983), some caution should be exercised. We understand very little about the processes responsible for the deposition of these grains in the post-hole fills. They may have been integrated with the soil used to pack the post-holes and would therefore have nothing to do with the four poster-structures, but would relate instead to activities which pre-dated their construction. (It was this same reasoning which excluded all charred plant remains in post-hole fills from radiocarbon submission, as there could be no guarantee that the resulting determinations related to the relevant construction dates.)

It has already been suggested that the clay-lined fire pit (F194) located some 10 m north-west of the four-posters may, among other possibilities, have been used as a corn-drying kiln. The

thorough drying of grain, sometimes achieved by parching, is essential if it is to be stored for any length of time. Charcoal from this feature included a single grain of *Hordeum vulgare var. nudum* (six-row naked barley), but a single cereal grain does not make a corn drying kiln and again we know little about the processes which brought about deposition. However, a fragment of broken saddle quern was also recovered from the fill of the fire-pit, providing further limited evidence for grain processing, and possibly in the immediate neighbourhood of the fire-pit.

Despite the initial attractiveness of the hypothesis centred upon Neolithic granaries, there is a strong body of evidence which weakens this argument, in addition to the notes of caution described above. First, there is no evidence for similar structures on Neolithic settlement sites, with the best examples coming from Iron Age enclosed sites. Furthermore, centralized storage of large quantities of grain appears to be limited to high-status sites, within hillforts or palisaded enclosures (Gent 1983). The remains at Beckton Farm suggest an open settlement, which may have consisted of little more than a few small houses. Second, no parallels exist for corn-drying kilns during this period. In England verified examples do not appear before the Roman period, and in Scotland they appear as late as the early medieval period. The lack of evidence for grain-drying in earlier periods may be due to techniques which have left no clear trace in the archaeological record, such as drying ears of corn in nets over fires, parching in pots or rolling hot stones amongst grain held in baskets (Tim Holden, pers comm). It may be more reasonable than to seek other functions for the clay-lined trough and, despite the absence of pottery wasters, its use as a pottery kiln rather than a grain-drying kiln seems more likely. Analysis of the pottery recovered from the site does suggest that local clays and tempers were used and this in turn may indicate manufacture on site (Jones, above). Regional pollen analyses (Boardman, above) also point away from large-scale grain storage and processing, indicating instead that the late Neolithic in south-west Scotland saw a period of forest regeneration.

Thus, the case for the four-post settings representing Neolithic granaries is not a strong one and an alternative argument for their role in ritual activities will be outlined below.

#### OTHER DOMESTIC ACTIVITY

Whether or not the four-post structures were used as granaries, the presence of grain on the site attests to local cultivation of cereal crops. From the available evidence, however, it is not possible to make firm statements about the relative importance of arable products within the subsistence strategies of the people living on the site.

Despite the suggestion that Neolithic subsistence in other parts of Scotland may have been largely pastorally based (eg Armit & Finlayson 1992), there is no direct evidence for livestock husbandry at Beckton Farm. Almost all of the few fragments recovered were too small to allow positive identification. The only animal bone identified was deer, with both bone and antler fragments present — together with human bone — in one of the Grooved Ware pits (F080). What this limited evidence does suggest is that natural resources continued to be exploited long after domestic plants and animals became available.

Evidence for hunting at Beckton Farm is not limited to fragments of wild animal bones. The recovery of an oblique arrowhead during the excavation, and the discovery of a further example by Cormack in fields not far from the site, indicate that hunting with bow and arrow was practised in this area during the late Neolithic. It is possible that during this time large expanses of the surrounding countryside were still covered with deciduous woodland (Boardman, above) which would have supported a variety of animal species, including deer. The creation of clearings within this woodland, perhaps to create browse for livestock or small arable fields, may have

promoted deer hunting, as species such as red deer tend to congregate on the forest fringe where fresh forage is plentiful.

