AN EARLY MESOLITHIC SITE AND FIRST MILLENNIUM BC SETTLEMENT AND PIT ALIGNMENTS AT SWARKESTONE LOWES, DERBYSHIRE

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SUMMARY

A detailed account is provided of archaeological investigations by Trent & Peak Archaeological Trust in 1993 and 1994 in the vicinity of the Lowes Farm, Swarkestone parish (centred SK 366295). This work was funded by the Highways Agency, prior to construction of the Derby Southern Bypass between Hilton and the M1. The new road cut through numerous features associated with first millennium BC activity, including a curvilinear boundary ditch, perhaps forming part of a large ridge-top enclosure, a possible ditched enclosure, two approximately parallel pit alignments, scattered pits and postholes and, of particular interest, a locally rare example of a Late Bronze Age/Early Iron Age post-built round-house. Several features which may relate to a nearby Romano-British settlement were also recorded. An unexpected concentration of Early Mesolithic flintwork provides rare evidence from the Trent Valley for an activity focus of this period. Other artefacts, associated with first millennium BC domestic activity, include pottery of the Late Bronze Age/Early Iron Age and later Iron Age periods, fragments of briquetage ('stony VCP'), fired clay, heat-affected stones, querns and rubbing stones. Small quantities of Romano-British sherds were also recovered. Pollen, charred plant remains

and leaf subfossils from features on the site, together with limited insect remains, have added to knowledge of the first millennium BC environment and agricultural economy of the middle Trent Valley.

INTRODUCTION

Attention is focused in this report upon the results of archaeological fieldwork carried out at Swarkestone Lowes in 1993 and 1994 with funding provided by the Highways Agency. This work followed an assessment of the archaeological impact of the proposed road scheme, submitted in June 1992 (Challis 1992), and comprised a phase of evaluation between January and March, 1993 (Challis 1993) and more extensive excavations from August to November, 1994. The 1994 excavations represent the most recent in a long history of archaeological investigations at the Lowes, by M. Posnansky (1955), E. Greenfield (1956), N. Cummins (1961), S. Losco-Bradley (1983–84) and, most recently, by K. Challis, L. Elliott and T. Morris in December 1993 and from March to May 1994, prior to the construction of a British Gas pipeline across the area (Morris 1993; Challis and Elliott 1994). The main results of this other work are considered below where relevant to an understanding of the excavations described in this report, but are not discussed in detail.

Archaeological evaluations of the proposed road route in 1993 included a geophysical survey by Stratascan Geophysical Survey Services, accompanied by trenches at six locations within the proposed road corridor (Fig. 2: trenches 03–08). The evaluations were supervised by K. Challis, with the assistance of a team of excavators from Trent & Peak Archaeological Trust, and preceded more extensive excavations by L. Elliott in the summer and autumn of 1994, under the management of D.F.Mackreth (Fig. 2: trenches 18–23). All of the above work was funded by the Highways Agency, to whom thanks are here extended.

A full archive of the above work, comprising the primary and processed site records and all artefacts, is preserved in the Derby Museum and Art Gallery. The primary site records comprise geophysical data, context record sheets, artefacts lists, site plans and sections, lists of photographs and drawings, black and white negatives and contact prints, and lists of environmental samples (pollen; charred plants; waterlogged plant remains). The processed records include word-processed versions of the context record sheets, artefact catalogues and photographic and drawings records, plus processed plans and sections, artefact drawings and all specialist reports and finds catalogues.

Topography and Geology

The site is located on the crest of a narrow east-west ridge of Triassic Mercia Mudstone, rising *c.* 15m above the River Trent to the south and the lowlying Sinfin Moor to the north (centred at SK 365296; Fig. 1). The ridge descends eastwards to the Cuttle Brook, which flows southwards from Sinfin Moor into the Trent. The 1:10,000 scale geological sheet, SK32NE, surveyed by K. Ambrose in 1993–95, shows the site to be located on the Etwall Sand and Gravel: a former terraced deposit of the Trent currently dated to the Wolstonian (*c.* 297,000 years before present). Details of the local geology are contained in an archive report by Dr John Carney (British Geological Survey), which forms the basis of this summary. The gravel rests locally on an Anglian-age red-matrix boulder

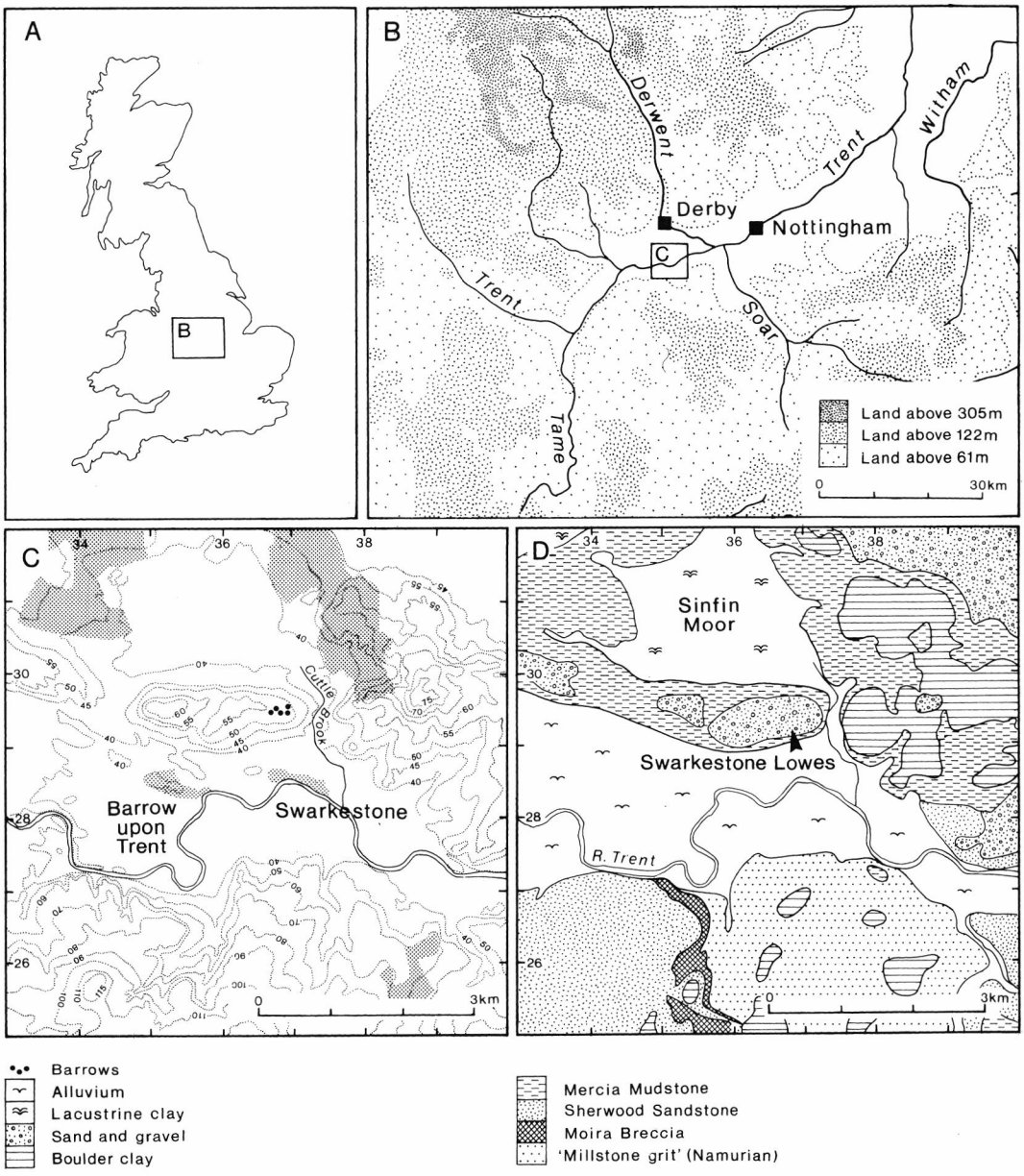

Fig. 1: Location map (C & D: scale 1:100,000)

clay, known as the Thrussington Till, but mainly overlies red mudstones of the Cropwell Bishop Formation: a component of the Mercia Mudstone Group (formerly Keuper Marl). The ridge is flanked by broad expanses of floodplain alluvium to the south, north and east, and in the prehistoric period communities settled on the Lowes would no doubt have had ready access to a rich variety of wetland resources. The light and fertile soils developed on the Etwall Sand and Gravel would also have provided an attractive resource to early farmers, while the high perched water table, observed during excavation, would have facilitated the watering of stock.

Earthworks

Swarkestone Lowes preserves the only group of surviving Bronze Age barrows in the Trent Valley, comprising at least four standing mounds (Fig. 2: barrows I–IV). Cropmarks show three of these to have been encircled by a ditch, of 34m (II) 26m (III) and 32m (IV) diameter, which would have provided raw materials for the mound and served as a symbolic boundary to the monument. Barrow I is currently under pasture and is a prominent landscape feature, standing to a maximum height of 3.6m; after Round Hill, at Twyford, Derbyshire (O'Brien 1978, 8), it ranks as the best preserved barrow in the Trent Valley. Barrows II, III and IV, by contrast, have been severely denuded by ploughing to heights of 1m (II and IV) and 0.4m (III). The serious impact of modern ploughing was demonstrated by a contour survey carried out by Stuart Losco-Bradley in 1983–4 over an area of 10.4ha (Losco-Bradley 1993, 5). This showed Barrows II-IV to have been reduced in height by up to 0.8m since they were recorded by Posnansky in the 1950s (*cf.* Posnansky 1955, 125).

The contour survey also revealed two additional mounds between Barrows II and IV, standing 0.3–0.4m above the field surface (Fig. 2: V & VI). These could represent the remains of other barrows up to 30m (V) and 40m (VI) in diameter. Barrow V was also observed by Losco-Bradley as a light-coloured soil-mark, but no cropmarks which could indicate associated ring-ditches have been recorded. The apparent absence of ring-ditches need not be significant, however, for excavations by Greenfield demonstrated that the earliest phase of Barrow IV comprised a mound without an encircling ditch (Greenfield 1960, 4).

Nineteenth century documentary records refer to four or five standing barrows on the Lowes (respectively Briggs 1846, 15, and Kelly 1881, 1143). These probably correlate with Barrows I-IV and possibly either Barrow V or VI, one of which may have been too denuded by that time to have been clearly visible.

Cropmarks

The air photographic collections of the National Monuments Record and the University of Cambridge Committee for Aerial Photography were searched for photographs of the area shown in Fig. 2. Cropmarks were plotted by S. Malone from scanned and map-registered photographs, employing NMR photographs SK 3629/1 (Plate 1), 3629/6, 3629/10, 3629/11, 3629/19 (Plate 2) and 3629/21.

Ring-ditches demarcate Barrows II, III and IV, while to the west of Barrow II another ring-ditch may be indicated by a circular cropmark plotted by O'Brien (1978, fig. 6). This is visible on only one photograph (National Monuments Record: SK 3629/1) and could provide evidence of a seventh mound. Further air photographic or geophysical

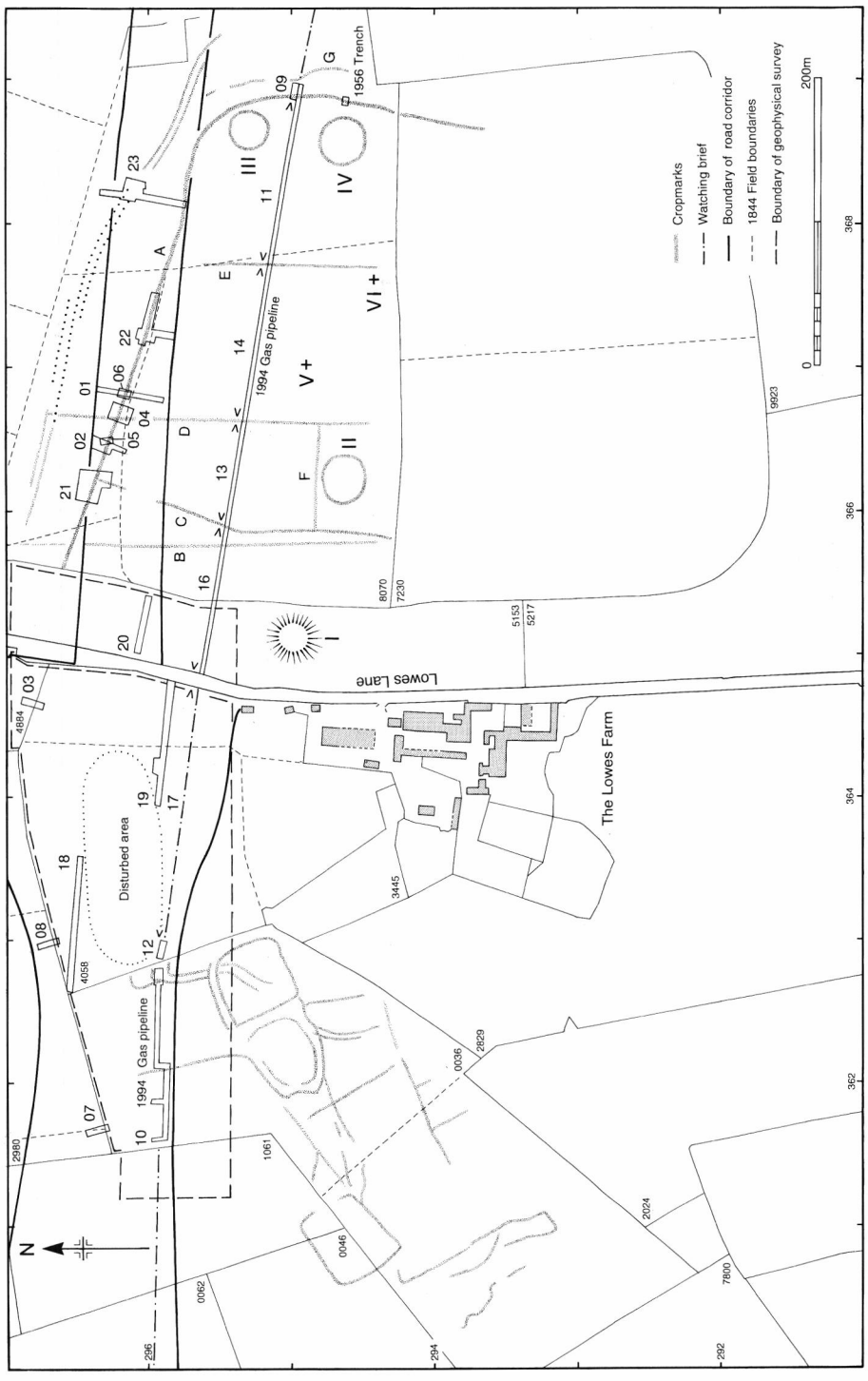

Fig. 2: Plan of Swarkestone Lowes, showing Bronze Age barrows (I–VI), other cropmarks and location of excavation trenches. Scale 1:5,000

Plate 1: Photograph of Swarkestone Lowes, showing Barrows III and IV and Iron Age curvilinear boundary ditch. © Crown Copyright: RCHME Pickering Collection.

survey would be required, however, to establish that the cropmark is not of recent agricultural origin. These ring-ditches are components of a more extensive cropmark complex, reflecting intensive use of the area adjacent to the barrow cemetery during the first millennium BC and Romano-British period. The recorded cropmarks are described below, and the history of archaeological work is summarised in the following section.

One of the more remarkable features of Swarkestone Lowes is a substantial ditched boundary, dated by earlier excavations to the Iron Age, which runs along the northern and eastern margins of the barrow cemetery (Plate 1). The feature is visible as a cropmark for *c.* 320m along the northern side of the ridge, where it follows a course *c.* 2m below its crest (Fig. 2: A). A break of *c.* 8m in the cropmark, interpreted as possibly an entrance gap (Losco-Bradley 1993, 7), may be discerned approximately midway along its course on some air photographs (SK 3629/6,7,10), but other photographs suggest a continuous feature (SK 3629/1). The latter interpretation has been confirmed by recent excavations (Fig. 2: trench 22). The cropmark ends *c.* 50m east of Lowes Lane. Its line is continued to the west of the Lane by a modern field boundary, standing on a positive lynchet which it has been suggested might continue the line of the earlier feature (*cf.* Losco-Bradley 1993, 9). The excavations described below raise the

Plate 2: Photograph of enclosure complex west of Lowes Lane, Swarkestone Lowes. © Crown Copyright: RCHME Pickering Collection.

possibility of a westerly continuation of the ditch beyond Lowes Lane to at least trench 03 (Figs. 2–4), but its course beyond this, if indeed it continues this far, is unknown.

The boundary ditch veers sharply southwards near the eastern tip of the ridge, passing within 5m of the eastern side of Barrow III, and continues across the end of the ridge for a total length of *c.* 175m. This right-angled arrangement could conceivably imply demarcation of the northern and eastern sides of an exceptionally large ridge-top enclosure, of minimum internal area *c.* 8ha, but the course of this feature beyond the area shown as a cropmark remains unresolved.

Three linear crop-marks, interpreted below as probably Post-medieval field boundaries, extend north-south across the ridge, slightly obliquely to the curvilinear boundary ditch and to the ploughed out remains of Medieval ridge and furrow (Fig. 2: B, D, E). These parallel cropmarks define two rectangular land parcels *c.* 90m and 110m wide, one of which may have been sub-divided by a west-east ditch (F). The latter passes very close to the northern edge of the ring-ditch demarcating Barrow II, suggesting that these features are unlikely to have been contemporary. One other linear feature may be observed running across the ridge-top (C). This is sinuous in plan, in contrast to the other north-south cropmarks, and shows slightly more boldly on the available air photographs. It is aligned at right angles to the curvilinear boundary ditch, and on the basis of evidence obtained by excavation may represent another Iron Age land division (see below: trench 21).

Up to three lines of closely spaced pits may be observed running WNW-ESE along the north slope of the ridge, just below the summit, for a total distance of *c.* 360m. The cropmarks are at times very faint and occasionally disappear altogether, while for some

sections of the alignment the pits appear to merge into a continuous boundary. The alignment continues beyond the junction between the northern and eastern arms of the curvilinear ditched boundary, apparently as two closely spaced sinuous ditches. Slightly further south, another sinuous linear cropmark, shadowing the eastern arm of the curvilinear boundary feature, may be discerned faintly (Fig. 2: G).

To the west of Lowes Lane, centred at SK 362294, air photographs show a cluster of ditched subrectangular and polygonal enclosures, averaging 0.2ha in internal area (Plate 2). The complex, which also includes a number of probable ditched trackways and rectilinear arrangements of ditches possibly representing associated fields, covers an area of *c.* 5ha, and invites close comparison with known Iron Age and Romano-British occupation foci elsewhere in the Trent Valley (e.g. Whimster 1989, 66–87). As will be argued below, limited excavations would support this interpretation.

History of Archaeological Work

The barrow cemetery at Swarkestone Lowes has long been a focus of antiquarian interest, and in the first part of this section the history and results of archaeological work carried out prior to the 1993 and 1994 excavations are summarised. The remaining two sections consider in turn the 1993 and 1994 investigations for the Highways Agency, with brief consideration of excavations carried out, between these two phases of work, before the laying in 1994 of a British Gas pipeline across this area.

Archaeological Work prior to 1993

The earliest recorded archaeological investigations of the barrows were carried out in 1955 by Merrick Posnansky, as part of a pioneering programme of research into the prehistory of the middle Trent Valley (Posnansky 1955; 1956). Posnansky excavated Barrow II, which he showed had incorporated a turf core beneath an approximately oval mound of orange sandy and pebbly soil. The mound material had presumably derived from an encircling ditch, *c.* 30m in diameter internally, separated from the mound by a wide berm. Both the mound and the turf core had been truncated by ploughing. The turf had been piled above an unaccompanied cremation placed on the original ground surface near the centre of the monument, and yielded two earlier Bronze Age sherds of Food Vessel type. A mixture of Mesolithic and Neolithic/Bronze Age flintwork was recovered from the turf core and overlying mound, the old ground surface and ploughed surface layers. Sherds of Iron Age and Romano-British pottery from the ring-ditch and within redeposited mound material indicate later activity in the vicinity, while fragments of Anglo-Saxon pottery, a glass bead and metalwork from plough-disturbed mound material and animal burrows suggest re-use of the mound for pagan Saxon inhumations. Further evidence for later use of the monument is provided by two Anglo-Saxon inhumation graves cut into the ring-ditch, one associated with a small iron object and the other with a variety of bronze and iron artefacts, several glass beads and some fragments of Saxon pottery.

Barrow IV was excavated by Ernest Greenfield in 1956 (Greenfield 1960). This monument had also been seriously denuded by ploughing, and preserved traces of a large robber trench in the centre of the mound. Evidence survived of a primary turf barrow, sealing a roughly oval pit preserving towards its base the outline of a wooden coffin, presumably for an inhumation. The burial had been accompanied by a flint knife, but

the only other finds from the primary barrow were two possible Neolithic sherds and a small quantity of flintwork from within the mound. This mound was sealed beneath a larger turf barrow with an encircling ditch separated from the mound by a wide berm. The later turf mound sealed an Early Bronze Age urned cremation which had been placed in a small pit dug into the fill of the earlier pit. The most significant discovery was the unexpected survival, beneath the mound, of an occupation layer and scattered hearths, pits and lines of stake- and post-holes associated with flintwork and Beaker pottery. This layer also yielded the first certain examples from Derbyshire of Earlier Neolithic Grimston Ware, implying a yet earlier phase of activity. These discoveries provided unprecedented evidence for Neolithic and Beaker settlement in the Trent Valley, and despite more recent discoveries at sites such as Willington, Derbyshire (Wheeler 1979), the site retains its high rarity value. Associated flintwork included both Mesolithic and later Neolithic/Early Bronze Age artefacts, while, as at Barrow II, a small quantity of redeposited Iron Age sherds was recovered.

Greenfield also excavated a section across the eastern arm of the curvilinear boundary ditch, immediately east of Barrow IV (Fig. 2), revealing a V-shaped ditch *c.* 4.25m wide at the top by almost 2m deep. The only finds, unfortunately, comprised a collection of 47 flint flakes and 'a worn sherd of prehistoric date' (Greenfield 1960, 10).

Five small trenches were excavated in 1961 across the ditches of the two most easterly enclosures of the enclosure complex recorded to the west of Lowes Farm (Cummins 1961, 4–5). These yielded both Iron Age scored pottery and Late Iron Age wheelmade pottery, but most of the pottery derives from Romano-British activity of the first to fourth centuries AD (identified by R. S. Leary).

The area around the barrows was fieldwalked under the direction of Stuart Losco-Bradley in 1983 and 1985, in anticipation of the construction across the Lowes of the Derby Southern Bypass. This yielded a combination of Mesolithic and Neolithic/Early Bronze Age flint and chert artefacts, recalling the mixed collection obtained during excavations of Barrows II and IV. The material was scattered widely over the ridge-top, with no obvious spatial patterning.

Two trenches were excavated across the curvilinear boundary ditch by Losco-Bradley, also in 1983, with the aim of dating the feature and investigating the possibility of associated settlement (Losco-Bradley 1993: trenches A & B; equivalent to trenches 01 & 02, Fig. 2). Trench A revealed a substantial V-shaped ditch, 3.0–3.6m wide at the mouth and surviving to a depth of *c.* 1.25m below the base of the overlying Medieval ploughsoil. The lower sediments were waterlogged towards the east of the trench, and preserved, on top of a clay band 0.15m above the base of the ditch, a small fragment of uncharred poplar. This yielded a radiocarbon date of 330+/–80bc (Har–6497), calibrated to 520–170BC at 95% confidence (employing the intercept method with the Stuiver and Pearson [1986] curve: *ibid.*, 12). This provided convincing evidence for an Iron Age date, arguing against the suggestion by several earlier workers that the ditch might have been related to the Beaker settlement or Bronze Age barrow cemetery (e.g. O'Brien 1978, 8). Trench B revealed a ditch of similar proportions, at least 3.4m wide at the mouth and surviving to a depth of *c.* 1.2m beneath the Medieval ploughsoil. The profile compared with that of the trench A ditch towards the west of the trench, but eastwards the ditch was characterised by a roughly U-shaped profile with a deep (*c.* 0.4m) vertically sided channel, *c.* 0.5m wide, at the base. Three Romano-British sherds, dating from the second

to fourth centuries AD, were recovered from the ditch fill, but no additional organic deposits suitable for radiocarbon dating were recovered. The northern edge of the feature was cut by a shallow discontinuous ditch of blunted V-profile, surviving to a depth of *c.* 0.3–0.5m beneath the modern ploughsoil and averaging *c.* 1m wide at the top. A similar stratigraphic sequence was recorded in trenches 21, 22 and 23, described below.

1993 Geophysical Survey and Evaluation Excavations

Archaeological evaluations of the proposed road route were directed by Keith Challis from January to March 1993, following an assessment of the archaeological impact of the proposed scheme (Challis 1992). These comprised a preliminary geophysical survey to establish more precisely the lateral extent of archaeological features within the road corridor and six evaluation trenches aimed at establishing a framework for further excavation (Fig. 2: trenches 03–08). Systematic fieldwalking was not possible because of unsuitable ground conditions, but field inspection located an extensive area of disturbance within Field 4058 (Fig. 2), interpreted as probably evidence of past quarrying activity.

It was decided, before determining the full evaluation strategy, to investigate the extent to which archaeological features continued beyond the main cropmark complexes. A survey was undertaken by Stratascan Geophysical Survey Services of an area of *c.* 5.10ha, using a combination of resistivity and magnetometry. The survey area is shown in Fig. 2, which records also the Ordnance Survey field numbers of all surveyed fields. The presence of a mature crop prevented extension of the survey to Field 2980. Readings were taken at 1m or 0.5m intervals respectively over a series of 20m-square grids. The raw data were filtered and manipulated to produce computer-generated greyscale images showing variations in sub-surface geophysical properties which could reflect buried archaeological features.

Geophysical techniques proved to be largely ineffective, and many known cropmark features, such as the northern arm of the curvilinear ditched boundary to the east of Lowes Lane, could not be detected. The problem was exacerbated by a high-pressure gas pipeline which crossed the site from north-west to south-east, causing significant interference with the magnetometer survey. Small-scale geophysical prospection using ground-penetrating radar was attempted with some limited success, but was not suitable for use over most of the site due to the uneven field surface.

The survey was most successful to the north of the cropmark complex west of Lowes Farm, where magnetometer survey revealed in Field 4058 several small discrete magnetic anomalies which could indicate buried hearths or other structures, together with several linear and curvilinear anomalies towards the southern limit of the surveyed area which could indicate ditches. This suggested that occupation had extended into the road corridor beyond the northern limits of the known cropmark complex, as implied also by the results of excavations prior to construction of a British Gas pipeline, discussed in greater detail below. The known cropmark features in Field 0036 were located by magnetic survey, but no further features were detected in this area; a series of parallel, roughly north-south magnetic anomalies in this field probably indicate ploughed-out Medieval ridge and furrow. Several roughly parallel anomalies recorded by resistivity survey in Field 1061 could possibly be of archaeological origin, but interpretation of these features, not seen on air photographs, remains problematic.

Three 15 × 3m trenches were excavated across the lynchet forming the northern boundary of Field 4058, with the aim of establishing whether the curvilinear boundary ditch recorded to the east of Lowes Lane might have continued west along the line of this lynchet (*cf.* Losco-Bradley 1993, 9; Fig. 2: trenches 03, 07 and 08). In the absence of acceptable results from the geophysical survey, these trenches served also to prospect for further archaeological features in the field to the north of this boundary. A 16 × 12m trench (04) was located to the east of Lowes Lane to examine the intersection of the northern arm of the Iron Age boundary ditch with one of the north-south linear cropmarks. It was hoped that this would provide additional information on the character and date of these features and, most importantly, elucidate their stratigraphic relationship to the curvilinear boundary ditch. Finally, two 5 × 2m trenches were opened by machine to relocate Losco-Bradley's 1983 excavation trenches, the precise positions of which were in some doubt (Fig. 2: trenches 05 and 06). The last two trenches were backfilled immediately after machine-stripping of the topsoil and recording of the trench and ditch edges. The results of this work are discussed fully in the following section.

1994 Excavations

Two phases of excavation were carried out in 1994. The first of these was conducted by Keith Challis, Lee Elliott and Tony Morris in advance of the construction of a British Gas pipeline across the area, within the easement of a pre-existing gas pipeline. An 11 × 3m trial trench was dug initially to assess the quality of preservation of archaeological features within the easement of the earlier pipeline; for this purpose the trench was located above the eastern arm of the curvilinear ditched boundary between Barrows III and IV (Fig. 2: trench 09; Morris 1993). This located the boundary ditch and two shallow linear features, showing clearly therefore that archaeological features survived within the easement of the earlier pipeline, and it was decided to excavate a 3m or 5m-wide trench along most of the pipeline route prior to construction (Fig. 2: trenches 10–14 and 16; Challis and Elliott 1994). The latter trench revealed extensive structural and artefactual evidence of Iron Age and Romano-British occupation, implying extensive settlement of the area south and west of the curvilinear ditched boundary during these periods. The trench was extended in area 10, with the aim of investigating further a particularly high density of Iron Age and Romano-British features recorded in this area. A watching brief was maintained during construction work between trenches 12 and 16 (area 17) and elsewhere along the pipeline route (Fig. 2).

The second phase of excavation, funded by the Highways Agency, was directed by Lee Elliott from July to September 1994, under the management of D.F. Mackreth. Trenches 21, 22 and 23 examined in turn the intersection between the northern arm of the major Iron Age ditched boundary and a north-south ditch, a possible entrance causeway across the curvilinear ditched boundary and the pit alignment, with the aim of investigating further the form, functions and chronological relationships of these features. Three other trenches were located away from the recorded cropmarks, with the aim of establishing whether Iron Age or Romano-British settlement had extended into these areas (trenches 18–20). The results of this work are discussed in detail below, together with the results of the 1993 evaluations.

THE 1993 AND 1994 EXCAVATIONS

Excavation Methods

The topsoil from the 1993 evaluation trenches was stripped by a 1.5m toothless ditching bucket on the back actor of a JCB, to reveal either natural sand and gravel (trench 04) or a plough-disturbed layer, generally of orange-brown silty loam, which obscured the upper fills of archaeological features (trenches 03, 07 and 08). The plough-disturbed layer was generally removed mechanically to the level at which features could be discerned clearly, and the exposed surface was cleaned and planned at this level (*c.* 0.2–0.3m beneath the base of the topsoil). The topsoil from trenches 05 and 06 was removed mechanically to a level at which the edges of Losco-Bradley's 1983 trenches, 01 and 02, could be observed and, after planning of the trench and ditch edges, was backfilled without further excavation. A western extension to trench 08 was excavated manually, with the aim of determining the level from which a curving gully recorded against the west baulk of the trench had been cut.

A similar excavation strategy was employed in the more extensive excavations of 1994. Machine excavation of the topsoil revealed either natural sand and gravel with scattered deposits of grey sandy clay or, more usually, a plough-disturbed layer concealing the edges of archaeological features. The sub-ploughsoil layer was removed by machine down to the level at which archaeological features were clearly visible. A rectangular extension to trench 19 was dug by hand, in order to establish first, whether an arc of three postholes might represent part of a circular post-built structure, and secondly, the exact level from which these features could be discerned.

In both seasons of excavation, contexts were excavated selectively in successive 5cm or 10cm spits, or stratigraphically where this was appropriate. In the second season resources were focused upon the investigation of intersections between linear features, with the aim of establishing the stratigraphic sequence (in particular, the relationship between the Iron Age curvilinear boundary ditch and the north-south linear ditches implied by the recorded cropmarks). All finds from the evaluation trenches were recorded three-dimensionally and individually coded. In the later season of excavation, all finds retrieved during surface cleaning were recorded three-dimensionally, but those retrieved during the excavation of feature fills were generally recorded only by context, spit and cut number; all finds were individually coded. The numbers of heat-affected stones from each context were recorded, but only those from the evaluation trenches were retained. Flotation samples were retrieved from contexts preserving significant quantities of charred material, and samples were taken from selected contexts for pollen, insects and other organic remains.

Site Stratigraphy

In some areas a topsoil of *c.* 0.2–0.3m thickness was shown to overlie directly natural sands and gravels and intermittent spreads of grey sandy clay (the latter mainly in trench 21) corresponding to the upper surface of the former terraced deposit which mantles the Lowes (details in archive). In these areas archaeological features observed at the sub-ploughsoil layer are likely to have been seriously truncated by Medieval and later plough erosion, and hence only the more substantial features may be expected to have survived. Most trenches, however, revealed beneath the topsoil a mixed plough-disturbed

layer of orange-brown to red-brown sandy silt loam or grey silty sand with a variable pebble content (details in archive). Features could be recognised only after a significant thickness of this layer (*c.* 0.2–0.3m) had been removed. In no case were stratified archaeological deposits comparable, for example, to the Beaker occupation layer preserved beneath Barrow IV, recorded.

Earlier Prehistoric Activity

An important collection of prehistoric quartzite, flint and chert artefacts and part of a polished stone axe, complementing material recovered from elsewhere on the Lowes, was retrieved during the excavation of trenches 01–08 and 18–23. These finds derived from Medieval and later ploughsoil, the surface of the terrace deposits and from first millennium BC or later features, and, with the possible exceptions of material from the surface of the terrace and the Late Bronze Age/Early Iron Age round-house (Guilbert and Elliott 1999), may be interpreted as residual. The evidence, discussed in detail in the lithic report, provides nonetheless a valuable insight into activity on the Lowes during the earlier prehistoric period.

Palaeolithic

Two quartzite cobbles, resembling Middle Palaeolithic flake-cores from Mother Grundy's Parlour, Creswell Crags, each with sharp and undamaged flake-facets, were retrieved from trenches 03 and 04, in both cases from derived contexts (Fig. 12). They could provide rare evidence for Middle Palaeolithic activity on the Lowes after the deposition of the terrace gravels, although the recent recognition of struck flakes and cobble cores in fine-grained rocks in Beaker contexts (Barfield 1997) must urge caution in interpreting these as necessarily evidence of very early activity. Three struck flakes from trenches 03, 08 and 18 are in a rolled condition, implying deposition with the gravels forming this old terrace deposit of the Trent, and on current evidence for the dating of these gravels may be attributed to a time period equivalent to the Wolstonian or earlier (Carney 1998, 1).

Earlier Mesolithic

The excavations identified a locally rare Early Mesolithic industry, characterised by the knapping of large blades and by a restricted tool kit, including end-scrapers, truncations, worn-edge and edge-used flakes and blades, mainly in Wolds-type flint. Analysis of its spatial distribution suggests small activity foci, notably around trenches 19/20. Analyses of the raw material types indicate the use of translucent and semi-translucent flint, probably derived from local gravel sources, and Wolds-type flint which, although originating in the chalk of Lincolnshire or Yorkshire, is probably from a derived source nearer the Lowes. Both this Wolds-type flint and a few items of chert, probably deriving from the Peak District, contribute to the pattern identified of movement of raw materials and hence hunter-gatherer bands within the region — possibly as part of the seasonal movement of communities between the Lincolnshire Edge and the Pennine uplands (Jacobi 1978, 304).

Late Neolithic/ Early Bronze Age

This period is represented by a significant quantity of debitage and a range of scrapers, an arrowhead and knives, predominantly manufactured from local translucent flint; a fragment of a Group VI polished stone axe was obtained from trench 03. This material may be assumed to derive from activity partially contemporary with the known Beaker settlement and the earlier Bronze Age barrow cemetery. It is unevenly distributed within the trenches, and seems to be concentrated around trench 03.

First Millennium BC and Romano-British Activity

Attention is focused first upon the most remarkable of the landscape features which may be attributed to the first millennium BC, namely the curvilinear boundary ditch which runs west-east along the crest, and then southwards across the tip, of the ridge. Subsequent sections consider in turn the evidence for possible subdivisions of the area demarcated by this feature, the pit alignments and other Iron Age and Romano-British structures.

Curvilinear Boundary Ditch

Spatial Extent

Trenches 05 and 06 located successfully the site of Losco-Bradley's 1983 trenches, and, after plotting of the trench and ditch edges, were backfilled without further excavation. Trenches 04, 21, 22 and 23 permitted accurate plotting of this feature to the east of Lowes Lane. These revealed a continuous ditch, with no evidence of an entrance causeway corresponding to the gap in the linear cropmark which is suggested by some air photographs (*cf.* Losco-Bradley 1983, 7; see Fig. 7: trench 22). It would seem, therefore, that east of Lowes Farm the ditch may have been unbroken for its entire length.

The course of the ditch to the west of Lowes Lane is far from clear, but discoveries in trench 03 might indicate an extension of this boundary to at least 40m west of Lowes Lane. Excavations here revealed a probable causeway, flanked on either side by the terminals of a substantial west-east ditch. This feature compared closely in form and dimensions to the northern boundary ditch (Figs. 3 and 4a: features 09 & 27), but conclusive evidence of date was not obtained. The ditch terminals cut and were cut by other archaeological features, providing evidence of a complex sequence of activity. The ditch was located *c.* 3m downslope of the major west-east lynchet which earlier workers have suggested might correspond with a westerly continuation of the Iron Age boundary ditch (e.g. Losco-Bradley 1993, 9). This lynchet was shown to comprise mainly modern topsoil, and at its base cut into a *c.* 0.3m thick sub-ploughsoil deposit (layer 02) extending across the full width of the trench. Layer 02 sealed the boundary ditch and yielded a mixture of struck flints and abraded Medieval sherds. It seems best explained as a relict ploughsoil, probably of Medieval origin, signifying infilling of the ditch before formation of the visible lynchet. From this evidence, assuming that features 09 and 27 represent terminals of the northern boundary ditch, we can conclude that the course of the lynchet is unrelated to the earlier boundary ditch.

No trace of the Iron Age boundary ditch was recorded further west in trenches 07 or 08. In both trenches, the north face of the lynchet was cut into a *c.* 0.3m thick sub-ploughsoil deposit (19), stratified above natural sand and gravel (29) and comparing

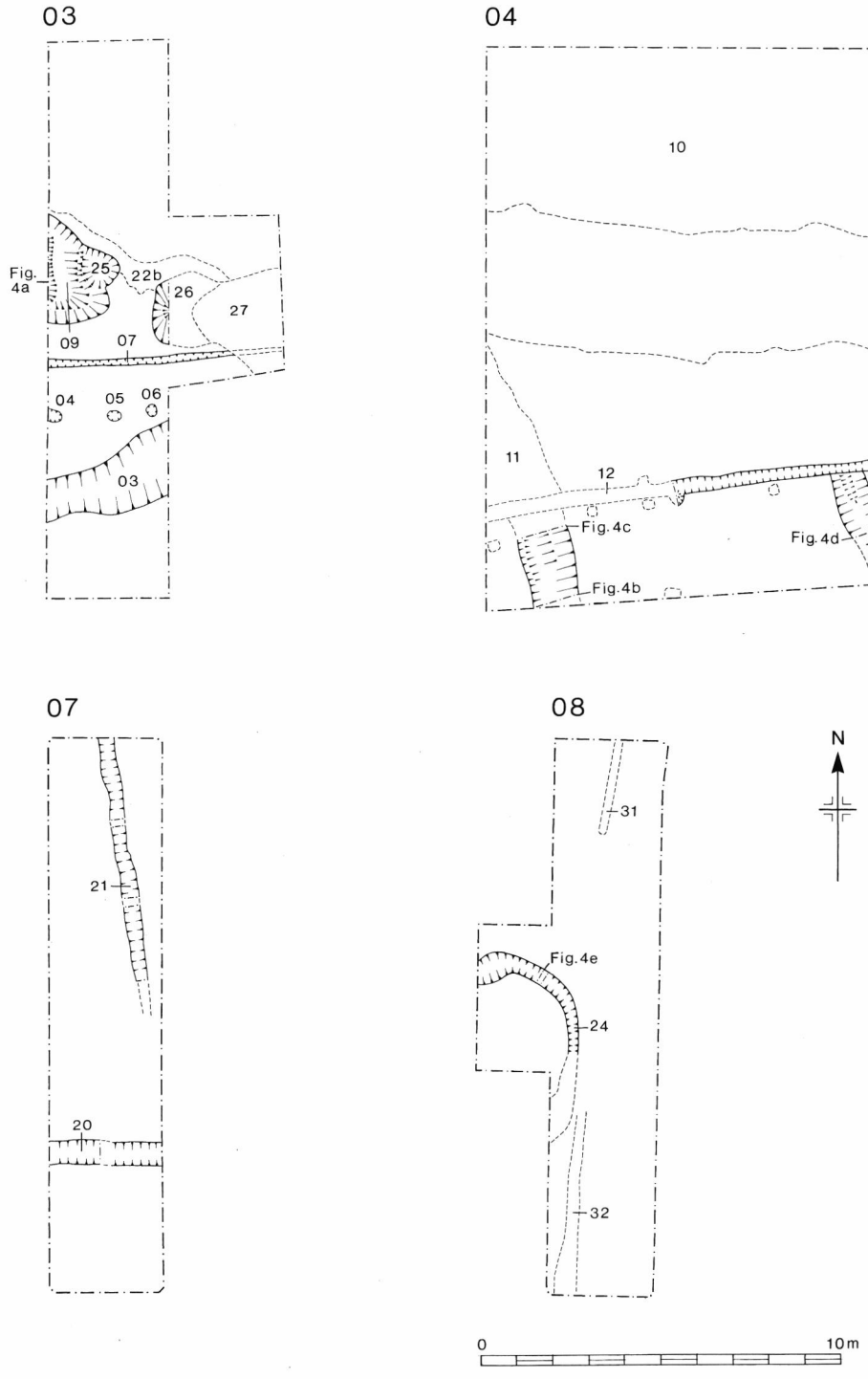

Fig. 3: Plans of evaluation trenches. Scale 1:200

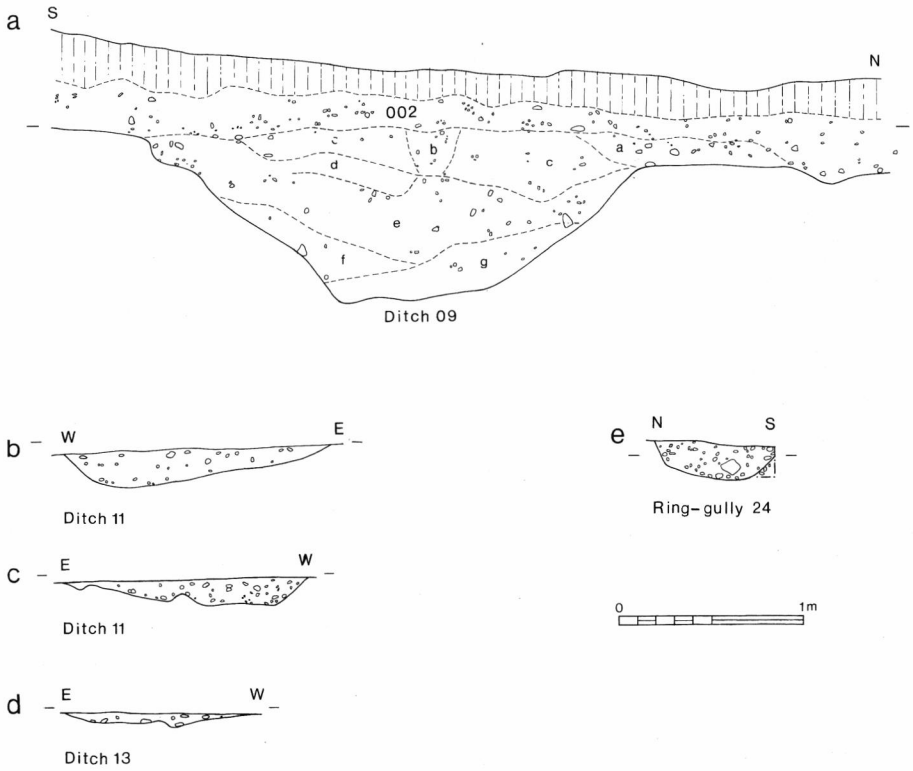

Fig. 4: Trench 03: sections across possible western extension of curvilinear boundary ditch (09), north–south ditches 11 and 13, and ring-gully 24. Scale 1:40

closely with layer 02 in trench 03. Layer 19 sealed a small quantity of Medieval and plain handmade Iron Age body sherds, none closely datable, and incorporated a mixture of abraded Roman and Medieval sherds and flintwork. It seems best interpreted, as in trench 03, as a relict ploughsoil, most probably of Medieval origin.

Ditch Dimensions, Form and Fill

The ditch varied in character along its length, as demonstrated by sections cut through the feature in trenches 03, 21, 22 and 23 (Figs. 4a, 8). The excavated lengths are described in turn, with appropriate discussion of the trenches excavated through the boundary ditch by Greenfield, Losco-Bradley and Challis and Elliott.

Trench 03 (Figs. 3, 4a) It is unclear whether the ditch terminals exposed in trench 03 genuinely represent an extension of the Iron Age boundary ditch, but close comparisons with sections excavated to the east of Lowes Lane would support this view. The excavations revealed an approximately U-shaped feature (09) averaging 0.6m deep by 2.5m wide. The ditch had a sandy fill with a lower clay content than was recorded by Losco-Bradley in trenches 01 and 02, and preserved fragments of waterlogged wood in its bottom fill. It may have been flanked along its northern edge by a smaller ditch, visible in both sections as a shallow depression (Fig. 4a), thus recalling the stratigraphy recorded by Losco-Bradley in trench 02 (Losco-Bradley 1983, fig. 4).

Trench 21 (Fig. 7). Several sections across the ditch in trench 21 revealed a substantial approximately V-shaped ditch (331) with waterlogged deposits of sand and clay. The mechanisms of filling appear to have varied along the length of the ditch. Much of the ditch appears to have silted naturally, but between ditches 332 and 333, which cut the ditch obliquely, evidence survived of possible backfilling. This length of the ditch was characterised by a yellow/orange and grey clay, resembling redeposited natural, and contrasting with the darker grey sands and clays recorded in other sections of the ditch. Another ditch, possibly a continuation of the feature cutting the boundary ditch in trenches 22 and 23, was dug into the northern edge of 331 at a late stage in its silting (334) and may represent a late recut of the curvilinear boundary ditch. This later feature averaged 1m wide by 0.5m deep, and was roughly U-shaped. It was filled almost entirely with a homogeneous grey sandy loam. Ditch 334 appeared to end at its intersection with 333: a narrow NW-SE gully which cut both 334 and 331.

Trench 22 (Figs. 7, 8a, 8b). Topsoil stripping revealed a 36m length of boundary ditch (331). Along its northern edge, as in trench 21, a smaller ditch (334) was cut into its upper fill. No trace of a causeway, suggested by some air photographs, was obtained. A 5.5m length of the ditch was excavated, together with a further 1.5m length at either end of the trench. The larger of the two ditches (331) was approximately V-shaped, varied in width from 3m to 4m, and was up to 1.5m deep; the fill comprised several layers of sandy clay loam, probably naturally accumulated, with evidence of at least one recut (Fig. 8b: layers d-g). The smaller ditch (334) was only 1m wide by up to 0.50m deep, was roughly U-shaped in profile and was characterised by a fill of homogeneous sandy silt loam. Along the southern edge of ditch 331 was recorded a sandy loam layer cut by a furrow, and interpreted as possibly the remains of an associated bank.

Trench 23 (Figs. 8c, 9). A single section was cut across the ditch (331) adjacent to the west baulk. This revealed a smaller ditch, 334, not visible in plan after cleaning of the ditch, cut through the upper fill of the ditch on its northern side. This recalls the stratigraphy recorded in trenches 21 and 22, and suggests that a considerable length of the curvilinear boundary ditch may have been recut after the accumulation of a substantial depth of silt. The earlier ditch was roughly V-shaped, with clear traces of at least one recut (Fig. 8c: layers c, e and i), and averaged 1.5m deep by 4.5m wide. The ditch was not waterlogged at this point, and had a sandy fill with a lower clay content than was recorded in trenches 21 and 22.

Associated Finds and Environmental Remains

Redeposited flintwork, part of a Neolithic polished stone axe and a small quantity of heat-affected stones were recovered from the ditch terminals located in trench 03. No positive evidence was obtained from this trench, however, for an Iron Age date. Fragments of preserved wood were recovered from the western ditch terminal in this trench, indicating localised waterlogged conditions similar to those noted to the east of Lowes Lane in the 1983 excavations. Samples were recovered from features 09 and 26 (a pit/ditch cut by the eastern ditch terminal: Fig. 3), to assess the presence and condition of pollen and charred plant remains. Both features proved to be non-polliniferous, but both contained charred plant material including fragments of seeds and fruit.

Small quantities of heat-affected stones and redeposited flintwork were recovered from the fill of ditch 331 in trenches 21, 22 and 23 but virtually no datable pottery was

recovered. A tiny (<1g) and very abraded Iron Age body sherd, deriving from a vessel of unknown form, was recovered from near the base of this ditch in trench 22 (CYZ). In addition, a very abraded Romano-British bodysherd (Fabric OBC1) was recovered from the uppermost fill of ditch 334 in trench 21 (DCW; see report by R.S. Leary below). In trench 21, waterlogged deposits from near the base of 331 yielded pollen-rich samples and a deposit of well preserved leaves sealed in a grey clay (report by C.O. Hunt below). The range of datable finds from the curvilinear boundary ditch is therefore very disappointing, and dating for this feature must hinge upon the single radiocarbon date obtained during earlier excavations by Losco-Bradley.

North–South Ditches

Two trenches were excavated to establish the relationship between the curvilinear boundary ditch and the linear features which show as cropmarks running north-south across the ridge.

Trench 04 (Fig. 3) located two shallow ditches, surviving to a depth of only 0.2m beneath the stripped level and averaging 1.4m (ditch 11) and 0.9m (ditch 13) wide. The more substantial of these ditches may be correlated with the north-south cropmark, but unfortunately neither yielded evidence of date. Both were cut by an undated gully (12) flanked by a row of postholes. Ditch 13 could not be traced to the north of gully 12, while the intersection between ditch 11 and the main west-east boundary ditch extended beyond the edge of the trench. Their relationship to the curvilinear boundary ditch could not be determined, but their oblique alignment relative to this feature suggests that they are unlikely to form part of a boundary system integrated with the curvilinear boundary. Their positioning roughly parallel to Medieval ridge and furrow, which shows clearly on air photographs, raises instead the possibility of a much later origin. The slighter feature (13) may be interpreted most plausibly as the base of a Medieval furrow, but the correspondence of ditch 11 to one of the north-south linear cropmarks (Fig. 2: D) suggests that it is more likely to represent a field boundary. The date of this boundary cannot be established with certainty, but a Post-medieval date may be implied by its alignment relative to the field boundaries shown on Bromley's 1844 Survey of Swarkestone (Fig. 2). Bromley's map does not show a field boundary corresponding with the cropmark, but one of the linear cropmarks which runs parallel to this feature might correspond to one of the old field boundaries shown on this map (Fig. 2:E). The cropmark and mapped boundary are aligned at different angles, but this discrepancy could possibly reflect inaccuracies in the original survey (noted when scaling up Bromley's map to 1:2500) combined with the difficulties of plotting accurately the obliquely viewed cropmarks on the gently sloping terrain of the Lowes.