Further evidence for the exploitation of natural foodstuffs takes the form of charred hazelnut shells, recovered from a variety of contexts. Although hazelnuts were the only edible wild plants to leave any evidence, a factor largely due to their hard shell and the possible use of fire in their preparation, it is very likely that other wild plants were also used by the inhabitants of the site. The quern fragment (AGF) has been discussed in terms of grain preparation, but it is equally possible that wild plants were processed using the same piece of equipment.

## RITUAL

If the argument (above) for the use of the four-posters as granaries is not wholly satisfactory, we should perhaps look elsewhere for an explanation. Features clearly related to ritual practice, in the form of Grooved Ware pits, were identified at Beckton Farm, and it is perhaps to ritual that we should also turn in an attempt to explain the function of four-posters on a Neolithic site.

In Neolithic Scotland and northern England there is a strong precedent for four-post structures acting as a focus for ritual practice. However, such buildings were generally constructed from stone and not timber. These megalithic settings are only one manifestation of the complex family of ritual monuments constructed and used during the late Neolithic and Early Bronze Age period (Burl 1988). Equilateral settings consisting of four upright stones do represent something of a precedent for the appearance of such features in a Neolithic context, though the associated ritual practices might differ.

Much has been written about the Neolithic practice of excarnation and other treatments of human remains prior to their interment in monuments such as chambered tombs. However, the sites at which these pre-interment activities took place have largely escaped recognition by archaeologists. The placement of corpses on raised platforms similar to those used by various North American native groups is commonly cited in discussions of Neolithic excarnation practice (eg Hedges 1984; Barclay & Russell-White 1993). In the ceremonial complex at Balfarg/Balbirnie, Fife, rectilinear arrangements of post-holes were found to enclose substantial post-hole settings. These have been interpreted as mortuary enclosures with the internal settings representing the remains of excarnation platforms (Barclay & Russell-White 1993).

The deposition of material related to the treatment of the dead is more directly indicated at Beckton Farm by the pit containing Grooved Ware with burnt human and animal bone. This material is likely to have been residue from a cremation pyre (McKinley, above) and it has already been argued that the pit may have been deliberately dug close to an upstanding four-poster.

At Balfarg Henge (Richards 1993, 187), Grooved Ware was also associated with burnt animal bone, with high phosphate levels suggesting cooking or animal sacrifice. The pots used in this process were broken and deposited around posts, later to become integrated in their fills. This pattern resembles that at Beckton Farm, where Grooved Ware vessels appear to have been deliberately smashed and then inserted in pits, one of which contained cremated human and animal bone, and another the stone which may have been used to smash the pot. The purposeful destruction of pottery and its burial, either immediately or some time after breakage (indicated by abrasion on pottery from F080), suggests strongly held ideas of pollution and purity, with the differing times of deposition (immediate and eventual) perhaps indicating variation within this belief system (Jones, above). A similar pattern may be evident at Balfarg (Richards 1993, 188),

where smaller, finer vessels were generally recovered from the interiors of the two structures, while the coarser wares were generally recovered from the fill of the enclosure ditch.