Trench 21 (Fig. 7) revealed a 23m length of the northern boundary ditch (331), showing against the sand and gravel as a 3–4m wide band of brownish-grey sandy loam. The junction between ditch 331 and one of the ditches correlating with the north-south linear cropmarks, 330, was unclear after initial cleaning, not least because of the presence of two parallel linear features (332 and 333), *c.* 2m apart and cutting obliquely across both 330 and 331. One of these later gullies, 333, also cut across the uppermost fill of a ditch (334) which was observed running parallel to and cutting into the northern edge of ditch 331. Substantial lengths of gullies 332 and 333 were excavated, revealing shallow ditches of variable profile and width, with fills varying considerably in character

according to changes in the nature of the subsoil. Each feature yielded a small and abraded Romano-British sherd of Fabric OAA1 from the uppermost 10cm spit (CYJ; DCV), together with clay pipe fragments found during surface cleaning (see report by R.S. Leary below). The Romano-British sherds could have been redeposited, and hence the date of these features must remain in doubt. One other moderately abraded sherd, from a plain apparently handmade vessel of uncertain form with an abraded but probably rounded rim, was recovered during surface cleaning of the intersection between features 331, 333 and 334 (CYI1). The date of this sherd is uncertain, but its hard densely quartz-gritted fabric, contrasting with known Iron Age pottery from the site, could signify a Saxon date.

Further excavation of this complex intersection showed the north-south ditch, 330, to terminate *c.* 0.4m from the southern edge of 331 at the stripped level, approximately at right angles to the axis of the ditch, suggesting a deliberate alignment of one with another. This raises the possibility of internal divisions of the area demarcated by the curvilinear boundary, but unequivocal evidence for contemporaneity of use is unfortunately lacking. A longitudinal section through the terminal of ditch 330 revealed waterlogged sand and clay deposits incorporating wood fragments and layers rich in pollen, while a transverse section across the same ditch revealed an approximately V-shaped feature, averaging some 3m wide by 1.5m deep. Heat-affected stones, redeposited flintwork and two fragments of burnt bone were recovered from the fill, but the feature yielded no pottery or other more closely datable material.

Another shallow ditch (342), up to 0.4m deep by 1.4m wide, with sides tapering gently to a flat base and a fill of dark brown sandy loam, was shown to cut ditch 331 near the west baulk of trench 21. The eastern edge of the feature was cut by a Post-medieval field drain, 343, which cut obliquely across the ditch immediately south of its intersection with ditch 331. Ditch 342 yielded no finds, but its dark brown unleached fill compares closely with the characteristic fills of known medieval and Post-medieval features on the site.

Possible Iron Age Enclosure

A curving ditch (278), possibly joining beneath the baulk with a ditch recorded near the west end of the trench (283), and interpreted as possibly the corner of a ditched enclosure, was recorded towards the western end of trench 19 (Figs. 5, 6a-c). Ditch 278 appears to have cut a post-ring round-house datable on the basis of associated pottery to the Late Bronze Age or Early Iron Age. The ditch was itself cut by two posts of an undated west-east posthole alignment. It averaged 2.5m wide by 0.8m deep, was slightly asymmetrical in profile with a rounded base, and was characterised by a dark brown homogeneous sandy loam fill with stone patterning suggestive of natural silting. It yielded a substantial quantity of finds, including 49 Iron Age sherds, from all levels but mainly from the uppermost 10cm spit, heat-affected pebbles and redeposited flintwork. Much of the pottery cannot be closely dated, but several girth fragments invite comparison with Late Bronze Age/Early Iron Age ceramic types (Fig. 17.8–9). These sherds vary significantly in condition, from unabraded to very abraded, and some could represent material redeposited during cutting of the earlier round-house. The alternative possibility, that this 'enclosure' was constructed in the Late Bronze Age/Early Iron Age period, would accord the site a high rarity value, assuming that this ditch genuinely represents an enclosure corner.

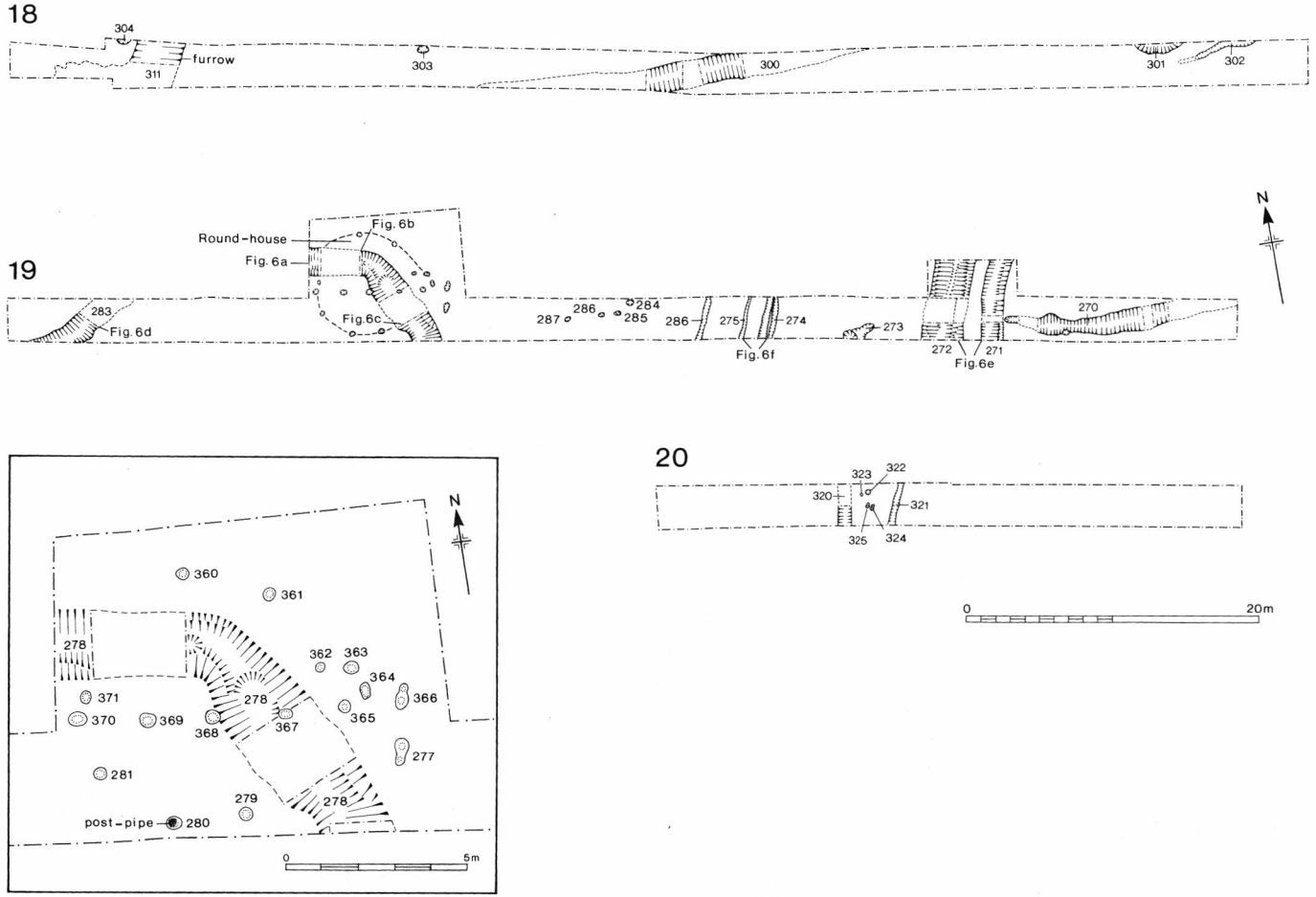

Fig. 5: Plans of trenches 18, 19 and 20 (scale 1:500) and detailed plan of round-house (scale 1:200).

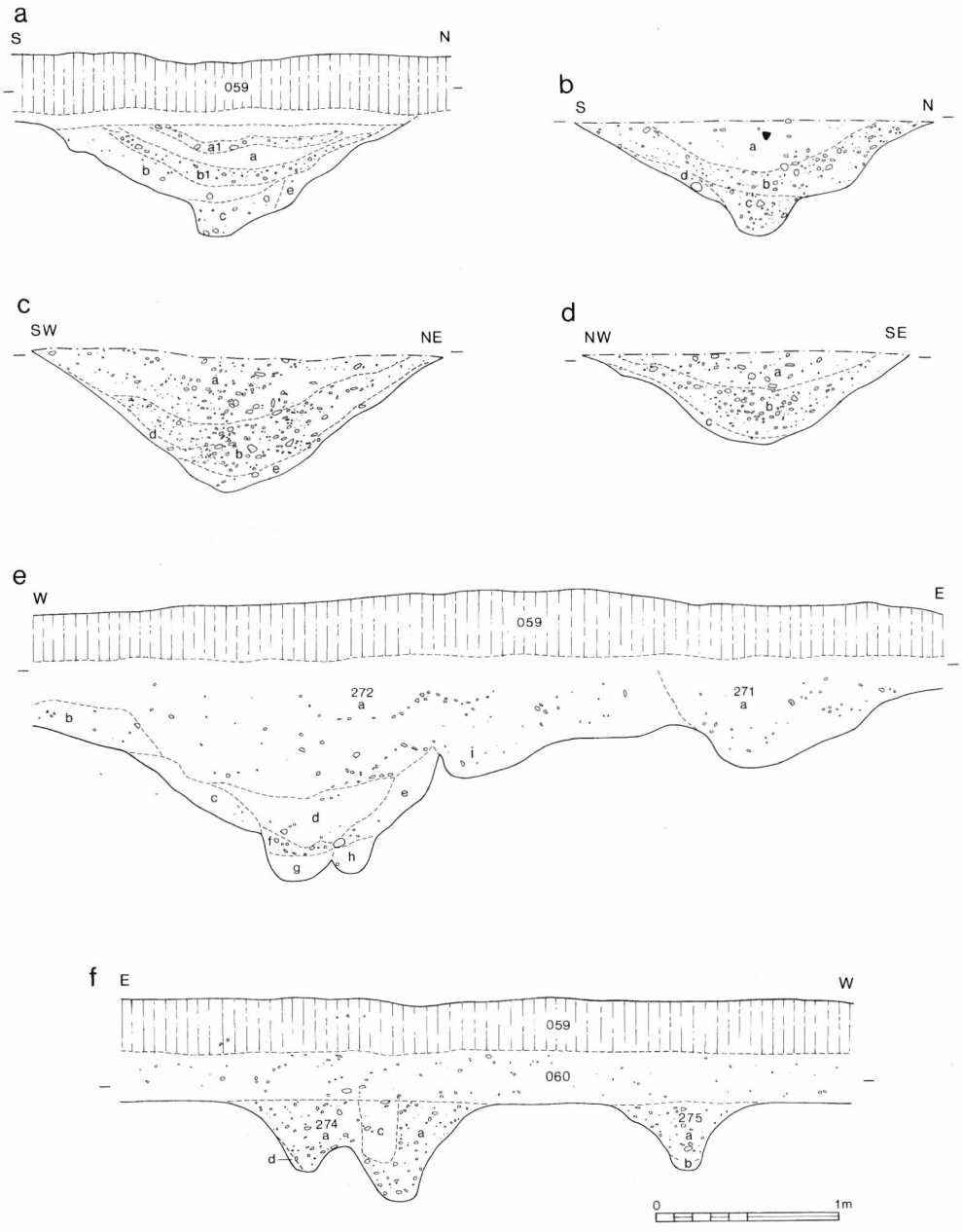

Fig. 6: Trench 19: sections across possible enclosure ditches 278(a–c) and 283(d); section across ditches 271 and 272 (e); section across possible palisade trenches 274 and 275 (f). Scale 1:40

Ditch 283 averaged *c.* 1.8m wide by 0.5m deep, possessed a splayed U-shaped profile, and contained a homogeneous brown sandy loam fill with stone patterning indicating natural silting (Fig. 6d). Its fill compared closely with that of ditch 278 (*cf.* Fig. 6b-c) and in terms of its profile and dimensions with some excavated portions of that ditch (Fig. 6 a-c). It also yielded ten sherds of plain handmade Iron Age pottery of variable condition from the upper three 10cm spits, including a moderately abraded girth fragment from a round-shouldered vessel, heat-affected pebbles and redeposited flintwork. The most significant find is two joining sherds of Stony VCP from the uppermost 10cm spit, indicating the importation of salt from the Cheshire Plain (see briquetage report).

Other Linear Ditches and Gullies

A variety of other linear ditches and gullies, none correlating with known cropmarks, was recorded during excavation, in addition to several furrows relating to Medieval cultivation of the area (features 311 and 399: Figs. 3, 5, 7). Some of these ditches and gullies are undated (302, 351 & 401) while others may be related to Medieval or Post-medieval activity (3, 7, 12, 20, 21, 31, 32, 320, 321 & 353). Full details of the above features are recorded in archive, and attention is focused here upon those which may be attributed with confidence to the prehistoric and Romano-British activity which forms the focus of this report.

Ditch 300 (Fig. 5). Trench 18 exposed a 22m stretch of ditch running obliquely across the stripped area from north-east to south-west. Sections revealed a symmetrical V-shaped ditch with a rounded base, almost 2m wide by 1m deep. The fill comprised successive layers of brown sandy loam with stone lines suggestive of natural silting. The feature yielded an abundance of heat-affected stones and, from the upper 10cm spit, six Iron Age sherds ranging from slightly to very abraded. The latter include a slightly abraded fragment of an apparently handmade vessel with a gently corrugated shoulder recalling Aylesford-Swarling prototypes, and suggesting a Late Iron Age date (Fig. 17.1); a moderately abraded rim of a handmade vessel with a finger-tip impression on the lip was recovered from the same level (Fig. 17.2).

Ditches 270, 271 and 272 (Figs. 5, 6e). At the eastern end of trench 19 was observed, immediately beneath the topsoil, a *c.* 5m-wide band of brown sandy loam aligned roughly from north to south. Several 10cm spits were removed from this area, revealing two approximately parallel ditches, 271 and 272, both with a similar fill at this level of dark brown sandy loam. Ditch 272 was shown to average 3m wide by 1.2m deep, and had gently sloping sides with an uneven base reflecting later recutting. It yielded five Iron Age sherds, including a combed body sherd from the surface (Fig. 17.6) and four plain body sherds from lower in the ditch fill. Along the eastern edge of ditch 272, traces survived of an earlier gully, cut by this feature but yielding no finds (Fig. 6e: layer i). Ditch 271 averaged 1.1m wide by 0.40m deep and was of irregular profile. It yielded a mixture of unabraded to moderately abraded Iron Age and Romano-British pottery, including two Iron Age and three Romano-British sherds (Fabric OAA1) in the upper 10cm spit and an Iron Age and a Romano-British sherd (OAA1) in the underlying spit. Its eastern edge was respected by the western terminal of a third roughly west-east ditch, 270 (Fig. 5), from which were recovered substantial quantities of heat-affected stones and 38 Iron Age sherds of variable condition from all levels of the ditch. The sherds

derive mainly from plain vessels of uncertain form, but the collection includes two rims, one deriving from a possibly ovoid vessel with finger-nail incisions on the rim (Fig. 17. 3–5). Ditch 270 varied in size, up to a maximum of 1.5m wide by 0.6m deep, and was of V-shaped profile. Excavation revealed one posthole cut into the south side of the ditch. Other postholes may have existed in the remaining unexcavated lengths of ditch.

Gullies 274–276 (Figs. 5, 6f). Approximately 10m to the west of ditch 272 in trench 19 was recorded a series of three roughly north-south gullies, two with profiles suggestive of palisade trenches. Gully 274 was the most substantial feature, averaging 1.2m wide by 0.5m deep; it preserved approximately vertical sides and had been recut slightly to one side of the original alignment, creating a base of irregular profile. 275 was a narrow steep-sided gully some 0.70m wide by 0.35m deep, while 276 was 0.90m wide by 0.25m deep and of asymmetrical profile (having a gently sloping east side, a more sharply cut west side and a rounded base). All yielded heat-affected stones, while 274 produced three unabraded or slightly abraded plain Iron Age sherds from the upper two 10cm spits (Fig. 6f: layers a & b).

Pit Alignments (Fig. 9)

Trench 23 was sited primarily to establish the character and date of the pit alignments and to investigate their relationships with one another and with the curvilinear boundary ditch. A total of thirteen approximately evenly spaced pits was recorded in this trench, forming two roughly parallel rows approximately 4m apart. A 5 × 10m extension was dug by machine from the northern end of the trench, with the aim of establishing whether a third row of pits had been dug to the north. This revealed no additional features, suggesting that the northernmost of the three pit alignments which were recorded as cropmarks had not continued this far east.

The pits in each of the two rows were placed roughly 1m apart. They were mainly subrectangular, with steep sides and flat or slightly rounded bases. Eleven pits were half-sectioned, and of these six were later totally excavated. They averaged 1m wide by 1.5m long, and survived to an average depth of 0.60m. The fill of most pits comprised an initial silting of dark grey silty sand, with no evidence of preferential silting from an adjacent bank. These primary silts were stratified beneath a mixed fill of mid-grey/brown sandy clay, possibly representing backfilling (*cf.* Gretton, Northants: Jackson 1974, 36, fig.15). Pits 376, 378, 383 and 384 yielded single Iron Age body or base sherds in the uppermost 10cm spit, varying in condition from unabraded to moderately abraded, and including from pit 384 a small rim fragment (Fig. 17.11). Pit 386 yielded three moderately abraded plain body sherds from the uppermost spit. The pits also produced small quantities of heat-affected stones and redeposited flintwork. Pollen samples were taken from the bottom layer of the pits in each row (see report by C. Hunt below).

The regular spacing of the pits in the two alignments, together with similarities in their size and shape, suggest that the lines of pits could represent the components of a contemporary boundary feature. They could have been separated by a bank or by piles of spoil, but no evidence of this was preserved in the pit fills. The relationship between the pit alignment and the curvilinear boundary ditch remains unresolved. These monuments could have been in contemporary use, but it is possible that one replaced the other.

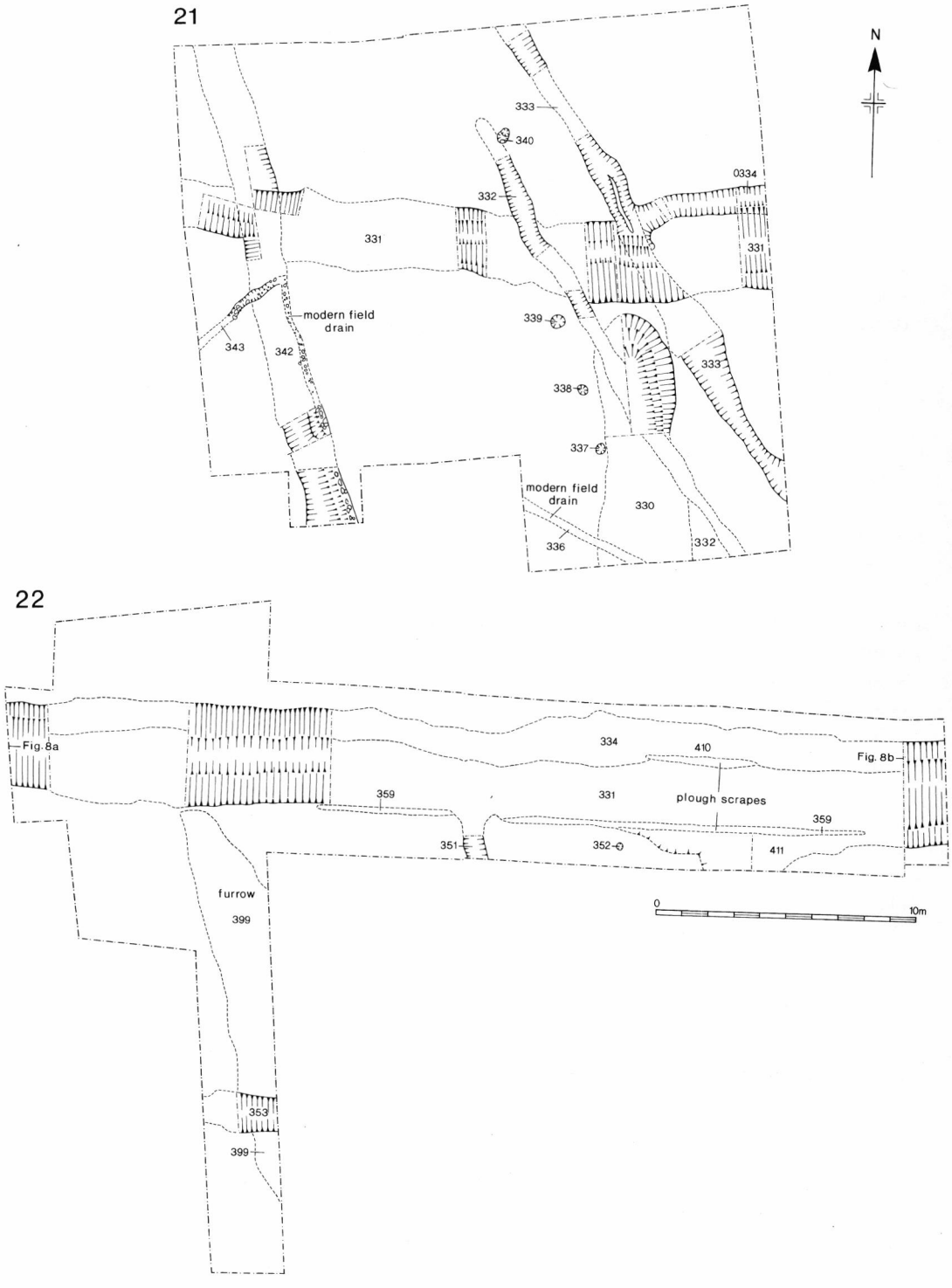

Fig. 7: Plans of trenches 21 and 22. Scale 1:250

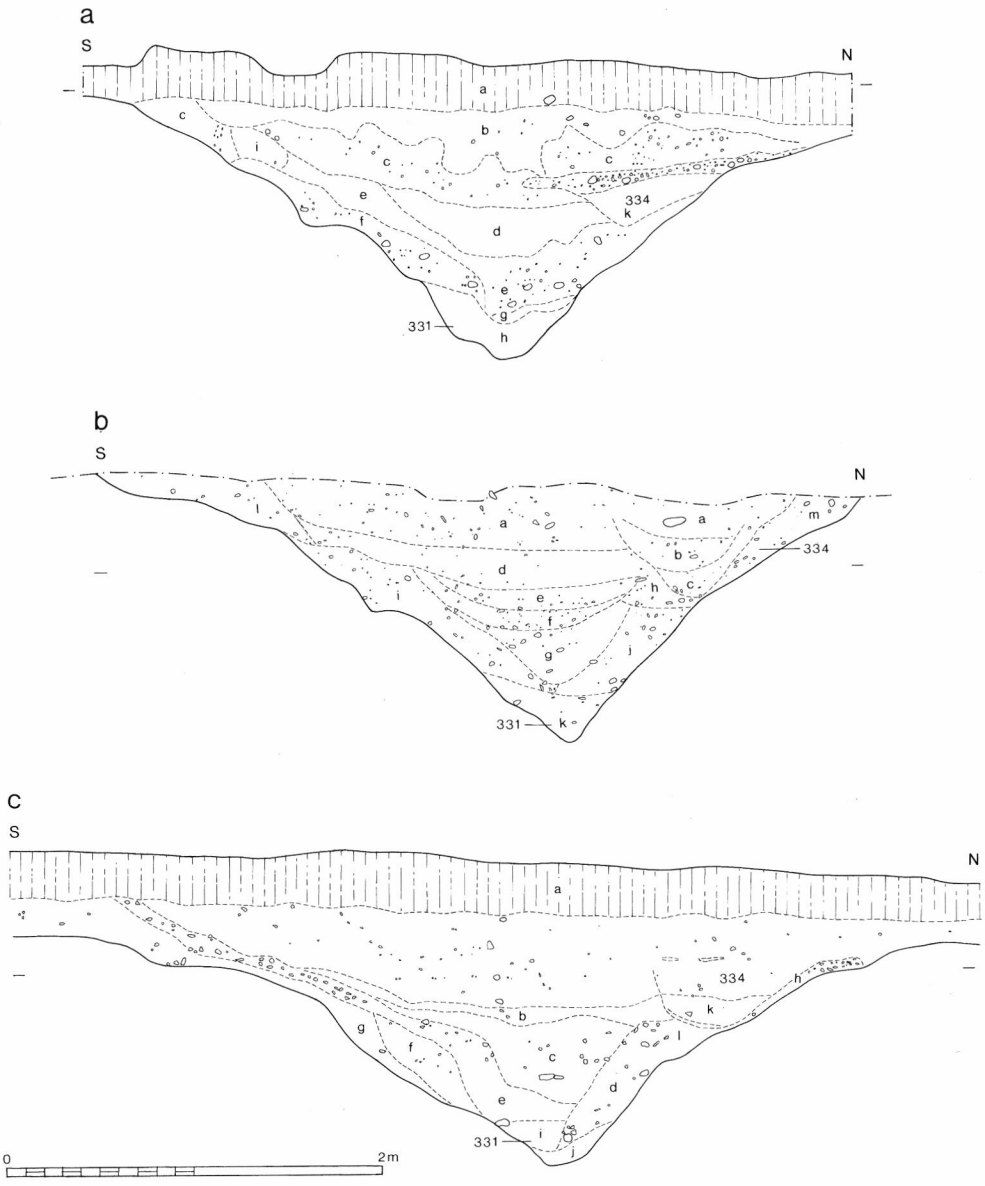

Fig. 8: Sections across northern arm of curvilinear boundary ditch (a & b: trench 22; c: trench 23). Scale 1:40

Circular Structures

Curvilinear Gully (Figs. 3, 4e)

Part of a shallow (*c.* 0.2m deep) curvilinear gully (24) with gently sloping sides and an irregular base was recorded in trench 08, cut into sand and gravel and extending west beneath the baulk of the 15 × 3m evaluation trench. A manual extension to this trench

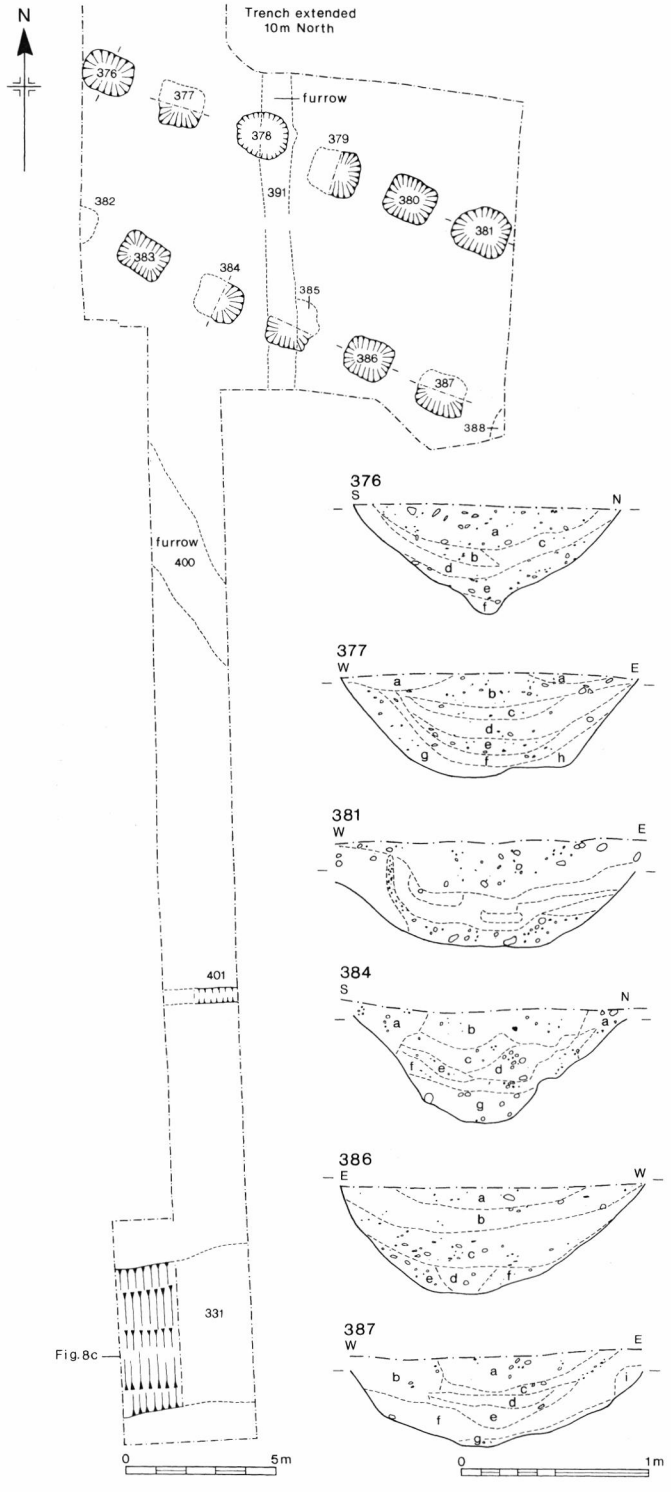

Fig. 9: Plan of trench 23 (scale 1:250) and sections of pits in northern (376,377,381) and southern (383,384,387) pit alignments (scale 1:40); 10m northern extension yielded no archaeological features.

was dug to establish the relationship of the gully to the relict ploughsoil, which it was shown sealed the feature. Part of the gully fill of red-brown sandy silt loam was excavated. From the upper fill of the feature, within a *c.* 1.5m length, were recovered ten mainly unabraded plain body sherds, deriving possibly from two handmade vessels. The pots cannot be closely dated, but are undoubtedly of Iron Age origin. Three objects of burnt sandstone were recovered from the same length of gully. These include a fragmentary saddle quern (Fig. 16.1) and two rubbing stones (Fig. 16.2–3). One of the stone rubbers (AGT) was found in the upper fill of the gully; the two other objects were found close together in the same area, but near the bottom of the feature. Samples of the gully fill were assessed for the presence and condition of charred plant remains. The samples revealed substantial quantities of charcoal, seeds and fruit fragments. A complete plan of the gully was not obtained, and the purpose of this feature remains unclear. No evidence was obtained for associated posts, while the profile of the gully lacks the steep sides and flat base of typical bedding trenches. It may, therefore, represent part of a drainage gully, demarcating perhaps a small circular building or a structure such as a stack-stand. The size of the enclosed area cannot be established with any certainty, but the maximum diameter cannot have exceeded *c.* 5m.

Post-Ring Round-house (Fig. 5)

An arc of four closely spaced postholes (277, 279–281) was revealed in trench 19 after machine-stripping of the topsoil and up to 0.18m of the underlying sand and gravel, to a level at which archaeological features could be clearly discerned. It was decided to extend the north baulk of the 3m-wide trench to establish whether these formed part of a circular building, and accordingly a rectangular extension was dug on the northern side of the trench (Guilbert and Elliott 1999, figs. 1 & 2). The extension was dug by hand in order to minimise damage to the upper parts of the postholes, and showed clearly the extent of truncation of the features by the initial machining.

Seven postholes defining an inner ring of roof-supports were revealed, surviving to a maximum depth of *c.* 0.5m deep by *c.* 0.4m in diameter (279, 280, 281, 360, 361, 363, 371), with a detached pair of oval post-pits marking a doorway on the south-east side (277, 366). A substantial Iron Age ditch, 278, partially truncated the structure, and we may imagine a total originally of nine inner roof-support posts of diameter *c.* 7m and displaying axial-line symmetry. The double postholes of the entrance may comprise an inner pair for the door-frame and a smaller outer pair for anchoring the end of the wall, of approximate diameter 10.7m, alongside the door-frame. The structure is typical of many Bronze Age and Iron Age sites in Britain, but is a rare discovery for the Trent Valley. Its rarity value is substantially enhanced by the discovery of eleven unabraded or only slightly abraded sherds in postholes 277 (nine sherds) and 366 (two sherds); the key diagnostic sherd, from posthole 277 (Fig. 17.7), is unabraded, and provides a Late Bronze Age/Early Iron Age *terminus post quem* for this structure (see pottery report below). One of the post-holes of the round-house, 371, also yielded four (31g) fragments of fired clay. These are of amorphous form, but two unabraded fragments, CYQ and CYR, preserve probable wattle impressions and are interpreted as daub. Several of the post-holes also yielded flint artefacts, a proportion of which may provide rare evidence of flintwork attributable to the first millennium BC. These lithic artefacts are discussed

by Daryl Garton in a detailed report on the round-house, written by Graeme Guilbert, which is included in this volume of the Journal.

A west-east alignment of five shallow postholes (up to 0.2m deep, measured from the base of the topsoil), up to 2m apart and possibly marking the line of a fence or palisade, was recorded in the same area as the post-ring roundhouse (365, 367–70). These were characterised by a very dark brown, humic, sandy loam fill, incorporating in three cases small quantities of heat-affected stones. Two postholes cut the Iron Age 'enclosure' ditch, 278. Several other shallow postholes were recorded to the east of the post-ring round-house (284–87), one containing a plain slightly abraded Iron Age body sherd (284). These formed no coherent pattern, and it is unclear how they relate to the phase of activity represented by the post-ring round-house. They were located to the west of a group of linear ditches and gullies (274–76), also of unknown relationship to the round-house; one of these features (274) yielded three slightly abraded or unabraded Iron Age body sherds in the upper two 10cm spits.

Miscellaneous Features

A small number of isolated pits and postholes, some yielding small quantities of Iron Age pottery, may indicate occupation beyond the areas of settlement identified by the available cropmark plots. The datable features comprise several small pits in trench 18, incorporating a small quantity of Iron Age pottery (301: five sherds) and heat-affected stones (301, 303 & 304: Fig. 5). Other features which might relate to Iron Age or Romano-British activity include a cluster of single and double postholes in trench 20 (322–25: Fig. 5), two yielding heat-affected stones (324 & 325), but unfortunately no closely datable finds were recovered from these features. Mention should be made finally of an alignment of four postholes, recorded in trench 21 (337–40: Fig. 7); post-holes 337 and 340 cut respectively ditches 330 and 332, but none of the features yielded datable finds.

THE FINDS

Flint, Chert, Quartzite and Polished Stone Artefacts

by D. Garton and J. Brown with contributions by R. M. Jacobi and R.V. Davis

Introduction

The flintwork from the 1993 and 1994 excavations along the road-corridor came from features, ploughsoil and the surface of the terrace-deposits within a number of small trenches. All bar the latter is residual, so the material is considered by trench here to examine the spread of activities across this locally high ridge of Mercia Mudstone mantled by glacial sands and gravels (Carney 1998, 1). The lithics were catalogued using a dBASE proforma detailing raw material and form, butt morphology where present, the character of the cores and rejuvenation flakes, and the typology of retouched tools, and recording the location of any retouch/wear. Part of the catalogue, all the archive and tables, and the library research on the comparable sites were conducted by JB; the catalogue of the butts, tools and cores, and assessment of date and character of the assemblages were conducted by DG. RMJ was asked to inspect and comment on the rolled flintwork and quartzite cobbles. RVD identified the rock of the polished stone axe.

Flintwork from excavations along the 1994 British Gas pipeline (trenches 10–16), cutting a swathe across the terrace to the south and west of the road-corridor excavations, has been assessed by DG, but not catalogued and analysed, so that only preliminary results are included here, where appropriate. Two seasons of fieldwalking were conducted in 1983 and 1985, by S. Losco-Bradley with Adult Education students; an archive report has been prepared on the 1983 finds by DG, and some comments on that are also included here. In addition, two flintwork collections were made during the excavations of Barrows II and IV by Posnansky (1955) and Greenfield (1960). Unfortunately, only a selection of the 1960 flintwork is now in Derby Museum (955 of the 1267 collected were reburied on site: Greenfield 1960, 21), though virtually all that described by Posnansky survives there. Both extant collections were examined by DG in 1984, and observations made then are incorporated below, where appropriate.

Ten trenches of the road-corridor excavations produced 327 flints (plus 13 considered plough-bashed). The primary objective was to elucidate the development of the later prehistoric and Romano-British landscape known from cropmarks, so the collection of the flintwork was mainly from cleaning and excavating sections across later features (Table 1). No sieving was conducted. Only trench 19 produced a substantial amount of flint (168 pieces), with trenches 03 and 18 producing 57 and 42 items respectively; none of the other trenches contained more than 21 pieces.

Trench	A	B	C	D	E
03	16	22	3	–	16
04	5	–	1	–	3
07	–	–	2	–	–
08	3	2	–	–	1
18	24	14	1	–	3
19	12	137	2	9+6	2
20	–	3	–	–	18
21	1	6	–	–	2
22	4	4	–	–	–
23	–	5	–	–	–

Key

A Ploughsoils/disturbed contexts and unstratified.
B Residual in first millennium BC and later features.
C Undated features.
D In post-holes of Late Bronze Age/Early Iron Age round-house (9 possibly contemporary, 6 residual, see Garton in Guilbert and Elliott 1999).
E Undisturbed terrace-deposits.

Table 1: generalized context of lithics, by trench.

Some observations are made on the sources of the raw materials, followed by trench-by-trench comments on the lithics. Raw materials, forms and an interpretation of the date and type of material are presented graphically to show the broad distributions by type across the site (Figs. 13–15). This enables comment about the date, range of material and spread of activities. The cores and tools are tabulated by trench (Tables 2

and 3), with the complete flakes from trench 19 measured (Table 4), and the platform types detailed (Table 5).

Raw Material

Nearly one third (29%) of the raw material is an opaque, mottled, grey-cream flint, typical of that recovered from the Wolds of Lincolnshire and Yorkshire (Henson 1985, 2–5). The source of this material is clearly from rolled nodules, so is not directly from the primary chalk outcrops. The approximately equal number of pieces with and without cortex indicates that it was not imported to the site as finished blanks, as considered possible on other Trent Valley sites (e.g. Potlock, Derbyshire, unpublished). Small, battered nodules of this flint can be found on the site, but not of a size required to knap many of the flakes and cores recovered; it was presumably brought to the site, therefore, from other sources.

Pockets of glacial boulder clays containing such flint are also known locally (for example the capping of Aston Hill, some 4km to the east). However, examination in machine-dug test-pits at Aston, to a depth of nearly 2m, showed that flint in these clays is heavily shattered and not suitable for knapping such large flakes and blades as those recovered at Swarkestone. The quality of other sources, such as that reported to the west of Ashbourne (I. Brooks *pers. comm.*) is unknown, but it would be surprising if it were different. The use of Wolds-type flint in any significant quantity is usual only in collections of Early Mesolithic flintwork in the Trent Basin (Jacobi 1978, 302–4).

The majority of the rest of the material is a translucent dark grey/brown flint (35%), or semi-translucent flint with speckles and mottles (27%); these types may grade into each other within a single nodule (*cf.* Henson 1985, 5–7). Again, this material is from rolled nodules, and, with similar materials from other sites up and down the Trent (seen by DG) probably represents material won from the river-gravels. However the quality, availability, and locations of this material within the gravels is poorly known, though Henson (1989, 11) characterises this resource as dispersed, good quality, but small raw material.

Four pieces of chert (1%) from the Carboniferous Limestone were also found. The pieces include black, dark brown and cream/pale grey cherts, all of fine grained, high quality material. The source sites for these different cherts are unknown, but chert is widely mapped in the Monsal Dale and Eyam Limestones in the Peak District, some 25km to the north-west (Stevenson and Gaunt 1971; Cox and Bridge 1977), and there are chert nodules in the Carboniferous Limestone outliers some 5–10km south of the Lowes (J. Carney *pers. comm.*). Chert is also found as small rolled pieces in the Trent gravels. The recognition of small amounts of chert in other flintwork collections on the fringes of the Peak District, seen by DG, suggests that the chert from the Lowes may represent part of a wider pattern of raw material movement.

In summary, the translucent and semi-translucent flint is likely to have been procured, at least in part, from the immediate locality, with the Wolds-type flint and chert brought to the site from further afield.

The distribution of raw materials by trench is illustrated in Fig. 13, and discussed in the section on 'Distribution' below .

Trench Descriptions

Most of the material can be broadly divided into that representing 'earlier' blade technology (Early Mesolithic to Early Neolithic; mid-eighth millennium bc to mid-third millennium bc), and 'later' flake technology (Later Neolithic onwards; from mid-third millennium bc in radiocarbon years, calibrating to *c.* 3100BC: Pearson 1987). The principal characteristics are summarised by period by Healy (1991, 117), and these terms, without period qualifications, are used below.

Trench 03 (57 items)

A mixture of periods is represented. A small amount of this collection is probably earlier: for example, a few blades (some in Wolds-type flint), a single-platform core struck on a tabular nodule with a thermal surface, and a probable blade with proximal truncation. Later material is represented by a knife made on a blade and by a tranchet arrowhead. An edge-used blade with gloss could belong with either period. Four of the seven probable used pieces are blades, apparently an example of the selective use of these straight edges (*cf.* Saville 1981, 128–30). The broad flakes with plain, wide platforms, some of which are cortical, may belong with these later tools or represent the initial knapping and preparation of nodules. Some flakes are rolled, notably ABH (not illustrated), which Roger Jacobi suggests is Palaeolithic.

A fragment of the central part of a polished stone axe, with a side facet (some 10mm wide), and probably measuring some 400mm thick, and, if symmetrical, some 65mm wide, was thin-sectioned (DB 288). The geology was identified by R. V. Davis, who supplied the following report:

DB288 is a fine-grained Group VI, typical of the upper horizons of the Seathwaite Fell Tuff to the west of the main Langdale screes. The texture is homogeneous, except for the usual randomly scattered irregular patches of opaque mineral which, most likely, is leucoxene. There is no strong banding, nor any small chloritised cleavage planes, which are more characteristic of the lower horizons of the outcrop.

Trench 04 (9 items)

The collection includes a large, iron-stained flake with a battered distal end, which may belong with the rolled pieces from trenches 18 and 19.

Trench 07 (2 items)

Two undiagnostic struck flakes were recovered from this trench.

Trench 08 (6 items)

The collection includes a core-rejuvenation flake in a mottled, opaque, dark-grey flint from a large core (AGA: Fig. 10.5). It does not have obvious blade-removals, and is not typical of the Wolds-type flint used in the other Early Mesolithic pieces described below, but its size and style suggests that it could belong with them. One large rolled flake, AGY, thought to be Palaeolithic by RMJ, was also recovered.

Trench 18 (42 items)

The flintwork includes a mixture of styles and materials echoing those in trench 19, i.e. Wolds-type flint blades with linear, abraded platforms, and brown translucent flakes.

Core type	Removal type	Trench 03	Trench 04	Trench 07	Trench 08	Trench 18	Trench 19	Trench 20	Trench 21	Trench 22	Trench 23	Total
A	B	1	–	–	–	–	1 (10.1)	–	–	–	–	2
B	B+F	–	–	–	–	–	1 (10.2)	2	–	–	–	3
B	B	–	–	–	–	–	1	–	1 (10.4)	–	–	2
B	F	1	–	–	–	–	–	–	–	–	–	1
B	L	–	–	–	–	–	1, 1 (10.3)	–	–	–	–	2
C	L	–	–	–	–	–	–	–	–	1	–	1
D	F	–	–	–	–	–	1	–	–	–	–	1
F	NR	–	–	–	1	1, 1	–	–	–	1	–	4
U	NR	–	–	–	–	–	1	–	–	–	–	1
TOTAL		2	–	–	1	2	7	2	1	2	–	17
Summary by removal type												
	B	1	–	–	–	–	2	–	1	–	–	4
	B+F	–	–	–	–	–	1	2	–	–	–	3
	F	1	–	–	–	–	1	–	–	–	–	2
	L	–	–	–	–	–	2	–	–	1	–	3
	NR	–	–	–	1	2	1	–	–	1	–	5

Core types: A single platform, B two platforms, C three or more platforms, D discoidal, F fragment, U unclassified
Removal types: B blade, F flake, L blade-like flakes, NR not recorded for fragmentary + unclassified cores
Underlined codes: pieces in Wolds-type flint; Fig. numbers of illustrated pieces in brackets

Table 2: core types recorded by trench.

Tool-type	Trench 03	Trench 04	Trench 07	Trench 08	Trench 18	Trench 19	Trench 20	Trench 21	Trench 22	Trench 23	Total
Transverse arrowhead	1	–	–	–	–	–	–	–	–	–	1
Edge-retouched knife	1	–	–	–	1	–	–	–	–	–	2
Scraper: side	–	–	–	–	1	–	–	–	–	–	1
side, on blade	–	–	–	–	–	–	1	–	–	–	1
double end	–	–	–	–	–	1 (11.1)	–	–	–	–	1
long end	–	–	–	–	–	1 (11.2)	–	–	–	–	1
end-and-side	–	–	–	–	–	–	–	–	1	–	1
horseshoe	–	–	–	–	–	–	–	–	–	1	1
core/scraper	1	–	–	–	–	–	–	–	–	–	1
end fragment	–	–	–	–	–	1	–	–	–	–	1
end, with worn proximal end	–	–	–	–	–	–	–	1 (11.7)	–	–	1
Serrated blade with edge gloss	–	–	–	–	1	–	–	–	–	–	1
Distal truncation	–	–	–	–	–	1	–	–	–	–	1
Proximal truncation	1	–	–	–	–	2 (11.3)	–	–	–	–	3
Borer	–	–	–	–	–	–	1	1	2 (11.8)	–	4
Miscellaneous retouched	–	–	–	–	–	2 (11.4)	–	–	–	–	2
Edge-used blade	–	–	–	–	–	2	–	–	–	–	2
Edge-used blade with gloss	1	–	–	–	–	2 (11.5)	–	–	–	–	3
Edge-used flake	–	1	–	–	–	1, 2	–	–	–	1	5
Worn-edge flake	–	–	–	–	–	1 (11.6)	–	–	–	–	1
Flake with battered edge	–	–	–	–	–	–	–	1	–	–	1
TOTAL	5	1	–	–	3	16	2	3	3	2	35

Underlined codes: pieces in Wolds-type flint; Fig. numbers of illustrated pieces in brackets

Table 3: retouched tools by trench.

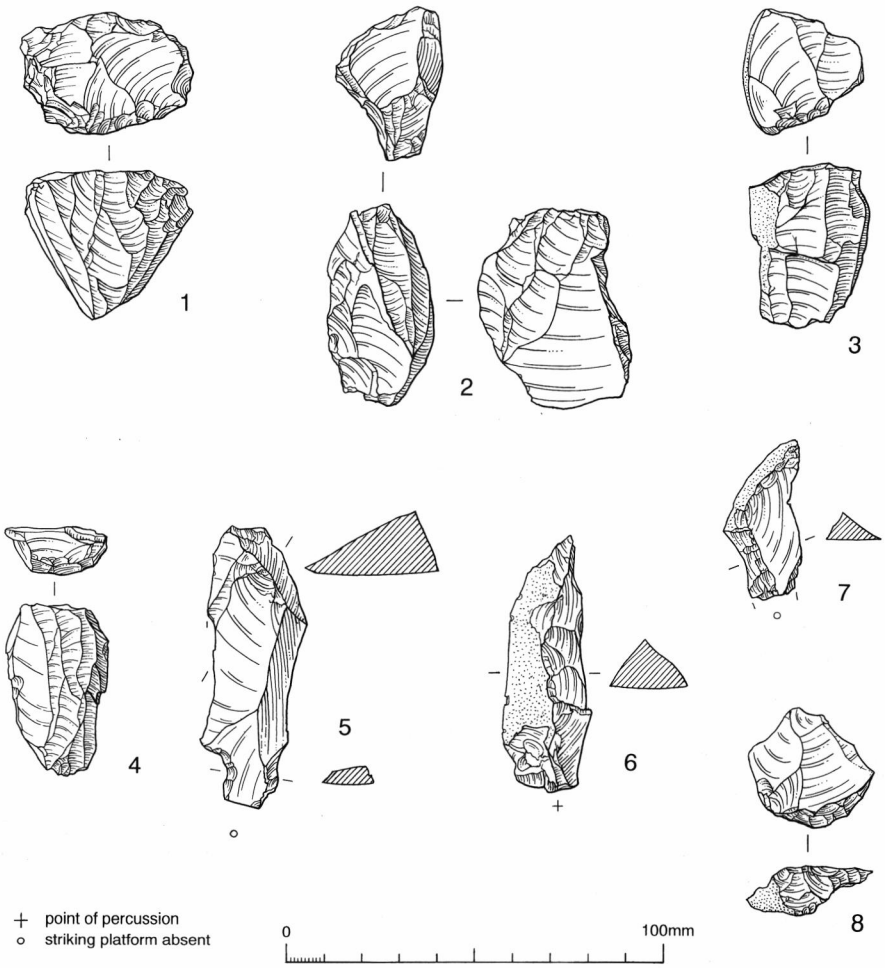

Fig. 10: Cores (1–4: Table 2) and core rejuvenation flakes (5: trench 08; 6–8: trench 19) of probable Earlier Mesolithic date. Scale 1:2

One of the core fragments is in Wolds-type flint and compares with those attributed to the Early Mesolithic from trench 19. The tools are all in brown, translucent flint and are forms typical of the Late Neolithic/Early Bronze Age, namely a side-scraper made on a primary flake, and a blade with edge-retouch to form a knife; a serrated blade with edge-gloss could belong with them.

One black chert blade has probable edge-damage from use. There are also two rolled, corticated flakes similar to those from trench 19. One of these, CVA, is thought to be Palaeolithic by RMJ.

Trench 19 (168 items)

The tools comprise a double end-scraper (DBH: Fig. 11.1), edge-used blades (CRB: Fig. 11.4) and flakes, a large worn-edge blade with used distal end (CSX: Fig. 11.6), and large blades with scraper ends (CSQ: Fig. 11.2) or truncations of proximal (COI:

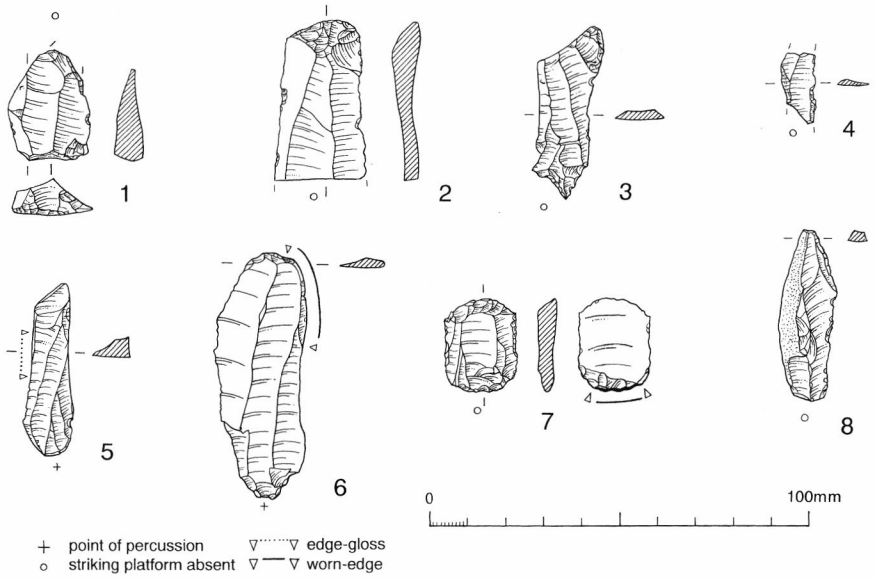

Fig. 11: Flint tools (Table 3) of probable Earlier Mesolithic date. Scale 1:2

Fig. 11.3) and distal ends. The typology, size, and the use of Wolds-type flint for some of these pieces (Table 3) all suggest an Early Mesolithic assemblage, though the diagnostic type-fossil, the microlith with obliquely blunted point, is absent. However, it is possible that a blade classified as a miscellaneous retouched fragment is a broken microlith (CRB: Fig. 11.4). The blades with evidence of use are all in translucent flint (e.g. COV: Fig. 11.5). It is not clear whether this reflects chronology or function, since the edges of translucent blades are finer and hence sharper, if perhaps less durable (*cf.* Henson 1982, 97–113; Phillips and Henson 1989, 93). In addition, an end-scraper fragment made on a thick primary flake in translucent flint was recovered; its form suggests a Bronze Age date (Guilbert and Elliott 1999, fig. 4d).