The burnt human bone at Beckton adds to the growing body of evidence for cremation during the late Neolithic in Britain and Ireland. If the four-posters do represent excarnation platforms then we appear to be witnessing the close juxtaposition of two very different funerary rites: cremation and excarnation. Alternatively, the four-posters might well have fallen out of use by the time the cremated human bone was deposited in the nearby Grooved Ware pit. Indeed, the deposition of Grooved Ware at Balfarg appears to coincide with the end of the use of the wooden excarnation platforms (Barclay & Russell-White 1993). Cremation is generally regarded as a later form of funerary rite than excarnation, which is widely associated with the inclusion of disarticulated human bones in chambered tombs. One problem here is the distinct lack of chambered tombs in the vicinity of the site. The closest examples are long cairns, which do not necessarily include chambers, at Stiddrig (DMF 3), some 20 km to the north, Capenoch Moor (DMF 1) and Fleuchlurg (DMF 2), some 30 km to the north-west. However, this apparent absence of chambered tombs does not necessarily negate the possibility of excarnation at Beckton Farm. It is becoming increasingly apparent that a number of funerary rites were practised during the Neolithic (Richards 1996) and the high preservation levels associated with chambered tombs have undoubtedly painted a somewhat biased picture. It is not unreasonable to suggest that excarnated bones were sometimes cremated prior to, or instead of, their insertion into chambered tombs. The latter of these rites appears to be in evidence at a number of chambered tombs in Caithness (Henshall 1991, 64), where cremated bone was introduced into chambers which also included disarticulated unburnt bones, though this may equally demonstrate that bones previously deposited in the tomb were later burnt, as suggested at Newgrange, Ireland (O'Kelly 1982, 107). Ethnographically, the practice of cremating previously excarnated bones is well attested in various parts of India and Bali (Jane Downes, pers comm). If this were the case then these structures may not only relate to the cremated bone in the Grooved Ware pit but also those buried in the cremation cemetery at Kirkburn, from which Grooved Ware was recovered, some 600 m to the north. The knoll occupied by that site is in clear view of the terrace occupied by the Beckton Farm site, just as any structure on the terrace would be visible from the cemetery and from many other parts of the valley floor. This factor appears to be important in other Neolithic ritual and funerary contexts, with intervisibility apparently playing an especially important role in the placing of chambered tombs.

It is difficult at Beckton Farm to tease out those elements which relate to activity of an overtly ritual nature from those which can be described as domestic. Similar problems were present at Wellbrae where the mutually exclusive appearance of both Grooved Ware and Late Neolithic Impressed Ware in pits has also been interpreted as structured deposition, while other pits on the site have been interpreted in terms of a 'domestic' function (Alexander & Armit 1993, 36). It is important to stress, however, that this distinction between 'ritual' and 'domestic' activities is a Western, 20th-century construct and may have meant little to prehistoric peoples.

A case can be made for some Neolithic domestic sites experiencing a dramatic change in function in the later parts of their history. At Barnhouse, on Orkney, a complex of stone-built houses appears to have been abandoned after a protracted period of settlement. At this time a much larger monumental version of the domestic structures was built on the site of the former settlement. It is argued that this building then became the focus for a number of ritual activities, with settlement located elsewhere (Richards 1996). The Bronze Age cremation cemetery at Kirkburn, some 500 m to the north of the site, appears to have developed on the site of earlier, Neolithic activity. The presence of pits containing early Neolithic and Beaker sherds, flint flakes,



hazel-nut shells and a reworked stone axe fragment, may relate to domestic activity, with linear slots, also containing Neolithic pottery, suggesting to the excavator the presence of small buildings on the site (Cormack 1963b, 110). Though the term ‘house’ has been used repeatedly in this report to describe several of the buildings identified through excavation, the evidence from Barnhouse highlights the possibility that some buildings may not have been ‘houses’ in the sense that they defined a living place. Buildings may have served other functions, and these may have included providing a focus for ritual activity. This is perhaps especially important when considering rituals geared toward the treatment of the dead, a function which will be suggested for the four-posters in the discussion which follows.

#### SETTLEMENT AND MOBILITY

We have little idea of the intensity of site occupation at Beckton Farm over the time span suggested by radiocarbon dates, with the majority of features remaining undated. It cannot be stated for certain that the site was occupied consistently throughout this period, and the dates obtained suggest that much of the activity clusters in the later part of the sequence. Occupation may, therefore, have been punctuated by periods when the site was abandoned altogether or at least the activities taking place there scaled down in their intensity.