The presence of three cores in Wolds-type flint (Table 2), all with blade-removals, suggests that many of these tools were being made and used on site. These cores include a classic pyramidal blade-core with a faceted platform (CSR: Fig. 10.1), two opposed-platform types (CPM: Fig. 10.3), and a core with blade-removals from one platform and the creation of a crest by flake-removal (CSA: Fig. 10.2), all again typical of Early Mesolithic blade-technology. The other cores are either in translucent flint (at least one could be an exhausted blade core) or calcined, including one which may be either a discoidal fragment possibly of later date or a chunk broken from a crested core.

The five core-rejuvenation flakes are all in brown translucent flint, and include flakes struck along the platform edge (DCH: Fig. 10.6; DAM: Fig. 10.7), struck parallel with the previous platform (tablet) and at an angle to the previous platform (CXD: Fig. 10.8). The lack of rejuvenation-flakes in Wolds-type flint is surprising given that acute crests are required for blade-production.

The measured lengths and ratios of the complete pieces confirm the visual impression from all pieces that the translucent flakes tend to be shorter and broader than the Wolds-type flakes (Table 4). The numbers are insufficient to carry these analyses further.

Ratio	<0.2	<0.4	<0.6	<0.8	<1.0	<1.2	<1.4
Translucent	–	4	8	4	4	3	7
Wolds-type	–	8	6	6	2	2	–

Length (mm)	<20	<30	<40	<50	<60	<70
Translucent	14	8	3	2	1	2
Wolds-type	5	6	7	2	3	1

Table 4: ratio and lengths of complete pieces from trench 19.

The platforms on the flakes and blades fall into two broad categories (Table 5). Those with linear or punctiform platforms mostly have heavily abraded edges, which are sometimes crushed, and virtually all have diffuse points of percussion, suggesting soft-hammer flaking. These platforms are typically associated with blades and blade-like flakes, and are predominantly Wolds-type flint.

Form	Platform type	Raw Material Type			Abraded Platform	
		Wolds type	Translucent	?	Yes	No
Blades	Dihedral + faceted	–	3	–	1	2
	Linear + punctiform	13	5	–	15	3
	Plain	6	3	1	6	4
Total blades	31					
Flakes	Dihedral + faceted	2	2	–	–	4
	Linear + punctiform	3	2	–	4	1
	Plain	3	19	2	1	23
Total flakes	33					

Table 5: platform types by form, detailing raw material and butt abrasion from trench 19.

Plain platforms are found on flakes and blades, some of which are struck on cortex. These flakes tend to be thicker and squatter, and are made in translucent flint (Table 5). The points of percussion vary from being ill-defined to having a relatively pronounced cone; they may result from using a hard hammer. Such material may represent the removal of cortical flakes in preparing a nodule for knapping, but the translucent flint is rare in larger pieces or blades. The lack of larger translucent flakes and blades, comparable in size to those of Wolds-type flint, may be due to a difference in the size of the available raw material. Alternatively, it may reflect a different technology (and probably date) where smaller, squatter, flakes were acceptable (Table 4). It is unclear whether these flakes belong with the scatter of Late Neolithic/Early Bronze Age material represented by diagnostic types in the other trenches, although none are obvious in trench 19. Alternatively, they may belong with the lithics that could be related to the Late Bronze Age/Early Iron Age round-house (Garton in Guilbert and Elliott 1999, fig. 4).

Two large, primary flakes in translucent flint are lightly corticated and rolled. Two other smaller Wolds-type flakes are slightly rolled. One pale grey chert blade fragment was also recovered.

Trench 20 (21 items)

Blade-technology is evident in this collection. The size of the blades suggests Early Mesolithic activity, as does the use of Wolds-type flint for the cores, both of which are reduced to exhaustion. A scraper/knife is also made on a large blade, but the form of the retouch suggests a Late Neolithic/Early Bronze Age attribution.

Trench 21 (9 items)

A high quality, opposed-platform blade-core made in dark-brown chert (CYH: Fig. 10.4) is almost certainly Mesolithic, as is an end-scraper made on truncated blade with worn proximal end (DCY: Fig. 11.7). A broad flake with indirect batter could be Late Neolithic/Bronze Age.

Trench 22 (8 items)

All the items are in a brown translucent flint, including a regular blade-core and a fragment from a two-platform/discoidal flake-core. A side-and-end scraper made on a large, thick flake is typical of Late Neolithic/Bronze Age types. A probable earlier piece is the borer (CYN: Fig. 11.8), which uses the distal tip of a blade with minimal retouch; the proximal end is possibly truncated.

Trench 23 (5 items)

A horseshoe scraper is typical of the Early Bronze Age with a thick flake struck on a large, plain platform. A used flake is reminiscent in form and may belong to the same horizon. Another used flake is on a very large, regular, blade-like flake, and possibly belongs with earlier material.

Palaeolithic Artefacts by R. H. Jacobi and D. Garton

There are three flakes which, although rolled, are certainly struck. Their condition suggests that they are from the gravels and therefore Palaeolithic. They come from across the site (one flake in each of trenches 03, 08 and 18). There are also some other pieces with bulbs of percussion that are in a similar state of preservation, but these are less obviously artefacts. These flakes must pre-date, or be near contemporary with, the final deposition of the gravels, which are currently dated to the Wolstonian glaciation (Carney 1998, 1).

Two quartzite cobbles were recovered from trenches 03 (AEY: Fig. 12.2) and 04 (ACC: Fig. 12.1). Such cobbles occur widely in the gravels (Fox-Strangways 1905, 41). Both have had several flakes removed to resemble flake-cores. The flake-facets are sharp and undamaged, although both are from derived contexts. ACC (Fig. 12.1) was recovered from the topsoil, while AEY (Fig. 12.2) was recovered from pit 26 (Fig. 3). The only flaked quartzite material known locally is from Creswell Crags, where all the securely dated material is Middle Palaeolithic (Mousterian; e.g. from Robin Hood's Cave: Boyd Dawkins 1877, 591; those attributed to Mother Grundy's Parlour [layer D] being either mechanically fractured or heat-altered and occurring together with Iron Age

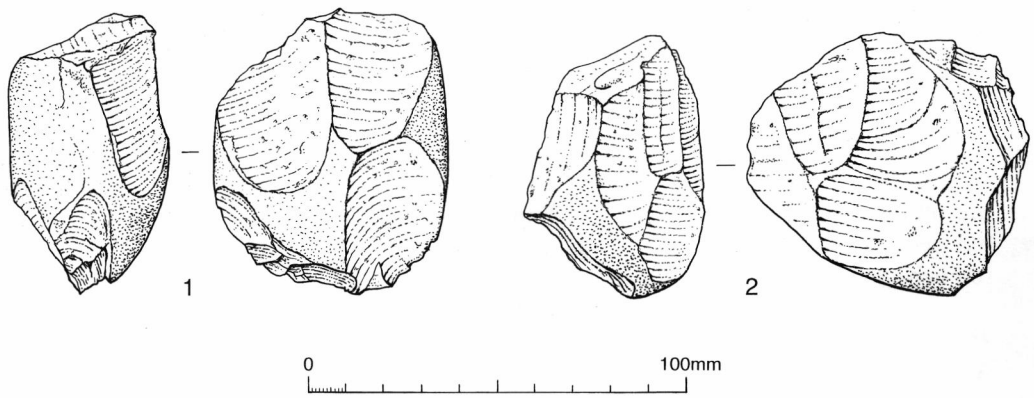

Fig. 12: Possible Middle Palaeolithic quartzite cobble-tools. Scale 1:2

pottery, *cf.* Campbell 1977, 64). Otherwise, flakes of this material are unrepresented locally, perhaps with the exception of an unpublished fieldwalking find from near Church Warsop, Nottinghamshire (T&PAT Code BFS 144.0621; from SK 59013 69307). The recent recognition of struck flakes and cobble cores in fine-grained rocks in Beaker contexts (Barfield 1997) illustrates the use of intractable materials well into later prehistory in the Midlands; the date of the Swarkestone quartzite cobbles must therefore remain open.

Discussion

The 1993–4 lithics from the road-corridor include a few scattered Palaeolithic artefacts and material deriving from at least three later periods of activity. An Early Mesolithic collection is characterised by the knapping of large blades, the use of a mixture of Wolds-type and translucent flint, and by a restricted tool kit, including end-scrapers, truncations, worn-edge and edge-used flakes and blades, and perhaps serrated blades and borers. A Late Neolithic/Early Bronze Age collection is represented by less distinctive debitage, but includes clearly identifiable scrapers, an arrowhead and knives in translucent flint. The material which may relate to the Late Bronze Age/Early Iron Age round-house is discussed elsewhere in this volume. Since Early Mesolithic assemblages are rare locally (see below), and at least the Wolds-type element can be clearly identified, further comment relates predominately to these pieces of the collection.

Assessment of Flintwork from Earlier Fieldwork at Swarkestone Lowes

Gas pipeline, 1993–94

The amount and type of flint is variably distributed and clearly consists of two different groups: an Early Mesolithic assemblage includes three obliquely blunted points (that in Wolds-type flint with opposed retouch), a sharpening flake from a tranchet axe, and large blades and cores; a Late Neolithic/Early Bronze Age assemblage has thumbnail-size scrapers and small, squat, hard-hammer flakes with large, plain platforms. The microliths are of interest because they are in three different raw materials: brown translucent flint, Wolds-type flint, and a pale grey chert known from the Carboniferous Limestone. This demonstrates, as described above, the movement of raw materials and

hence groups within the region (*cf.* Jacobi 1978, 304). It also emphasises that the Early Mesolithic material is not restricted to the use of Wolds-type flint, a point that is difficult to demonstrate from the excavations reported above.

Fieldwalking, 1983

The material from the fieldwalking can be divided into two groups. The larger element comprises scrapers, chunky flakes and roughly worked cores of probable Late Neolithic/Bronze Age date. These occurred alongside a small number of blades, a microlith (a Later Mesolithic trapezium), and three square-ended scrapers, one with a proximal truncation (*cf.* Chowne and Healy 1983, 51; Dumont 1983, 137–9), all probably representing Mesolithic activity.

Barrows II and IV, 1955 and 1956

Translucent and mottled flint is predominant in the collection from Barrow II. It is notable that half of the blades present are in Wolds-type flint, even though there is only one Wolds-type core, and no debitage distinctive of blade-production (except the crested blade misidentified as a rough-out for a plano-convex knife [Posnansky 1955, fig. 1.9] which is in translucent flint). This suggests that the blades must have been knapped outside the excavated area. All the tools are Neolithic or Early Bronze Age types, and include a fragment of a leaf-shaped arrowhead (Posnansky 1955, fig. 1.1 - not in Derby Museum in 1984), several scrapers, including types of thumbnail size (e.g. *ibid.*, nos. 3–4), a flake knife (*ibid.*, no. 5) and a calcined prismatic rod (*ibid.*, no. 10: with no evidence for crushing/wear on its extant edges).

The surviving Barrow IV collection includes Mesolithic tools: namely two microliths with obliquely blunted point (ApSimon 1960, fig. 8.21–2) and perhaps four end-scrapers of different character to those from the Beaker occupation level (*ibid.*, nos. 23–6). Three of these tools are in Wolds-type flint (nos. 22, 24, 25), and their form and raw material both suggest a Mesolithic attribution. Classic Neolithic and Early Bronze Age tools, e.g. leaf-shaped, transverse, barbed-and-tanged arrowheads, and knives (*ibid.*, nos. 1–19), are associated with the Beaker occupation and grave.

The debitage from Barrow II and the surviving tools from Barrow IV both suggest that two periods of material are present, Early Mesolithic and Late Neolithic/Early Bronze Age, the latter being confirmed by pottery at both sites.

Comment

The material from these investigations tells a remarkably similar story to that from the road-corridor excavations, namely of extensive use of the hilltop in both Early Mesolithic and Late Neolithic/Early Bronze Age times. Early Mesolithic communities employed a Wolds-type flint alongside small proportions of translucent flint and chert; the Late Neolithic/Early Bronze Age concentrated on the use of translucent flint.

Distribution

The spread of activity across the site can be considered through the density of flintwork. However, as all of the excavations were primarily designed to investigate the later landscape the amount of excavation of these features could bias the apparent

distributions. Hence, a crude index for the road-corridor excavations was calculated to provide a more reliable guide to flintwork densities. The expression used is:

$$\frac{\text{number of flints recovered}}{\text{approximate area of feature excavated}}$$

The results from these calculations demonstrate that the highest densities came from trenches 03, 19 and 20; with middle range densities from trenches 08 and 18; and the lowest densities from the largest areas actually excavated, in trenches 21 and 22. Together with the numbers of flints from the other excavations, this suggests a focus of activities on the ridge-top to either side of Lowes Lane, beneath and to the north-west of Barrow IV, and along the shoulder of the scarp around trenches 08 and 18.

Within these foci, the distribution of raw materials and forms varies. Most of the Wolds-type flint is from trench 19 (62 of a total of 101 pieces), and is also found in the adjacent trenches (Fig. 13). There is also a fair proportion of Wolds-type flint from trench 11, but hardly any along the scarp-edge to the north. The translucent and mottled flints are found throughout.

The proportion of blades and blade-like flakes varies across the site (Fig. 14), but everywhere it is high (26–41%), notably within and around trench 19.

The coincidence of the use of Wolds-type raw material and high proportions of blades strongly suggests an Early Mesolithic focus near trench 19. This is borne out by the form of the tools. If the pattern of activity is assessed, using a combination of Wolds-type flint, form and tool type (Fig. 15), it can be suggested that there are actually several foci of Early Mesolithic scatters. These are centred broadly around trenches 10, 19/20, and 11, and include scatters by Barrows II and IV, whereas the crest of the scarp is avoided. Late Neolithic/Early Bronze Age material was also recovered around trenches 10 and 03/16, but is represented much less strongly in trench 11. Here the focus lies to the south around Barrow IV with its enigmatic structures (Greenfield 1960, fig. 5). Bronze Age material is suggested in trench 19, some from the round-house (Garton in Guilbert and Elliott 1999), with isolated tools from along the scarp.

Comparison with other Early Mesolithic Assemblages in Northern England and the East Midlands

The opaque grey-cream flint, which forms a major component of the Early Mesolithic part of the collection, almost certainly originates from the Wolds of north Lincolnshire or east Yorkshire. The Swarkestone collection extends a pattern of use of this flint observed at many Early Mesolithic sites in the Pennines, the North York Moors and northern Lincolnshire and Nottinghamshire. The movement of this flint into the Pennine uplands is seen as raw material procurement embedded in seasonal movement (Jacobi 1978, 304). It has been suggested more recently (Jacobi *pers. comm.*) that glacial action may have carried quantities of this flint further west, where it was available in pockets nearer the Pennines. The nature of the debitage at Misterton Carr suggests that it may have been very close to one such pocket (Jacobi *pers. comm.*). The Wolds-type flint seen in the local boulder clays close to Swarkestone does not appear to be suitable for knapping (as explained above).

At the Early Mesolithic site of Deepcar in the Pennines, which is typical of these sites, the proportion of Wolds-type flint is 95% of the total assemblage (Radley and Mellars

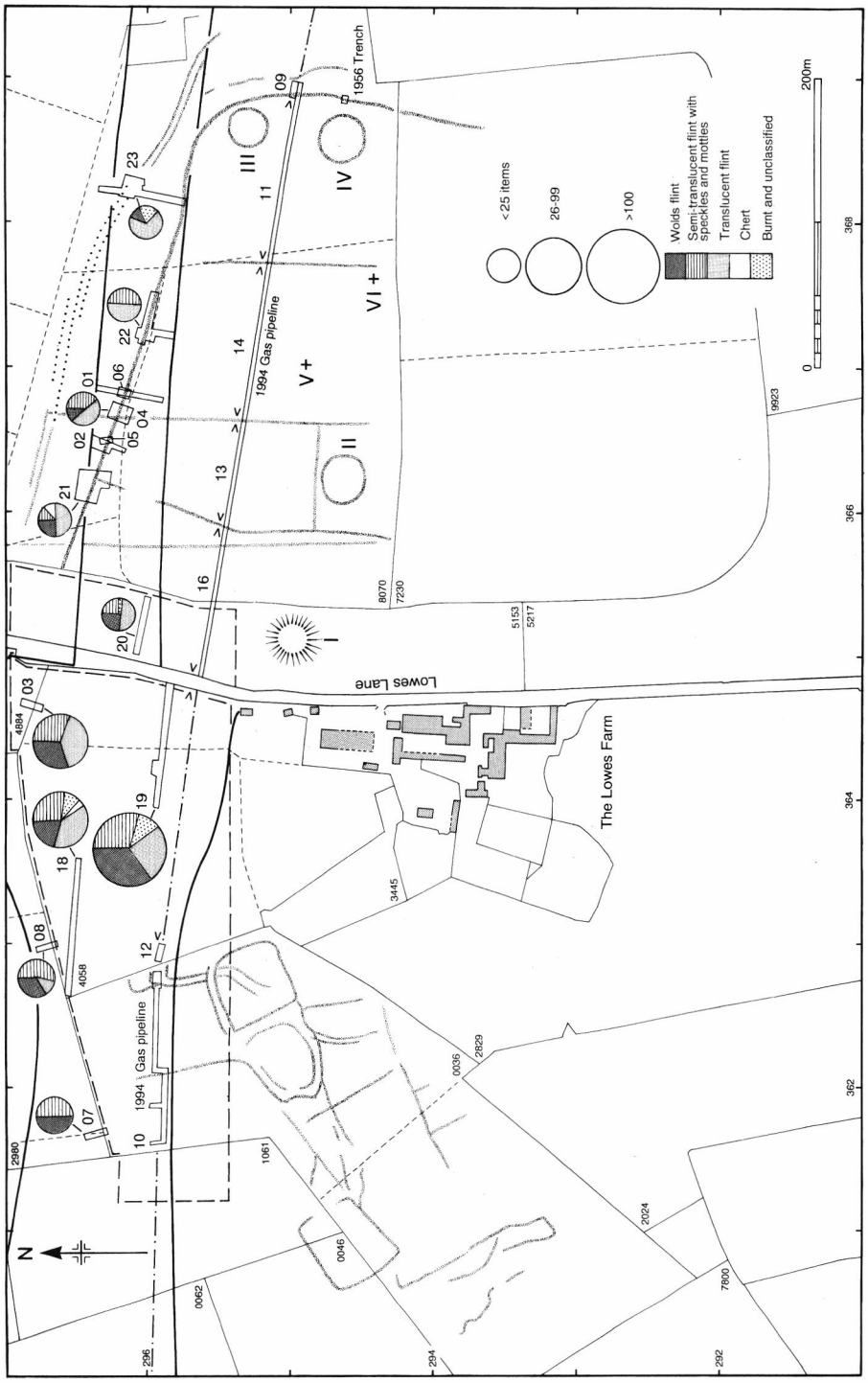

Fig. 13: Distribution of lithic raw material types by trench. Scale 1:5,000

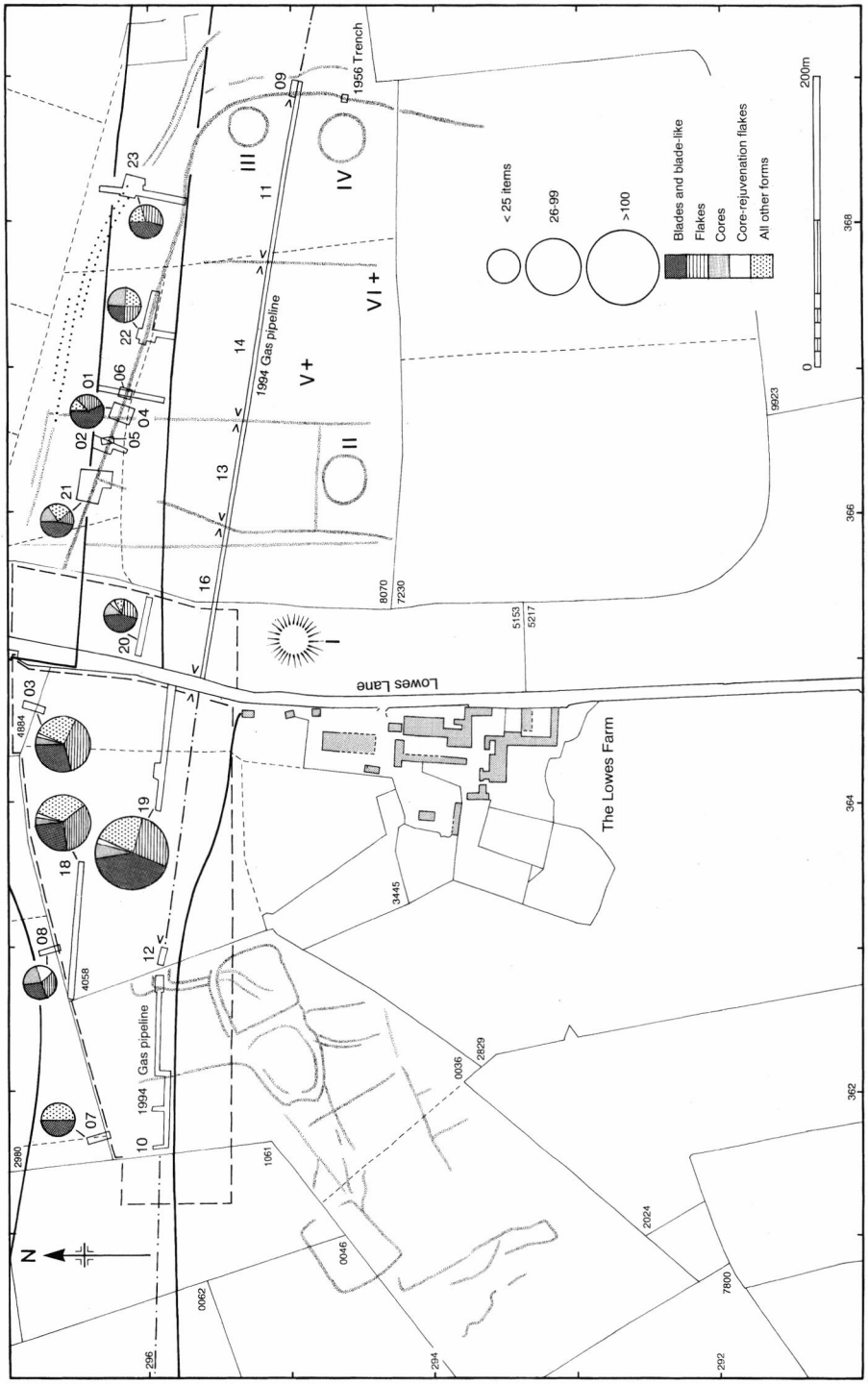

Fig. 14: Distribution of lithic forms by trench. Scale 1:5,000

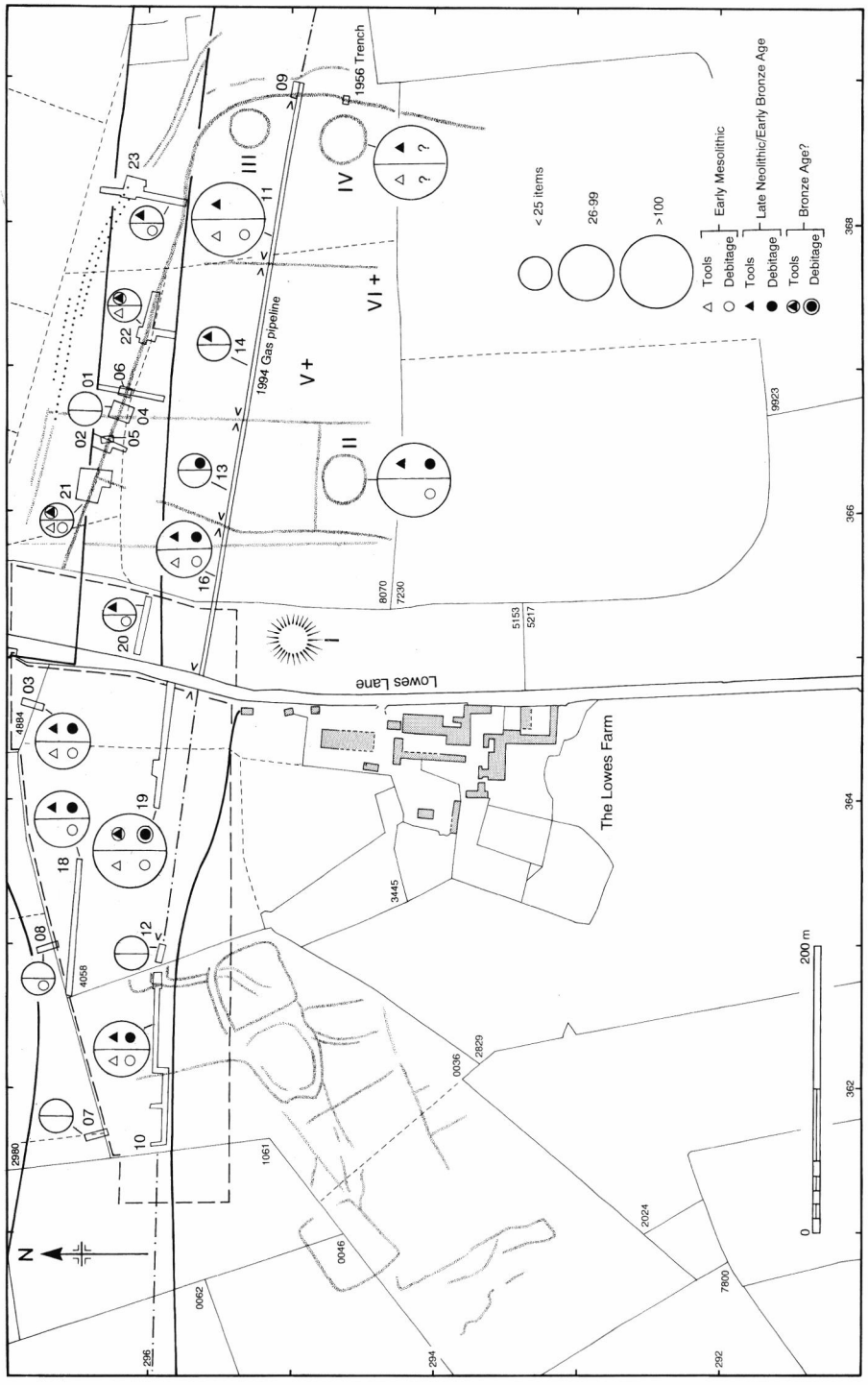

Fig. 15: Distribution of Early Mesolithic and Late Neolithic/Bronze Age lithic tools and debitage (? signifies material disposed in backfill). Scale 1:5,000

1964, 7). A similar preponderance of this raw material is reported from other Early Mesolithic sites in the general area: Brigham in East Yorkshire (Manby 1966, 213); Pule Hill Base, Warcock Hill North, and Lominot 2 and 3 in the Pennines (Stonehouse 1992, 8); and Nab Water in West Yorkshire (Gilks 1994, 5).