Such a picture would allow for excarnation at the site at times when it was not occupied as a settlement. It has been suggested that in places as far apart as Wessex (Barrett 1994) and the Hebrides (Armit & Finlayson 1992), fully permanent agricultural settlements did not appear until the Bronze Age, and settlement before then may have taken the form of semi-transient movement through the landscape, with a greater reliance on pastoral agriculture and the continued importance of wild resources such as deer rather than arable crops. Large-scale grain storage facilities, such as raised granaries, would not be likely to occur within this type of living. However, temporary site abandonment would not be at odds with the construction of excarnation platforms. It has been suggested by the author elsewhere (Pollard 1996) that certain Scottish shell middens, which are widely regarded as having an essentially economic function, were at times used as sites for excarnation. This alternative use would have coincided with periods when people were exploiting other parts of the landscape and not periods when the middens represented a seasonal focus for the exploitation and consumption of marine resources. Such a picture may fit the evidence at Beckton Farm, with a site strongly associated with human life becoming a focus for death at a time when most of the domestic activities had shifted, perhaps temporarily, elsewhere.

A shifting pattern of settlement may also lie behind the apparent lack of artefactual material on the site. Topsoil sampling strongly suggests that large quantities of material were not liberated by the plough, although some lateral displacement is to be expected (Yorston *et al* 1990). The obvious conclusion to be drawn from this is that artefacts were not plentiful on the site in the first place and temporary or sporadic settlement may have had a part to play in this.

A somewhat different picture is offered by the site at Kirkhill Farm (Pollard, forthcoming), where a burnt mound and other features, including pits, have produced Neolithic radiocarbon dates broadly contemporary with those from Beckton Farm. Although a substantial lithic assemblage, apparently related to these features, was recovered, not a single pottery sherd was found. Again, this site appears to suggest a degree of mobility, with the specialist use of the site, possibly as a hunting station, resulting in the deposition of only certain components of material culture.

A settlement occupied periodically by small groups fits well with our current understanding of the contemporary environment. Pollen analysis from south-west Scotland points to only limited disturbance of the natural woodland before 1750 BC (see Boardman, above). Rather than large-scale arable agriculture we should perhaps be envisaging a largely pastoral economy, with grazing created through the clearance of relatively small areas of woodland. Grain production is certainly in evidence at Beckton Farm, but the small quantities recovered do not suggest large scale production. Arable production was practised on a larger scale elsewhere at this time. At Balbridie much greater quantities of charred grain (Ralston & Reynolds 1981) were recovered. This may reflect not only larger scale production but also suggests a special role for this site, with its impressive timber building, as a central place to which grain was brought from the surrounding area. It is perhaps at sites like Balbridie that we should expect to find evidence for the mass storage of grain, and not the more transient sites, such as Beckton Farm.

The question of mobility, with regard to settlement and economy, is at present a contentious point among those studying the period. Barclay (forthcoming) has rightly pointed out that most of the arguments for a semi-mobile Neolithic are based on the apparent lack of evidence for substantial buildings and formal land divisions in southern England (eg Barrett 1994). He further suggests that there is little evidence for such a pattern in much of Scotland, with sites like Balbridie and other, unexcavated sites observed on aerial photographs, providing strong evidence for permanent occupation and relatively large scale crop cultivation. This debate is likely to continue for some time to come.

## CONCLUSION

The excavator makes no apologies for refusing to present a single positive interpretation for the archaeology encountered at Beckton Farm. Two possible explanations have been proposed, each telling a slightly different story of what might have happened in a place which presented itself to the excavator's only as a series of filled holes in the ground. The first of these is that the site represents a settlement which included facilities for mass grain storage, perhaps appearing later than the evidence for Neolithic settlement. The second is that the four-posters represent excarnation platforms related to the sporadic use of the site as a focus for rituals related to the disposal of the dead. When all the evidence is considered the latter of the two hypotheses seems the most likely, but the author has left the final decision to the reader. It is also admitted that there is the ghost of a third hypothesis here, that much of the evidence recovered, including the so-called 'houses', relates to overtly ritual rather than 'domestic' activity. There are, as with any interpretation, a number of potential flaws in the arguments presented. The most obvious of these is the potential for the four-post settings to relate to post-Neolithic structures. However, if they are Iron Age granaries their presence on a site which includes no evidence for contemporary activity presents a greater enigma than that created by a Neolithic provenance.

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