These 'Deepcar-type' sites contrast with 'Star Carr-type' sites which are also thought to be Early Mesolithic (Jacobi 1978, 305). At the latter sites, Wolds-type flint is a minor feature, with translucent flint forming the overwhelming component. The microlithic element of the two assemblage-types is also quite distinct, with obliquely blunted points with opposed retouch being diagnostic of Deepcar-type assemblages (Jacobi 1978, 304).

At Swarkestone Lowes, the amount of Wolds-type flint is only about one third of the total collection, although there is certainly an element of later flintwork, which must in part account for the greater amounts of translucent flint. This is directly comparable to the site of Misterton Carr in Hatfield Chase (Buckland and Dolby 1974, 9), which also has quantities of translucent flint, and where it also appears that later flintwork is mixed with the Early Mesolithic material. Both sites are also located within reasonable proximity to the River Trent, which would offer a source of translucent flint to supplement Wolds-type flint. Although not exhibiting the preponderance of Wolds-type flint seen in other Deepcar-type sites, the extensive use of this raw material, together with the Deepcar-type microlith in Wolds-type flint from the Gas pipeline (see above), would suggest that the Swarkestone assemblage belonged to this tradition; if so, it is the most southerly site so far noted (Jacobi 1978, 296, and *pers. comm.*; Manby 1966, 226–28).

The range of tool-types from the excavations at Swarkestone which are probably attributable to the Early Mesolithic is limited (Table 3). It consists of end-scrapers (e.g. CSQ: Fig. 11.2, DBH: Fig. 11.1, DCY: Fig. 11.7), truncations (COI: Fig. 11.3), used- and worn-edge flakes and blades (CSX: Fig. 11.6), borers (CYN: Fig. 11.8) and a serrated blade. This list is mirrored at all the other Early Mesolithic sites listed above, although those sites also contain numbers of microliths, present only in small quantities at Swarkestone (possibly CRB: Fig. 11.4, three from the Gas pipeline, and two from Barrow IV; see above), and most also have tranchet axes, a sharpening flake from which was recovered from the Gas pipeline. Most of these sites also have numbers of burins which appear to be missing from the Swarkestone collections.

The excavated flint from Swarkestone does not include any microburins, or notched flakes or blades, the by-products of microlith-manufacture, although the flintwork from the trenches on the route of the Gas pipeline does include one notched blade. Such small pieces are not readily visible, and their recovery is only to be expected where sieving is carried out. Their absence need not therefore indicate absence of manufacture at Swarkestone Lowes.

In this part of the Trent Valley, Mesolithic material of any date is poorly represented (e.g. Posnansky 1956, 14) and, as shown in Table 6, has hardly improved since Manby's reviews (1963, 19; 1966, 227–28; *cf.* Wymer 1977, 51–54). However, to judge by the flintwork retrieved in recent excavations of later sites where, as at Swarkestone, the primary objectives have not included flintwork recovery, it appears that material from the Mesolithic is in fact widespread (Table 6).

This poor representation is at least partly a reflection of the lack of recent field survey. None has been conducted within that part of the Trent Valley around Swarkestone, but systematic survey of a 200m × 21km corridor along the Roman Fosse Way south of the

County	Site Name	Grid Ref	Source	Tools	Debitage
Derbyshire	Hickens Bridge, Aston	SK4229	DG unpublished	Microlith and long end-scraper	Blades (1% of collection)
Derbyshire	Potlock	SK3128	DG unpublished		Blades with abraded and worn butts
Leicestershire	Green Spot Wood, NE	SK4828	SMR 42NE BQ SMR 42NE BR		Blades and blade cores
Leicestershire	Hemmington Hole, E	SK4628–SK4828	SMR 42NE BB	Knife	Blades and blade cores
Leicestershire	Lockington	SK4729	Young *pers. comm.*		Blades (1% of collection)
Leicestershire	Ratcliffe Lane Farm, N	SK4829	SMR 42NE BN	End scraper	Blades and blade cores
Leicestershire	Warren Lane Cottage, SE	SK4829	SMR 42NE F		Blades and blade cores
Nottinghamshire	Cockpit Hill Ramsdale Park	SK5948	Garton 1989	Microburin, possibly Early	
Nottinghamshire	Cropwell Bishop/ Cropwell Butler	SK6736	SMR 00984	End scraper	Small blades and small-blade cores
Nottinghamshire	East Stoke/Thorpe	SK7649	SMR 01645	2 long-scrapers on blades and a retouched blade (all of which could be Mesolithic or Late Upper Palaeolithic, R. M. Jacobi *pers. comm.*)	
Nottinghamshire	East Stoke/Thorpe	SK7650	SMR 03510		Blades and blade cores
Nottinghamshire	Farndon	SK7751	SMR 03570		Blade cores
Nottinghamshire	Gamston	SK6036	Brown 1992, 77	Two end-scrapers	
Nottinghamshire	Great Briggs, Holme Pierrepont	SK6138	DG unpublished	Microlith fragment, and possibly blade with retouched distal end	Regular pyramidal core
Nottinghamshire	Holme Pierrepont	SK6238	DG unpublished	Microlith fragment and truncated blade	Small blades
Nottinghamshire	Kneeton/Screveton	SK7244	SMR 01729	Long end-scraper	
Nottinghamshire	Nottingham Castle	SK5639	RMJ *pers. comm.*	Lanceolate microlith	
Staffordshire	Catholme	SK1916	DG unpublished	Obliquely blunted point	Blades with abraded and worn butts
Staffordshire	Fatholme	SK2017	DG unpublished	Obliquely blunted points	

Table 6: Mesolithic flintwork recorded in the Trent Valley between the Tame and Devon confluences, since reviewed by Manby (1963, 1966) and Wymer (1977).

river valley produced Mesolithic material in at least 24 separate fields (Knight and Kinsley 1992, fig. 38). However, virtually all this material was ascribed to the Later Mesolithic, even though the large size of the blades, and the high visibility of the light-coloured Wolds-type flint on the ploughsoil surface, should have rendered any Early Mesolithic sites visible. This suggests that sites such as Swarkestone may truly be a rare resource. The surviving parts of this much truncated ridge may yet provide important information for the earlier periods of prehistory, as well as those later periods for which it is justly known. It deserves management and further investigation specifically for this Earlier Mesolithic potential.

Iron Age Saddle Quern and Pebble Tools by R. J. Firman, D. Knight and M. E. Wright

Three objects of sandstone were recovered from the fill of a shallow (*c.* 0.2m deep) ring-gully (24) in trench 08 (Fig. 3), together with ten mainly unabraded plain Iron Age body sherds (68g), deriving possibly from only two handmade vessels. The vessels cannot be closely dated, but are undoubtedly of Iron Age origin. The pottery and one of the rubbing stones (AGT) were found in the upper fill of the ditch, within a *c.* 1.5m length of the ring gully, and may represent a contemporary deposit. The two other stone artefacts were found close together in the same area, but near the bottom of the ditch. The stone artefacts comprise a virtually complete saddle quern (Fig. 16.1) and two pebble rubbing stones (Fig. 16.2–3). The only other stone artefact which was recovered is a fragment of 'Millstone Grit' preserving smooth areas on one face, suggesting use as a whetstone (ADB). This derived from trench 07, within a layer (19) interpreted as probably a Medieval ploughsoil; it cannot be ascribed with confidence to the Iron Age occupation and is not discussed further below.

Fig. 16.1 (AGZ): fragment of lower stone of a saddle quern, manufactured from a coarse, reddish brown, well cemented sandstone with both rounded and crystalline quartz grains. The surfaces preserve a red colouration, possibly resulting from exposure to heat. Possibly only a third of the original saddle quern survives, the stone probably having seen some use as a smaller saddle quern after breakage. The upper concave surface preserves a very smoothed grinding face. The object has a roughly fashioned base with fine peck marks where upstanding areas of the surface have been removed. This lower surface also shows slight traces of smoothing caused by movement in use.

Fig. 16.2 (AHA): complete water-worn pebble of medium equigranular quartz sandstone, used as a rubbing stone. Both surfaces preserve areas of blackening and reddening, probably indicating exposure to heat. The flat (upper) grinding face is smoothed and slightly undulating from use. Much of the dorsal face is now damaged and rough, with pitting which could indicate secondary percussive use.

Fig. 16.3 (AGT): end of a fractured water-worn pebble of fine micaceous sandstone, used originally as a rubbing stone. The slightly concave (lower) face shows considerable, very smooth polish, including two small noticeably smoother polished areas which may have resulted from the accumulation of silica acquired during the processing of plant remains, probably grain. The rounded (upper) surface also preserves evidence of smoothing, consistent with continued handling during use as a rubber. The object shows clear evidence of exposure to heat, possibly indicating later use as a pot-boiler. Examination of the fractured surface suggests mineralogical changes due to heating, in the form of zones of reduction (blackening) and oxidation (reddening), while one of the

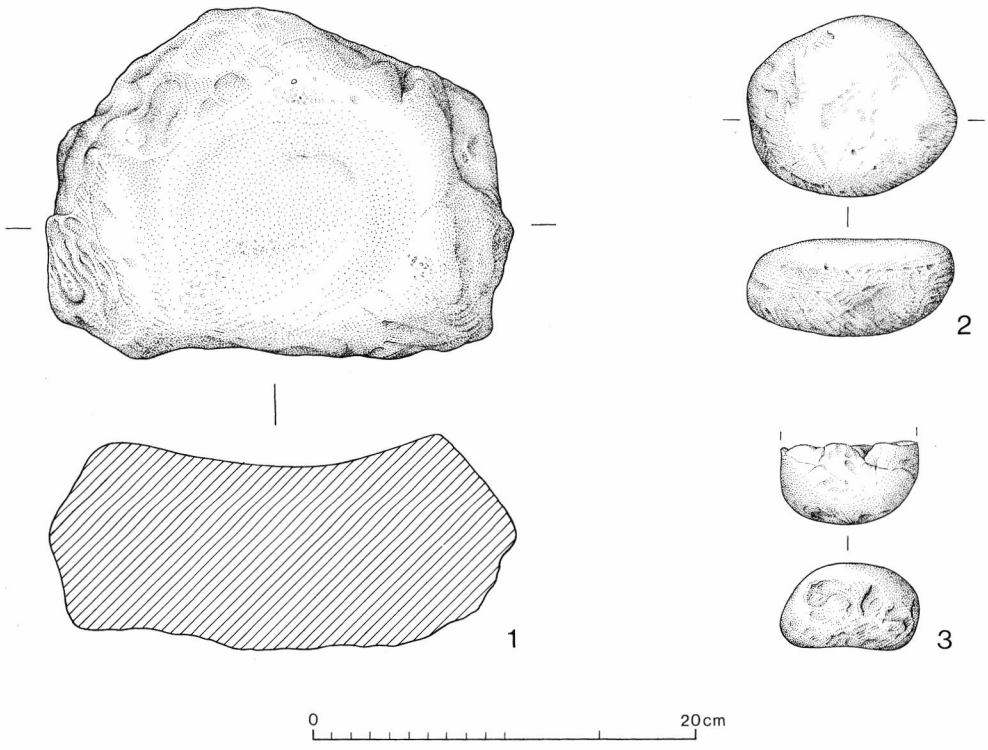

Fig. 16: Iron Age saddle quern (1) and rubbers (2–3) from curvilinear gully (24), trench 08. Scale 1:4

smooth outer surfaces preserves several hair-line fractures. Pitting at the end of the object may result from percussive use after heating.

The pebble tools most probably represent water-worn stones derived from a local gravel or boulder clay deposit. The sandstone from which the quern was manufactured might also have been derived from a local gravel or till source, but other sources are possible. Most of the local Triassic sandstones are insufficiently well cemented to have been used as querns, but a source in nearby Trent Valley outcrops of 'Millstone Grit' type is possible (for example, at Ticknall and Stanton-by-Bridge, Derbyshire, both within 5km of Swarkestone). Outcrops further north in the Pennines are less likely since most coarse 'Millstone Grits' from that region tend to be markedly feldspathic. A local source might also be implied by the unusual reddish brown colour, which could have been acquired as a result of proximity to the predominantly red local Triassic strata. It is, however, equally possible that the artefact acquired its colour subsequent to manufacture as a result of heating in a conflagration.

Late Bronze Age and Iron Age Pottery by D. Knight with contributions by C. S. M. Allen, E. M. Appleton, J. N. Carney and D. F. Williams

168 sherds (931g) and 22 tiny flakes (13g) deriving from pottery of the Late Bronze Age/ Early Iron Age and later Iron Age periods were obtained during excavation. The

methods of analysis are described in the first part of this section, followed by a consideration of the spatial distribution, fabrics, forms, styles of surface treatment and typological affinities and dating of the pottery. Special consideration is given to the evidence for the use of possibly non-local igneous temper, the addition of which to some pottery vessels could indicate a complex system of exchange links extending south into Charnwood Forest. A catalogue of the illustrated pottery is appended to this report (Fig. 17).

Methodology

Each sherd was recorded individually, on standard proformas, with details of context, count, weight (g), fabric, vessel part, form (body profile), rim form, base form, external diameter and surviving percentage of the rim and base, surface finish of interior and exterior, decoration (type and extent), sherd condition, surface deposits, method of manufacture, firing condition and cross-context joins (with comments on other points of interest). Data on sherd attributes were entered on a computer data base, employing dBase IV software. The above work was carried out by EA, under the supervision of DK. Representative examples of each fabric group were thin sectioned by DW, following the establishment by CA, DK and DW of a fabric type series. Records were made for each fabric group of surface colour, firing, hardness, feel/texture, fracture, technology, inclusions (type, frequency, sorting, roundness, sphericity, size), possible source, site contexts/ phases, cross-references to other fabrics and petrology. A report on the petrology of the pottery was provided by DW (Williams 1997a) and a report on the character and possible sources of the igneous inclusions which characterise Fabric IGSC was provided by Dr John Carney (1998; both reports in archive).

Spatial Distribution of Pottery

Most of the pottery was retrieved from trench 19 (124 sherds), with only small quantities of material from trenches 07 (11 sherds), 08 (ten sherds), 18 (11 sherds), 20 (four sherds), 22 (one sherd) and 23 (seven sherds). The small quantity of material is surprising in view of the rich collection of Iron Age and Romano-British pottery which was obtained during excavations along the British Gas pipeline, immediately to the south of these trenches. However, it would seem to reflect the location of the majority of trenches, excepting trench 19 and possibly trench 08, away from major foci of occupation. The most significant collections of pottery, from trenches 19, 08 and 23, are discussed first, followed by a brief summary of the remaining material. Further discussion of the pottery obtained from individual features is contained in the section dealing with the structural remains of the first millennium BC and Romano-British period.

Trench 19 (Fig. 5). A substantial proportion of the pottery from trench 19 derived from the entrance postholes of the proposed round-house (277: nine sherds; 366: two sherds), and from the possible enclosure ditch which cut this structure (278/283; 49 sherds). In contrast to pottery from the other trenches, several sherds which are related typologically to Late Bronze Age/ Early Iron Age vessels were recovered, providing interesting evidence for an early and possibly unenclosed locus of activity. The most significant collection is a group of nine unabraded or only slightly abraded sherds, including two small sherds preserving highly burnished outer surfaces and part of an

everted-neck vessel with cabled rim (Fig. 17.7), retrieved from posthole 277 of the roundhouse. The unabraded condition of these sherds would argue against redeposition, and hence their presence could imply an early date for the structure of which the posthole was part. The later 'enclosure' ditch yielded a mixture of abraded to unabraded sherds, invariably plain, all apparently handmade, and mostly deriving from vessels of uncertain form. The most significant find was a slightly abraded fragment of a carinated vessel, apparently handmade, which compares most closely with standard Late Bronze Age/Early Iron Age forms (Fig. 17.9: feature 278) — although we cannot rule out the possibility of a later origin. This sherd could signify an early date for this feature, if genuinely of Late Bronze Age/Early Iron Age date, or alternatively it could have been redeposited during digging of the ditch. Two sherds from this feature preserving pronounced rounded girths might also signify Late Bronze Age/Early Iron Age activity (Fig. 17.8), but this argument remains tenuous given that vessels of this class remain significant elements of later Iron Age ceramic assemblages in the Trent Valley. 49 Iron Age sherds were also recovered from a series of linear ditches and gullies (270–72, 274) recorded towards the east end of trench 19, together with single sherds from the fill of a pit or burrow (273) and isolated postholes (284 & 285). Most of these sherds are typologically undiagnostic, but feature 272 yielded a probably combed sherd attributable to the Late Iron Age (Fig. 17.6).

Trench 08. This yielded a small collection of ten plain and mainly unabraded body sherds, some joining, possibly deriving from only two vessels. All derived from a *c*. 1.5m length of the upper fill of a ring-gully (Fig. 3: 24), together with a fragmentary saddle quern and two pebble rubbers, and may have been dumped from a nearby habitation site. The pottery derives from handmade vessels of uncertain form and unfortunately cannot be closely dated.

Trench 23 (Fig. 9). Excavations of the pit alignment yielded a small but significant collection of Iron Age pottery. Such monuments rarely yield finds, presumably because of their location well away from contemporary occupation sites, but five of the excavated pits yielded handmade Iron Age pottery in their upper fill (one sherd from each of pits 376, 378, 383 and 384 [Fig. 17.11], plus three sherds from pit 386). This provides useful supporting evidence for an Iron Age or later date, although the character of the material prevents close dating.

Other trenches. The pottery from the remaining trenches is of only limited interest. Trench 07 yielded 11 plain body sherds from handmade vessels of uncertain form and 22 tiny flakes (only 13g), all from the top of the natural sand and gravel (29). These were stratified beneath a layer interpreted by the excavator as probably the base of a Medieval ploughsoil. Trench 18 (Fig. 5) yielded six Iron Age sherds from the fill of a linear ditch (300) and five sherds from a pit (301). The pottery from ditch 300 included an apparently handmade vessel with a gently corrugated shoulder, recalling Aylesford-Swarling prototypes, suggesting therefore a Late Iron Age date for the feature (Fig. 17.1). The pottery from pit 301 comprised a group of plain body sherds deriving from handmade vessels of uncertain form. Three Iron Age sherds were recovered from the surface of the natural sand and gravel in trench 20, together with a single unstratified sherd. Excavations in trench 22 of the curvilinear boundary ditch (331) yielded a single very abraded Iron Age sherd. This cannot be closely dated, and dating of the ditch hinges

largely upon the limited finds and single radiocarbon date obtained during earlier excavations by Losco-Bradley.

Vessel Fabrics by C. S. M. Allen, D. Knight and D. F. Williams; with a contribution by J. N. Carney

A surprisingly wide range of vessel fabrics is represented in view of the small size of the collection, reflecting probably not only the broad chronological range of the material but also the diverse local geology and, more controversially, the importation of vessels with non-local igneous temper. 18 sherds, selected as representative of each of the fabric groups identified during preliminary assessment of the pottery, were thin-sectioned by DW and examined under the petrological microscope (Williams 1997a). This supported a division into three main groups on the basis of petrological identifications, namely quartz (QU; seven samples), Mercia Mudstone (MM; four samples) and igneous (IG; seven samples).

Subdivisions of the above groups were made on the basis of variations in the frequency and modal size range of the predominant inclusion types, as recommended in the revised guidelines for the analysis of prehistoric pottery issued by the Prehistoric Ceramics Research Group (*PCRG* 1997).

The following class divisions were employed in the definition of these fabric sub-divisions:
Frequency: rare (<3%); sparse (3–10%); moderate (11–25%); common (26–40%); abundant (>40%).
Size: fine (<0.25mm); medium (0.25–1mm); coarse (1–3mm); very coarse (>3mm).

Fabrics QUSV, QUSM and QUSF

These fabric groups are characterised by sparse to moderate very coarse (QUSV) or medium (QUSM) quartz or by sparse fine quartz (QUSF), in the coarser vessels protruding through the vessel surfaces. The quartz grains are clear or milky white in colour, and in the coarser wares are angular or subangular and poorly sorted (QUSV & QUSM). The quartz inclusions in the finer sandy fabric (QUSF) are rounded and well sorted, suggesting a contrast between deliberate temper (QUSV/QUSM) and naturally occurring quartz (QUSF). Grains of quartzite, some small pieces of sandstone, shreds of mica, a few small pieces of flint and a little opaque iron oxide were also observed in some thin sections. Small amounts of rounded argillaceous material similar to that defining Fabrics MMSV and MMSM were also observed in some thin-sections. All sherds are soft, with a sandy (QUSM/QUSF) or granular (QUSV) texture and an irregular fracture. Firing conditions, as indicated by sherd colour, varied significantly. The surfaces of the coarser sherds (QUSV/QUSM) generally indicate irregular firing, with mottled surfaces ranging through orange, buff, brown and grey. The finer sherds (QUSF) commonly preserve unoxidised cores and interiors (often grey) and oxidised outer surfaces (commonly orange/buff), but a considerably larger sample would be required to establish the significance of this contrast.

Fabrics MMSV and MMSM

These fabric groups are defined by the presence of sparse very coarse (MMSV) or medium (MMSM) argillaceous inclusions derived from the Mercia Mudstone.

Thin-sectioning revealed a fine-textured clay matrix dominated by rounded or sub-rounded and poorly sorted dark brown iron-rich argillaceous inclusions, interpreted as probably evidence of poorly wedged clays derived from Mercia Mudstone marl clays (*cf.* Fabric F, Fisherwick, Staffordshire: Banks and Morris 1978, 51). Also present are sparse silt-sized quartz grains, with the occasional slightly larger grain, shreds of mica and some elongate organic voids. It is unclear whether the organic material was deliberately added or represents naturally occurring roots or other material that was already present in the clay. The fabric is invariably soft and generally smooth, with a fine or irregular fracture. The cores were generally unoxidised and the inner and outer surfaces irregularly fired or oxidised, varying in colour mainly from orange through brown and grey.

Fabric IGSC

This fabric is characterised by the presence of sparse, coarse, igneous inclusions. Samples ADF1, ADF2, CPS, CQT and DBC were especially distinctive in the hand-specimen, as they contained glistening plates of golden mica; the mica occurred either as discrete flakes or within fragments of granitoid rock. Sample DBC revealed a clay matrix containing several large angular or subangular fragments of a poorly sorted granitoid rock, together with some large discrete grains of biotite mica, plagioclase and orthoclase felspar, flecks of smaller mica and quartz, some of which display undulose extinction. The angular character of the granitoid inclusions indicates crushing prior to their incorporation as temper. The fabric is invariably soft, with a granular texture and an irregular fracture. The surfaces indicate irregular firing, but the core is generally unoxidised, with colours ranging from brown through grey and black.

Sample CPN contrasted significantly with the other thin-section samples. It incorporated a heterogeneous assemblage of inclusions, comprising two large fragments of volcanic rock, several smaller pieces of sandstone, quartz grains, shreds of mica and some opaque iron oxide. The volcanic inclusions were identified as rhyolite, in striking contrast to the igneous inclusions in the other samples, and the sherd was reclassified on the basis of close fabric parallels with 'stony VCP', as Cheshire briquetage (see report below).

The igneous inclusions in the remaining samples were identified provisionally as Mountsorrel granodiorite, derived possibly from a source in Charnwood Forest, thus raising the possibility of non-local pottery production (*cf.* Gamston, Notts.: Knight 1992, 41–43). Two of the pottery thin-sections, CPS and DBC, were submitted to Dr John Carney of the British Geological Survey, with the aims of verifying independently this identification and of confronting the difficult issue of whether comparable material might occur in local drift deposits. A detailed report is contained in archive (Carney 1998) and forms the basis of the conclusions drawn in the remainder of this paragraph. Interpretation is complicated by the small size of the inclusions, which comprise only aggregates of several crystals, and hence the conclusions based upon petrographic analyses must be regarded as tentative. With this proviso, the inclusions within sample CPS were identified as of granodiorite composition, comparing reasonably well petrographically with the Ordovician granodiorites of Mountsorrel (based on the occurrence in the inclusions of untwinned perthitic alkali feldspar, chloritised biotite and green hornblende, together with cloudy alteration of the feldspar). The inclusions in sample DBC differed in being more basic, with no obvious quartz and a high mafic

content of iron-titanium oxide, and may be interpreted as of dioritic or syenodiorotic affinity. Such assemblages can occur within igneous complexes that also include granodiorite. It is known that parts of the Mountsorrel granodiorite are dioritic, and hence a derivation from this source is possible. Carney concluded that comparable granitoids could occur as pebbles or larger cobbles in the gravels of the Soar Valley or in the Trent Valley gravels downstream of Swarkestone. They would, however, be extremely rare (most clasts in Trent or Soar Valley drift consisting of vein quartz, flint or Triassic sandstone) and are unlikely to have occurred in a condition readily amenable to crushing. More likely sources would be gravels derived from streams strictly local to granitoid outcrops (for example within the Mountsorrel outcrop) which would incorporate concentrations of granitoid debris in an easily crushed form. Alternatively, loose weathered-out fragments of granodiorite would be present within the post-glacial scree or 'head' deposits which are known to mantle extensively the Charnwood/ Mountsorrel region. Further evidence in support of a non-local origin for pottery attributed to this fabric group may be provided by the occurrence in samples CPS and DBC of silt-size quartz grains, suggesting that the clay had been derived from Triassic mudstones or from glacial till derived from the latter. In sample DBC, the abundance of mica could indicate that the clay was dug from the highly micaceous Sneinton formation of the Mercia Mudstone. The nearest exposure to Swarkestone would be over 5km to the south-east, to the south of the Trent between Castle Donington and Breedon-on-the-Hill, Leicestershire.

Correlations of Fabric with Form and Surface Treatment

Tables were prepared showing the proportions of vessel forms and styles of surface treatment within each fabric group (details in archive). No systematic variations in vessel form or surface treatment could be discerned between the fabrics, but any correlations between these variables could easily be concealed by the small sample size.

Production and Distribution

Pottery manufactured from fabrics dominated by quartz (QUSV/QUSM/QUSF) and Mercia Mudstone (MMSV/MMSM) could well have been made locally, as there is nothing in the petrology to suggest importation from further afield. The local valley gravels, for example, contain much quartz and quartzite, while the fragments of sandstone could have derived from the local Trias (Fox-Strangways 1905). Similar Iron Age fabrics have been identified not far away at Aston-upon-Trent (Williams 1997b), in an area of comparable geology close to the River Trent. The mudstone which is a prominent feature of fabrics MMSV and MMSM, and which occurs also in some of the quartz-gritted fabrics, probably derives from local Mercia Mudstone outcrops. Comparable fabrics have been recorded on other Iron Age sites in the region, notably at Fisherwick, Staffordshire, located on the lower gravel terrace of the Tame (Banks and Morris 1978, 51). The mudstones which are present in these sherds do not seem to be particularly calcareous, but it is now recognised that much of the marlstone ingredient in the Mercia Mudstone is not 'marly' in the strict sense of the term (Hains and Horton 1969, 69–70).

In contrast to the above fabrics, the granitoid inclusions which characterise the thin-sectioned pottery sherds of Fabric IGSC may indicate the transport of finished vessels

and/or ceramic raw materials from some distance. The source for this distinctive fabric has yet to be tied down, but as noted above a reasonable case may be made for derivation of the granitoid inclusions from or close to the Mountsorrel granodiorite of the Charnwood Forest area. The abundance of mica which was observed in sample DBC could indicate a clay source for at least some vessels in the highly micaceous Sneinton formation of the Mercia Mudstone, between Castle Donington and Breedon-on-the-Hill, Leicestershire, to which area igneous temper might have been transported. The nearest possible source of this clay is at SK 395251, immediately east of Melbourne, *c.* 5km SE of Swarkestone Lowes, but more distant sources of suitable potting clay closer to readily available supplies of Mountsorrel granodiorite could have been exploited.

The case for a ceramic exchange network centred upon Charnwood Forest and extending northwards to the Trent Valley has been discussed earlier by reference to the Iron Age pottery obtained during excavations at Gamston, on the eastern outskirts of Nottingham (Knight 1992). The Swarkestone evidence is significant because it extends the evidence for Mountsorrel granodiorite temper upstream of Gamston, beyond the confluence with the Trent and the Soar. This renders less likely arguments that Mountsorrel granodiorite could have been distributed by glacial or fluvial mechanisms, and hence strengthens the case for movement by trade or by some other kind of exchange mechanism. Another significant observation is the presence of igneous inclusions within a vessel with a carinated girth from Swarkestone which on typological grounds might be related to Late Bronze Age/ Early Iron Age ceramic traditions (DAN: Fig. 17.9). Doubts have been expressed above regarding the typological affinities of this vessel, but its discovery raises the possibility of an early origin for the exchange network which may be postulated from the evidence of pottery fabrics. This would, if verified by future research, have major implications for our understanding of Iron Age ceramic production in the Midlands, for at present non-local production in this region appears to have been restricted to the Middle and Late Iron Ages (*cf.* Morris 1994, 377–81 and table 4).

Method of Manufacture

None of the vessels which were retrieved during excavation was definitely wheelmade, with the possible exception of a small body sherd from gully 272 which it is suggested could have been decorated with a comb (COO1: Fig. 17.6). Other vessels could also have been made or finished on the wheel, but the small size of most fragments commonly prevents definite conclusions on the method of manufacture.

Vessel Forms

Virtually no vessels, unfortunately, have survived in a sufficiently intact state for their original profile to be established, and the original proportions of vessel forms, rim types and other form elements can no longer be ascertained. Two fragments have survived of round-shouldered vessels, represented by girth sherds preserving evidence of a pronounced change of wall angle (CQE: Fig. 17.8; CPF), but in neither case can the neck, rim or base form be determined. A girth fragment deriving from an apparently handmade carinated vessel with a concave neck was also recovered, but as the upper part of the neck and the rim have not survived, the profile and exact typological affinities of this sherd remain in doubt (DAN: Fig. 17.9). Both carinated and round-shouldered forms should be identified fairly readily from small girth fragments, raising the possibility,

therefore, that comparatively few of the sherds in this small sample genuinely derive from vessels of these profile classes. The majority of sherds might thus derive from less easily identifiable forms such as ovoid or open vessels, but this argument should not be pressed too far. One example of a probable neckless ovoid vessel with a direct rounded rim was recovered (CRR: Fig. 17.3), together with a handful of rims which could derive from closed forms of ovoid or possibly globular or ellipsoid profile. The latter preserve direct rounded (Fig. 17.11), flattened (Fig. 17.2) or internally bevelled (Fig. 17.5) rims.

One vessel is distinguished from the remainder of the pottery by merit of its gently corrugated shoulder, surmounted by a short upright neck and slightly inturned rim (Fig. 17.1). The pot appears to have been modelled by hand, despite its apparent derivation from Late Iron Age Aylesford-Swarling prototypes (discussed below).

In addition to vessels of discernible profile, occasional fragments have survived of flat bases, sometimes pinched out around the circumference. Mention should also be made of occasional rims deriving from vessels of uncertain profile. These were generally provided with a simple rounded or flattened rim, merging indistinguishably with the vessel wall, but some rims were pinched out slightly internally and/or externally (e.g. Fig. 17.7, 10). As is often the case in collections of handmade Iron Age pottery, classification is hampered by variations in rim form around the circumference, thus urging caution in the creation of too precise a rim classification. Rim diameters can rarely be established; the few diameters which may be determined with reasonable confidence are indicated in Fig. 17.

Surface Treatment

Few vessels display evidence of decoration. One sherd preserves a single finger-tip impression on the lip (Fig. 17.2), while a sherd from a neckless vessel, probably of ovoid form, was embellished around the lip with a row of closely spaced diagonal finger-nail incisions (Fig. 17.3). One other sherd, from a vessel with a high, slightly everted neck, ascribed below to the Late Bronze Age/Early Iron Age, preserves faint traces of cabling along the rim (Fig. 17.7). None of the pottery, despite the presence of Late Bronze Age/Early Iron Age elements, preserves finger-nail or finger-tip impressions along the girth; several rounded indentations on the girth of one round-shouldered vessel could possibly represent deliberate decoration, but it is more likely that they were formed accidentally during manufacture (Fig. 17.8).

One small body sherd preserves four closely spaced vertical or horizontal grooves which could have been applied with a comb (Fig. 17.6). The method of execution of these grooves cannot be established with certainty, largely because of the small size of the sherd. However, the regularity of the spacing and the character of the grooves (< 1mm deep by *c.* 2mm wide, with roughly vertical sides and flat bases) would be consistent with the use of a comb. 13 sherds (88g) preserve light unidirectional brushing on the outer face, executed probably with a bundle of twigs or fibres. None preserves evidence of classic Middle/Late Iron Age scoring, formed by incising the sharpened end of a tool of metal, bone or some other material into the unfired clay (as May 1976, 138) — an observation which it is suggested below may be of chronological significance.

The surfaces of a small number of plain sherds from vessels of uncertain form were smoothed (11 sherds; 62g) or burnished (three sherds; 12g) externally and sometimes internally before firing. No obvious correlations may be observed between surface finish

and fabric group. Interestingly, two of the three burnished sherds derive from vessels retrieved from one of the entrance postholes of the round-house recorded in trench 19 (277), and on stratigraphic grounds may date from the Late Bronze Age/Early Iron Age. The emphasis in all periods, however, despite reservations arising from the small size of the collection, would appear to lie firmly upon coarse domestic wares, commonly preserving finger indentations formed during manufacture.

Typological Affinities and Dating

Dating is complicated by the smallness of the sample, comprising only 168 mainly small and featureless sherds and a few tiny flakes, and by the limited range of vessel forms and styles of surface treatment which may thus be identified. Convincing evidence has been obtained only for Late Bronze Age/Early Iron Age and Late Iron Age vessels, although it is suggested below that the absence of diagnostic Middle Iron Age ceramic types could reflect only the difficulty of identifying such material in small collections. For simplicity, the broad chronological divisions employed in this report into Late Bronze Age/ Early Iron Age (LBA/EIA), Middle Iron Age (MIA) and Late Iron Age (LIA) may be correlated respectively with Ewart Park and Hallstatt C-D (later ninth to sixth centuries BC), La Tene I-II (fifth to second centuries BC) and La Tene III (first century BC to mid-first century AD). As will be emphasised below, however, the main phases of ceramic development which may be advocated for this region correlate only partially with this scheme, developed as it was by reference to metalwork typology (*cf.* Knight forthcoming).

The most persuasive evidence for typologically early vessels is provided by a thin-walled vessel of Fabric QUSV with a high, slightly everted neck and finger-tip cabling along the lip which was obtained from one of the entrance postholes of the post-ring round-house in trench 19 (Fig. 17.7). This was associated with eight plain and mainly unabraded sherds of Fabrics QUSV and QUSM, one with light brushing and two highly burnished externally. The pot rim compares closely with classic LBA/EIA vessels, commonly of carinated or round-shouldered form with high upright, everted or concave necks, such as have been recorded nearby at Willington, Derbyshire (Elsdon 1979, fig. 69.13), and Red Hill, Ratcliffe-on-Soar, Nottinghamshire (Elsdon 1982, fig. 4.5), or further afield at Gamston, Nottinghamshire (Knight 1992, fig. 23.59). The dating evidence for vessels of comparable type within the Trent Valley has been discussed in detail elsewhere (*ibid.*, 45–9), and it is sufficient here to note the likelihood of a ninth to fifth/fourth century BC date range. Unfortunately, without additional direct dating and/ or stratigraphic evidence, there are insufficient grounds to refine this dating.

Vessels which may be ascribed with confidence to MIA activity are absent from this collection, although as noted above classic LBA/EIA ceramic types seem to have continued in use well into the fifth/fourth centuries BC. The absence of scored ware is particularly noteworthy, in view of the abundance of scored pottery on nearby MIA sites such as Breedon-on-the-Hill, Leicestershire (Kenyon 1950), although this could reflect only the small size of the sample. An insufficently large sample was obtained to permit consideration of the relative proportions of carinated, round-shouldered and ovoid or related forms. This is especially unfortunate, for comparison of large LBA/EIA and MIA ceramic collections demonstrates a trend over time towards a preponderance of ovoid and related forms, both in this region and further south into Leicestershire and

Northamptonshire (e.g. Knight 1984, 99; 1992, 50). Such vessels were sometimes embellished with finger-nail, finger-tip or diagonally tooled decoration along the rim, but as decoration of this kind was also applied to vessels of earlier first millennium BC date this cannot be employed as a chronological indicator.

There are, however, clear indications of activity at Swarkestone during the late first century BC and/or early first century AD. Clues to activity in this period are provided by the combed sherd from feature 272 (Fig. 17.6) and the handmade vessel with a corrugated shoulder from feature 300 (Fig. 17.1). Combed wares appear in the East Midlands from the later first century BC, as elements of the phase of ceramic innovation which may be related to contact with Aylesford-Swarling potting traditions (e.g. Old Sleaford, Lincs.: Elsdon 1997, 108; Dragonby, Lincs.: May 1996, 404: Ceramic Stage 3). The surface bulges on the sherd from feature 300 invite comparison with the rich variety of Aylesford-Swarling vessels with corrugated body profiles, although exact parallels are elusive (*cf.* for example Elsdon 1997, fig. 55). These ceramic elements raise the possibility of a LIA date for some other pottery from the site which on typological grounds could be attributed incorrectly to an earlier period. This is a problem which is not unique to Swarkestone, and it is worth considering to what extent Trent Valley sites of the later first century BC to mid-first century AD might, in contrast for example to the Nene Valley, be rendered invisible by the more limited penetration of innovative LIA ceramic types.

Conclusions

The collection of pottery from Swarkestone Lowes is significant in two major respects. First, it provides important evidence for activity spanning much of the first millennium BC, implying therefore a long history of prehistoric settlement following the decline of the barrow cemetery as a focus for Bronze Age funerary rituals. The incorporation of typologically diagnostic LBA/EIA sherds in the postholes of the round-house is especially fortuitous, in view of the rarity of structures of this date in the Trent Valley. Secondly, petrological analysis has demonstrated the use of pottery vessels manufactured from clays incorporating non-local igneous material, possibly obtained from a source in Charnwood Forest. This would support the evidence from Gamston, *c.* 30km downstream, for the use of Charnwood-derived pottery in the later first millennium BC, and strengthens the case for non-local Iron Age pottery production in the Trent Valley.

Catalogue of Illustrated Pottery (Fig. 17)

Details are recorded in turn of find code, fabric, form, method of manufacture (handmade unless specified otherwise), surface treatment, deposits, probable firing conditions and colour (core, surfaces and, if different from core, margins; combinations of colours are listed as brown/orange, etc.), level of abrasion and context (including spit number: 10cm spits, numbered from upper spit downwards). Five levels of abrasion are distinguished: unabraded (up to a maximum of 5% wear of original surfaces); slightly abraded (*c.* 5–25% of original surfaces worn); moderately abraded (*c.* 26–50% of original surfaces worn); abraded (> 50% of original surfaces worn); very abraded (all original surfaces worn).

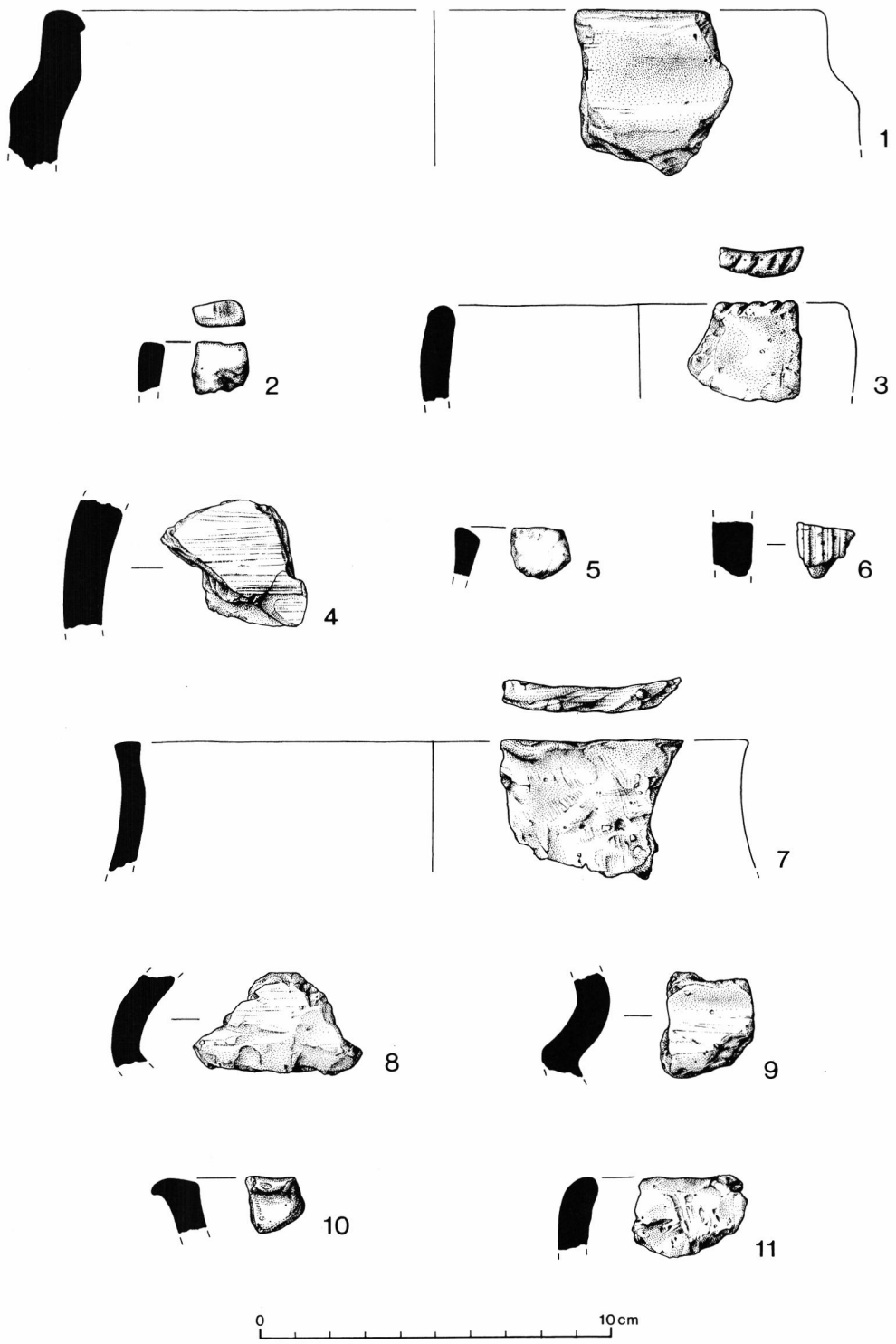

Fig. 17: First millennium BC pottery from ditch 300, trench 18 (1–2), gully 270 (3–5), ditch 272 (6), round-house entrance posthole 277 (7) and ditch 278 (8–10), trench 19, and pit 384 (11), trench 23. Scale 1:2

1. CUE. Fabric QUSV. Vessel with corrugated shoulder, recalling wheelmade Late Iron Age vessels, but apparently handmade. Rounded rim, slightly pinched out internally for part of the circumference. Outer surface irregularly fired (mainly orange-brown/dark grey); core unoxidised (dark to light grey); interior oxidised (orange). Traces of a partially worn slip or slurry on both surfaces, sealing on the outer face a thin oxidised (orange) margin and on the inner face a thin paler orange margin. Moderately abraded. Ditch 300, trench 18 (spit 1).

2. CUF. Fabric MMSV. Flattened rim, pinched out slightly externally for part of the circumference, with a single shallow finger-tip impression on the lip. Irregularly fired outer face (black and orange); unoxidised core (grey); oxidised interior (orange). Moderately abraded. Ditch 300, trench 18 (spit 1).

3. CRR. Fabric QUSF. Possibly ovoid neckless bowl, with row of closely spaced finger-nail incisions along the lip. Irregularly fired surfaces (buff/dark to light grey) and unoxidised core (grey). Slightly abraded. Ditch 270, trench 19 (spit 3).

4. CWV. Fabric QUSM. Three joining flakes of body fragment with light unidirectional brushing (orientation of sherd uncertain). Irregularly fired exterior (orange-brown/dark grey) but otherwise unoxidised (dark grey core and lighter grey interior). Unabraded. Ditch 270, trench 19 (spit 1).

5. CXM. Fabric QUSF. Tiny rim fragment, possibly internally bevelled (but angle uncertain). Unoxidised (dark to light grey). Moderately abraded. Ditch 270, trench 19 (spit 2).

6. COO1. Fabric MMSV. Tiny body sherd with five uniformly spaced grooves, probably formed by combing (orientation uncertain). Possibly wheelmade, but sherd too small for this to be determined with certainty. Irregularly fired exterior (buff/dark grey); unoxidised core (black); oxidised interior (orange). Slightly abraded. Ditch 272, trench 19 (surface cleaning).

7. COB. Fabric QUSV. Vessel with high gently concave neck and flattened rim, slightly pinched out internally and externally. Finger-tip cabling along lip. Oxidised surfaces (pale orange-brown) and unoxidised core (dark to light grey). Unabraded. Posthole 277, trench 19 (surface cleaning).

8. CQE. Fabric QUSV. Body sherd of vessel with pronounced rounded girth (orientation uncertain). Irregular outer surface with shallow finger marks, formed during moulding rather than decorative. Oxidised exterior and external margin (orange); unoxidised internal margin (dark grey); irregularly fired interior (orange-brown and light grey). Unabraded. Ditch 278, trench 19 (spit 1).

9. DAN. Fabric IGSC. Girth fragment of carinated vessel with concave neck. Dark grey slip or slurry on exterior. Faint horizontal striations on exterior, around shoulder. Core and interior irregularly fired (mainly orange-brown/dark to light grey). Slightly abraded. Ditch 278, trench 19 (spit 1).

10. DAP. Fabric IGSC. Tiny rim, pinched out externally (exact angle uncertain). Unoxidised exterior and core (dark to light grey) and irregularly fired interior (dark grey/orange-brown). Slightly abraded. Ditch 278, trench 19 (spit 1).

11. DDK. Fabric QUSF. Small direct rounded rim, with slight external bevel for part of circumference. Angle uncertain, but probably of ovoid or related form. Exterior and external margin unoxidised (dark to light grey); interior and internal margin oxidised (orange-brown/buff). Slightly abraded. Pit 384, trench 23 (surface cleaning).

Iron Age Briqetage and Miscellaneous Fired Clay by D. Knight

From the uppermost 10cm spit of a possible enclosure ditch, 283 in trench 19, were retrieved, in addition to a small number of plain handmade Iron Age sherds, two small fragments of fired clay which on the grounds of their colour, fabric and feel may be compared to the briquetage material known as stony VCP (or 'very coarse pottery'). One of these (CRG) was very small and abraded (1g). The other fragment (CPN) comprised two joining, moderately abraded, sherds (12g). The sherds have a pale orange outer surface and light grey inner surface and core, are soft, with an irregular break and distinctive sandy feel (leaving a fine powder on the fingers after handling). Thin sectioning of one sherd by Dr D. Williams revealed a heterogeneous assemblage of inclusions, comprising two large fragments of volcanic rock, identified as rhyolite, several smaller pieces of sandstone, quartz grains, shreds of mica and some opaque iron oxide (Williams 1997a, 5: sample CPN).

The fragments were identified tentatively as parts of one or more containers for the transportation of salt (Morris 1985, 366–67) — a conclusion verified by Dr E. Morris, who confirmed the interpretation of the thin-sectioned sherd as an example of 'stony VCP', deriving from an unknown source in south-eastern Cheshire (*cf.* Morris 1985; 1994). Stony VCP is widely distributed from North Wales to Staffordshire (Morris 1985), but along with a sherd from Gamston, Nottinghamshire (Knight 1992, 65) and two sherds from an Iron Age site at Foxcovert Farm, Aston-on-Trent, Derbyshire (Hughes 1999), this is currently only the third discovery of such material from the Trent Valley. The discovery thus provides important evidence for long-distance exchange links between communities in the Trent Valley and Cheshire, and together with the evidence for non-local pottery production, discussed above, emphasises the wide distributional networks which may have linked some Iron Age settlements in central England during this period.

From the same trench were retrieved eight other amorphous fragments (44g) of fired clay with a heterogeneous mixture of quartz and flint inclusions and voids indicating decayed organic material. Four of these (12g) derived from ditch 278, interpreted above as possibly part of a ditched enclosure cutting the Late Bronze Age/Early Iron Age round-house, and the remainder (31g) from one of the post-holes of the round-house, 371. These are of amorphous form, but two unabraded fragments, CYQ and CYR, preserve probable wattle impressions and are interpreted as daub, possibly from the round-house.

Romano-British Pottery by R. S. Leary

11 sherds (102g) deriving from at least five vessels were identified as Romano-British. Of these, seven sherds came from significant contexts. The remainder derived from the subsoil, furrows or later gullies. Four bodysherds of fabric OAA1 were recovered from ditch 271 (trench 19), two very small and abraded sherds of OAA1 from gully 332 and gully 333 (trench 20), and an OBC1 bodysherd from ditch 334 (trench 21). The remaining pottery comprises Derbyshire ware sherds with a grey ware rim from a wide-mouthed jar of third to fourth century date. Apart from the Derbyshire ware, the sherds were abraded and moderately abraded.

Fabric OAA1 compares well with the products of the Racecourse kilns at Derby, operating in the late first to mid-second century (Brassington 1971 and 1980). Fabric OBC1 belongs to a group of fabrics known as 'pre-Derbyshire' ware. Brassington identified 'pre-Derbyshire' ware in the Racecourse kilns and considered it a product of the Trajanic kilns and also of kiln 5 dated to the mid-second century (Brassington 1980, 33). The fabric was used to make rebated-rim jars and Brassington suggested it was the precursor of true Derbyshire ware. At Little Chester the rebated-rim jars declined in number as true Derbyshire ware dominated the assemblages by the third century (Dool *et al.* 1985, table 5, Brassington 1971, 59). However, at Brough-on-Noe, similar fabrics were used to make cupped-rim jars of true Derbyshire ware type as well as the rebated-rim jars and were present from the mid-second century into the early third century (Leary 1993, 77 and 120). A softer Derbyshire ware fabric, probably indistinguishable from 'pre-Derbyshire', is also recorded at Staden, Derbyshire in association with second century material (Makepeace, Beswick and Bishop 1989, 25–29). Thus the evidence suggests the date range for this fabric group may be extended from the late first to at least the late second to early third century. The beginning of Derbyshire ware is now well dated to the early Antonine period (Dool *et al.* 1985, 116 and mortarium fig. 47 no. 71 dated A.D. 100–140 in Derbyshire ware), continuing into the fourth century (Jones and Webster 1970).

Only one form was identified: a grey ware, wide-mouthed jar. This form belongs to a group of wide-mouthed jars classified by Todd (1968, type 1) and dated to the third and fourth centuries. A similar form was also made at the Derbyshire ware kilns in grey ware (Kay 1962, fig. 12 nos. 1–3; Brassington and Webster 1988, fig. 4 nos. 26–32), and at Derby North-West Sector only occurred in fourth century deposits (Dool *et al.* 1985, table 7 no. 186). More recent excavations at Pickford's Garage, Derby (Langley and Drage, forthcoming) suggest this form may have been in circulation by the early third century.

The presence of Derby Racecourse fabric, OAA1, suggests activity at some time before the mid-second century, from when Derbyshire ware products superceded the Racecourse kiln products. Fabric OBC1 could also date to that period or later in the third century. The Derbyshire ware points to some later activity on the site and, taken with the late grey ware jar, a date in the third or fourth century might be preferred.

The collection contrasts in quantity with the larger collection from previous work on the site. The abraded nature of the sherds, apart from the very hard Derbyshire ware, together with the small number of sherds overall, suggest that the sherds had been trampled or moved around a lot. This could signify off-site deposition as part of a manuring programme or on-site debris left behind after the larger sherds had been cleaned away.

The pottery may all come from kilns at or near Derby and, although a small group, does add to our understanding of the distribution of these wares on local rural sites.

Fabrics

DBY: Derbyshire ware (as Kay 1962). Only one vessel form present, a cupped rim jar, dated from the early Antonine period to the fourth century (Dool *et al.* 1985, 115).

GRB1: this is a large group of fabrics covering otherwise undifferentiated grey wares with moderate quantities of medium-sized quartz and sparse iron oxide inclusions. Only

fabrics which can be reliably identified and/or linked to some other attribution such as form or stylistic group or kiln, are separated out from this category.

OAA1: orange with grey core. Soft with smooth feel and conchoidal fracture. Moderate, well-sorted, fine, rounded, and subangular quartz; rare, fine, rounded, orange inclusions, possibly iron oxides or clay pellets.

OBC1: buff-orange. Hard, rough with irregular fracture. Moderate, coarse, ill-sorted, subangular quartz, often crystalline appearance suggesting quartzite; moderate, coarse, ill-sorted, rounded, black or brown inclusions, probably iron oxides. This fabric was identified as similar to 'pre-Derbyshire' ware.

Miscellaneous Finds

The excavations also uncovered 28 Medieval and Post-Medieval sherds, mainly from the topsoil, four unidentifiable fragments of bone, and four clay pipe fragments. None of these categories of material merits further detailed analysis.

Environmental Remains

The site was not rich in environmental remains, but the excavations have nonetheless contributed usefully to our hitherto very sparse knowledge of the local environment and the Iron Age agricultural economy. Faunal remains, unfortunately, did not survive the acidic soil conditions, and reconstructions of the agricultural economy rely mainly upon pollen identifications. Limited environmental evidence was also obtained from analyses of charred plant remains, leaf subfossils and preserved insect fauna, which together support and enhance the results of the pollen analyses.

Palynology by C. O. Hunt

Pollen samples were taken from four Iron Age features incorporating organic layers which were judged to have potential for pollen preservation. These comprised the main west-east boundary ditch (331; trench 21), the north-south ditch terminating immediately south of this boundary (330; trench 21) and two of the pits within the pit alignment (379 and 385; trench 23). 1kg samples were taken during excavation from layers a and i of ditch 331 and from layers a, b and k of ditch 330. Another three samples, each of 1kg, were taken from the basal layers of pits 379 and 385 (layers g and l respectively).

Methods

Samples were prepared by standard techniques (Hunt 1985). This involved boiling a 2ml subsample in 5% potassium hydroxide solution for five minutes to disaggregate, sieving through a 150 micron mesh to remove large clastic particles, and sieving through a 10 micron mesh to remove clay minerals and fine organic matter. The resulting suspension was panned on a clock-glass to remove silt and fine sand. The concentrate resulting from this was stained with Safranine 0 and Fuchsin and was mounted in Gurr Aquamount for examination using transmitted and UV fluorescence. More than 200 grains were counted in each sample, and a count of at least 150 phytoclasts was also made for palynofacies analysis (Hunt and Coles 1988). The results are presented in Tables 7–9 and are discussed below. Those taxa showing fluorescence and staining characteristics in at least some specimens, consistent with recycling, are indicated by italic figures in these tables.

	SWL21 0330 **A**	SWL21 0330 **B**	SWL21 0330 **K**	SWL21 0331 **A**	SWL21 0331 **I**	SWL23 0379 **G**	SWL23 0385 **L**
Betula	*0.3*	*0.5*			*0.7*		
Pinus	+		*0.3*		*0.3*	*1.0*	*0.4*
Quercus	*0.7*	*2.2*	*5.2*	*0.9*	*1.7*	*1.5*	*0.4*
Ulmus				*0.3*			
Tilia	*0.7*	*5.0*	*2.9*	*0.6*	*4.2*	*0.5*	*0.4*
Fraxinus			0.3				
Carpinus	0.3			0.3			
Alnus	*2.8*	*4.5*	*7.8*	*2.6*	*7.3*	*2.0*	*1.2*
Ilex							*0.4*
Acer	0.3		0.3				
Corylus	*1.4*	*14.5*	*12.8*	*6.0*	*19.1*	*2.5*	*5.9*
Juniperus		0.5					
Rosaceae	0.7			1.1	0.3	1.0	
Ericaceae	+		0.9	0.9	1.4		
Hedera	*0.3*						
Lonicera					+		0.8
Poaceae	49.7	48.2	40.6	32.9	41.7	49.0	64.8
Cerealia	1.0	1.8	0.6	0.3	+	2.5	0.8
Sinapis type	0.7			0.6			
Polygonum convolvulus			+	0.6			
Chenopodiaceae	0.7		0.6	0.6	0.3		
Centaurea	0.3			0.6			
Linum	0.3						
Spergula type	0.3						
Carduus type	0.3	0.5	0.6	0.3			
Artemisia	0.7	0.9	0.6	0.6			0.4
Plantago	2.4	4.5	3.2	2.0	5.2	1.0	2.3
Rumex	0.3					0.5	
Potentilla	0.3					0.5	
Galium		0.5			0.3		
Thalictrum							0.4
Vicia		0.5			+		
Astragalus type					+		
Polygala					0.3		
Succisa pratensis			0.3				
Anthemis type	0.7	2.2	2.3	0.3	0.3		
Dipsaccus	0.3						
Urtica		0.5					
Scabiosa		0.9					
Serratula type				0.3		1.0	
Cirsium type					+		
Lactucae	*10.4*	*0.9*	*2.6*	*9.4*	*3.8*	*2.5*	*4.3*
Caryophyllaceae			+				0.4
Lamium type	0.7	0.5					
Ranunculus	1.0	1.4	1.7	1.1	1.4	1.0	0.4
Liliaceae				0.3			0.8
Umbelliferae		0.5				0.5	
Leguminosae					0.3		
INDETERMINATE			5.5	4.3	3.5	8.8	11.7

Table 7: Dry land pollen from the Iron Age contexts at Swarkestone Lowes, expressed as percentages of total pollen and spores. Presence of a species outside the counts is shown as a cross.

Results

The pollen and spores were variably preserved, with generally good preservation of herbaceous taxa and Poaceae, and comparatively poor preservation of most tree pollen (Table 7). The material from ditches 330 and 331 is generally well to moderately preserved, whereas the pollen from trench 23 is very poorly preserved and shows evidence for considerable degradation. This is indicated by the figures for indeterminable grains in Table 7. The high counts for resistant taxa such as *Tilia*, Filicales and Lactucae in all the samples, especially in the contexts from trench 23, indicate that less resistant taxa have been eliminated from the soil by weathering processes. Fluorescence characteristics suggest that much of the tree pollen (*Pinus*, *Betula*, *Quercus*, *Alnus*, *Ulmus* and *Corylus*) and most of the spores (*Pteridium*, *Polypodium*, *Lycopodium*, *Sphagnum* and Filicales [undiff]) are recycled, presumably from eroding Early to Mid-Holocene deposits. The virtual absence of soil flora, such as vesicular arbuscular miccorhyza, suggests that the source of this material is not from soil profiles.

The *in situ* pollen is predominantly of poaceae (grasses) and herbaceous taxa. There are reasonably substantial counts for cereal pollen, mostly of *Hordeum* type where determinable, but with odd grains of *Avena* type. Evidence for cultivation also comes from the arable weeds, notably Chenopodiaceae, *Spergula* and *Polygonum convolvulus*. The very high counts for Poaceae and a rich suite of grassland herbs, including *Artemisia*, *Plantago*, *Vicia*, *Galium*, *Thalictrum*, *Astragalus*, *Potentilla*, *Polygala* and *Botrychium*, are evidence for a predominantly grassy landscape. Low counts for tree and shrub taxa *in situ*, including *Corylus*, *Quercus*, *Alnus*, *Carpinus*, *Fraxinus* and Rosaceae, suggest small areas of woodland or hedges.

Close similarities may be observed between the pollen samples from ditches 330 and 331. It is notable that pollen of cereals and arable weeds is more common in the upper sampled layers, while pollen of grassland herbs is more common in the lower contexts. This could signify a change in the balance between crop and animal husbandry, but a larger sample would be required to test this possibility. An emphasis upon grassland is also suggested by the pollen in the basal fills of the features forming the pit alignment, but substantial differences may also be detected between the pollen samples from the ditches and pit alignment. These differences could reflect in part variable preservation, but might also be of chronological significance.

The wetland plants and algal microfossils (Table 8) point to shallow water in the ditches. Most of the algal microfossils are benthic taxa. Planktonic forms are restricted to occasional *Saeptodinium* and *Botryococcus*. *Concentricystes* is typical of habitats which dry up and of damp ground, and it is possible therefore that the water bodies were seasonal. The higher counts for algal microfossils and the appearance of planktonic forms in the upper fills of ditches 330 (a) and 331 (a) suggest that the water depth increased as the ditches silted up, most probably because the ditches were not maintained and therefore became blocked.

The palynofacies analyses (Table 9) are dominated by pollen, but some show high counts for inertinite and thermally mature plant tissue. These, commonly lumped by pollen analysts as 'microcharcoal', are largely derived from partial combustion of vegetable matter and provide evidence for nearby human activity.

	SWL21 0330 A	SWL21 0330 B	SWL21 0330 K	SWL21 0331 A	SWL21 0331 I	SWL23 0379 G	SWL23 0385 L
Cyperaceae	6.3	3.2	4.1	1.4	0.3	2.5	0.4
Bidens type	0.3						
Typha		0.9					
Botrychium	0.3	0.5	0.3		0.3		
Pteridium	*3.5*	*2.7*	*0.6*	*2.3*	*1.0*	*3.0*	*1.2*
Filicales (undiff.)	*8.0*	*0.9*	*4.9*	*3.7*	*5.2*	*7.4*	*1.2*
Polypodium	*0.3*	*0.5*	*0.6*	*1.4*	*0.6*	*4.4*	*0.4*
Sphagnum	*1.0*	*0.5*	*0.3*			*2.0*	*0.8*
Lycopodium			*0.3*	*0.9*		*5.4*	*0.4*
Botryococcus				0.3			0.4
Saeptodinium	0.3			0.6			
Leiosphaeridia	0.7			9.4		3.4	2.3
Sigmopollis	1.4			7.1	1.0	3.4	2.7
Spirogyra	0.3	0.5	0.9			0.5	0.4
Zygnema		0.5					
Concentricystes	0.3				0.3	0.5	

Table 8: Wetland pollen, lower plant spores and algal microfossils from the Iron Age contexts at Swarkestone Lowes, expressed as percentages of total pollen and spores.

	SWL21 0330 A	SWL21 0330 B	SWL21 0330 K	SWL21 0331 A	SWL21 0331 I	SWL23 0379 G	SWL23 0385 L
Pollen	32.1	40.4	86.9	52.7	43.4	17.7	32.2
Algal microfossils	1.2	+	+	9.7	+	1.3	+
Fungal spores	4.9	+	0.9	5.4	+	2.5	2.3
Fungal hyphae	4.9	10.6		1.1		1.3	1.1
Vesicular arbuscular miccorhyza		2.1					
Plant cell walls and cuticle	16.0	12.3	2.8	6.5	3.6	6.3	13.8
Degraded plant tissue	12.3	7.0		7.5	1.2	5.1	3.4
Amorphous	1.2		0.9		26.5	16.4	2.3
Resinous					9.6	1.3	
Thermally mature plant debris	13.6	14.9	2.8	8.6	3.6	32.9	19.5
Inertinite	13.6	8.5	5.6	8.6	12.0	15.2	25.3

Table 9: Palynofacies analysis of the Iron Age contexts at Swarkestone Lowes, expressed as percentages of total particulate organic matter. Presence of a species outside the counts is shown as a cross.

Conclusions

These samples provide important evidence about the Iron Age landscape at Swarkestone Lowes, which during this period appears to have been largely open. The recognition from fluorescence data that most of the tree pollen at Swarkestone is recycled has considerable implications. It is clear that the landscape was virtually treeless, and that

erosion of subsoil material was proceeding during this period. Both cereal and pastoral agriculture may be deduced, with pastoral activity of significance in the immediate environment of the depositional locations. Arable activity may have become marginally more important locally as the ditches eroded and silted up. The ditches contained shallow water, which was colonised by algae.

Leaf Subfossils by C. O. Hunt

A lenticular layer of leaf macrofossils, *c.* 1 cm thick, was observed in the basal layer of the main west-east boundary ditch in trench 21 (331, layer 1), within a matrix of fine clayey silt stratified between coarse, clayey, silty sands with occasional pebbles. A 1.5kg sample was taken for specialist analysis.

Methods

Approximately 0.5kg wet weight of the sample was extracted for leaf subfossil analysis, the remaining 1kg being reserved for analysis of the associated insect remains. The subsample was carefully degaged with a scalpel and mounted needle under a dissecting microscope. Leaves were identified using a comparative collection. A few identifications used microscopic and macroscopic characteristics, such as cuticle characteristics, veination and outline, but much of the material was badly broken up and was identified only from the microscopic characteristics.

Results

Most of the 54 leaf subfossils which were identified had probably been buried in a comparatively undamaged state, but many were fragmentary by the time they were degaged. Leaves had decayed where they were buried in sand-grade sediment, leaving only a diffuse outline, and leaves had also been disrupted where pebbles had been pushed down into the layer. Some leaves had also been reduced to small fragments by being flexured during excavation and transport.

17 of the 19 specimens which were large enough for a positive identification derive from a *Quercus* (oak) species, while most of the 35 smaller fragments show similar microscopic characteristics and probably also derived from oak. The remainder of the larger specimens comprise a leaf fragment of Poaceae (grass) and half of a well-preserved leaf of *Salix* (willow). A small and highly degraded charcoal fragment was also recovered.

Interpretation

The sedimentary body from which the leaves were retrieved gives every indication of having been a shallow puddle on the bottom of the ditch, in which drifted dead leaves had accumulated. The leaves would have been fragmented by trampling and saprovore activity and hence quickly destroyed by oxidation if not buried very quickly, and it is probable that infilling of the ditch by normal wash and slump processes had continued rapidly over the following seasons.

Most plant macrofossils travel only a very short distance before deposition and preservation, and long taphonomic pathways would have caused very rapid attrition of the material. The leaf subfossils from Swarkestone are thus most probably of very local origin. It is likely that an oak tree was located immediately adjacent to the ditch, which

would also have received other debris from plants nearby. The presence of charcoal most probably points to nearby human activity.

Charred Macrofossils by C. O. Hunt

30 litre samples were taken from all contexts yielding observable concentrations of charred material, with the aim of elucidating the agricultural economy of the site. All samples deriving from datable features were processed using a York flotation machine. The flots and residues were collected on 0.5mm mesh sieves, and the flots were sent to the writer for analysis. These comprised two samples from the 'ring-gully' located in trench 08 (24), eight samples from postholes of the Late Bronze Age/Early Iron Age round-house identified in trench 19 (277, 279–81, 361, 363, 366), a sample from the possible enclosure ditch cutting the round-house (278) and two samples from the main west-east boundary ditch, 331 (trench 21). The samples were weighed and then examined at $\times 20$ magnification under a binocular microscope.

Detailed tabulations of the results are contained in archive, and in this section a summary is provided of the main results.

Ring-Gully 24

The samples from the ditch contained considerable quantities of contaminants, comprising roots, fungal bodies and seeds. The *in situ* macrofossils were poorly to moderately preserved, and comprised mainly charcoal, with a few small fragments of coal. The charcoal fragments were mostly extremely small and identification of the wood species was not possible. A single charred grass 'knee' (Poaceae) was found.

Ditch 331

The two samples from this ditch were contaminated with roots and seeds and contained very small quantities of charcoal and coaly matter. The charcoal was in very small fragments of very poor quality and further identification was impossible.

Round-House and Ditch 278

The sample from ditch 278, cutting the round-house, contained 72g of moderately preserved material, but the samples from the postholes of the earlier round-house each contained up to only 10g of poorly preserved material. All contexts were contaminated with intrusive roots, seeds and fungal material. Postholes 277, 280 and 281 contained small numbers of cereal grains and weed and grass seeds. The cereal grains were very poorly preserved and the species could not be determined, but the weed seeds included specimens of Polygonaceae and Chenopodiaceae, two of the most common herbs of arable land. Chenopod seeds (Good King Henry) were also sometimes used for food.

The above data provide useful evidence for cereal cultivation, in the form both of cereal grains and weeds of cultivation. This is supported by the results of pollen analysis, discussed above, from which may be deduced at least some of the components of the crop husbandry regime.

Insect Remains by M. Greenwood

Assessment by Dr C. O. Hunt of a waterlogged organic sample from near the bottom of the main west-east boundary ditch 331 (layer 1) revealed a small number of beetle wing

cases, suggesting potential for the analysis of associated insect remains. A 1kg sample of this layer was submitted to the writer for analysis, with the aim of establishing the range of insect fauna present and its implications for the local environment.

The sediment sample was disaggregated in warm water, with as little mechanical disturbance as possible. The fine clay fraction was then removed by washing through a 125 micron sieve. The sieve contents were then accumulated in a container and paraffin was added. This was left for fifteen minutes, after which excess paraffin was decanted and recycled. The insect fragments floated to the surface after the addition of water and gentle agitation of the mixture, leaving behind the residual organic debris. The oily float was then passed through a 125 micron sieve. The fragments were washed with liquid soap and stored in 70% Industrial Methylated Spirit prior to sorting and identification (employing the terminology of Kloet and Hincks 1977).

A small number of fragments was collected, mainly of the following coleopterous fauna (beetles):

Hydrophilidae:	*Helophorus sp.* (elytron)
Staphylinidae:	*Omalium sp.* (elytron)
	Staphylinus sp. (elytron)
Pselaphidae:	*Brachygluta sp.* (elytron)
Scarabaeidae:	*Aphodius ?conspurcatus* (matching pair of elytra)
Lathridiidae:	*Corticaria sp./Corticarina sp.* (elytron).
Curculionidae:	*Apion spp.* (2 elytra)
	Cleonus piger (head/thorax)
	Tychius sp. (elytron)
	Gymnetron labile (elytron)

Specimens were also recovered of red ants (*Myrmica rubra*; 8 heads, 3 alitrunks, 1 mandible), together with a few mites (*Cryptostigmata*).

Interpretation

Helophorus sp. is characteristic of impermanent grassy pools, although these water beetles disperse widely on warm days, and are common along river margins and in River Trent palaeosamples. The family *Staphylinidae* is diverse, but comprises mainly ground-living predaceous beetles of rotting vegetation, ground moss or old wood; individuals are commonly found on the sides of streams or ditches (Cooter *et al.* 1991). The *Pselaphidae* are small beetles which feed on mites; they are found amongst decaying leaves, especially in damper shaded areas such as occur in woodland and shrub environments (Pearce 1957). *Aphodius conspurcatus* is a species of dung beetle associated with horse; it occurs mainly in woodland, and rarely in exposed habitats (Jessop 1986). *Corticaria/Corticarina* sp. are characteristic of rotting vegetation. Nearly all *Curculionidae* feed on plant material, and many of these weevils are associated with one species, genus or family of plants. The larvae of *Cleonus piger* feed in the stems of creeping thistle, *Cirsium arvense* and are characteristic of drier habitats (Koch 1991; Redfern 1983). The *Tychius* fragment can only be identified to genus; twelve species occur in Britain, and all are associated with the *Leguminosae* (Pea Family), and particularly with clovers (*Trifolium sp.*). *Gymnetron labile* is associated stenotopically with Plantains, and hence provides convincing evidence for this plant of disturbed ground (*Plantago lanceolata* and *Plantago sempervirens*). The red ant (*Myrmica rubra*) is an active species, often found on flowers or attending aphids.

It nests mainly in sheltered areas such as river valleys and loamy pastures, constructing nests under shallow stones or in decayed tree stumps (Bolton and Collingwood 1975). The few *Cryptosigmatid* mites are those typically abundant in leaf litter.

Conclusions

From this rather sparse fauna the habitat would appear to be a disturbed base-rich pasture containing creeping thistle, legumes such as clover, and plantain. The presence of plantain suggests some trampling, possibly due to horses or stock. The presence of *Aphodius ?conspurcatus* would suggest horse. The presence of ants suggests dry, silty soils and the lack of species associated with water is a feature of this list. The sample is thus more likely to have come from field washings after rain, rather than from a more permanent aquatic site.

DISCUSSION AND CONCLUSIONS

Recent archaeological investigations at Swarkestone Lowes have yielded significant new evidence for exploitation of this area during the Early Mesolithic, Late Bronze Age/ Early Iron Age and later Iron Age periods. This has confirmed the exceptional archaeological richness of the Lowes, which may be shown to have acted as an important focus for human activity from at least the early Holocene.

Early Mesolithic lithic concentrations

One of the most significant results of the recent excavations was the discovery of a cluster of Early Mesolithic flint and chert debitage in the area of trench 19/20 and of other Early Mesolithic material elsewhere along the ridge. This complements the results of earlier work on the Lowes, which suggests a number of other small activity foci: notably along the line of the British Gas pipeline in the vicinity of barrows III and IV (trench 11). A thin scatter of Early and Later Mesolithic flint and chert artefacts has also been recorded elsewhere on the ridge-top during earlier excavations and fieldwalking. The Early Mesolithic material from trenches 11 and 19 provides rare and important evidence from the Trent Valley for an encampment or more specialised activity focus of this period, and although no structural remains survived the discovery is of considerable regional significance. Repeated usage of the Lowes by itinerant hunter-gatherer groups need occasion no surprise, for this elongated ridge, elevated above the broad expanse of the Trent floodplain, would have provided ready access not only to rich woodland and hence game resources but also to a wide variety of fish, fowl and other wetland products. Lithic analyses suggest the use of both local and non-local flint and chert resources, perhaps indicating seasonal movement between this area, the Lincolnshire Edge and the Pennine uplands.

Late Bronze Age/Early Iron Age settlement

The recent excavations have provided unexpected evidence for settlement on the Lowes in the earlier part of the first millennium BC. The most important find was a post-ring round-house, dated on the basis of associated pottery to the Late Bronze Age/Early Iron Age period. Comparable structures are extremely rare in the Trent Valley in this early period, and so far the only close parallel of comparable date is a post-ring structure

recorded at Catholme, Staffordshire (Guilbert and Elliott 1999, fig.3). Too small an area was excavated to establish the plan of this early settlement, but the apparent lack of associated enclosure ditches may be significant. Elsewhere in the Trent Valley, settlement of this early period appears generally to have comprised unenclosed agglomerations of huts and pits, notably at Willington, Derbyshire (Wheeler 1979) and Gamston, Nottinghamshire (Knight 1992), and the settlement at Swarkestone Lowes may provide a further example of this class of 'open' settlement. The ceramic finds from this early site provide a useful addition to the comparatively limited corpus of Late Bronze Age/Early Iron Age pottery from the Trent Valley, including perhaps at least one sherd containing igneous inclusions which could imply importation from a production site in Charnwood Forest (Fig. 17.9) — although doubts regarding the typological affinities of this sherd, discussed above, must urge caution in interpretation. Similar evidence for ceramic exchange has so far been claimed only for later Iron Age sites in this region, notably Gamston, and hence the Swarkestone pottery could possibly extend the evidence for non-local ceramic production into a period when local production appears to have been the norm (*cf.* Morris 1994). Another significant discovery was the retrieval from several round-house post-holes of flint artefacts which might provide rare evidence for flintwork attributable to the first millennium BC (Garton in Guilbert and Elliott 1999).

Later Iron Age settlement and land divisions

The dominant landscape feature of the later first millennium BC was a substantial ditched boundary visible as a linear cropmark running west-east along the northern side of the hill, immediately downslope of its crest, and veering south to cross the eastern end of the ridge. Trench 03 revealed two opposing ditch terminals, apparently flanking a narrow entrance, which could possibly represent an extension of this feature to the west of Lowes Lane (Fig. 3, 4a) but no traces of a ditch were recorded further west in trenches 07 and 08. We can reject, therefore, the hypothesis that a positive lynchet beneath a modern field boundary running westwards from Lowes Lane might have perpetuated the line of this Iron Age land division (*cf.* Losco-Bradley 1993, 9). The lynchet was shown instead to have developed on top of a Medieval ploughsoil, and hence should be linked to the development of the Post-Medieval field system. Several north-south ditches of comparable dimensions to the curvilinear boundary ditch, any one of which could represent a southern continuation of this feature, were recorded to the west of Lowes Lane in trench 19 (272: Fig. 6e) and in trench 17 of the gas pipeline corridor (251, 256 and 259), while immediately east of Lowes Lane, at the western end of trench 16, a major north-south ditch terminal 3.2m wide by 1.1m deep was recorded (250; details in gas pipeline archive). A considerably larger area would need to have been excavated, however, to establish whether any of these features represented a southerly extension of the curvilinear boundary ditch. The course of this ditch therefore remains in doubt, but if part of an enclosure it would have defined a massive area of the ridge-top, at least 8ha in area. The only known parallel from the Trent Valley for an Iron Age enclosure of comparable size is a remarkable subrectangular enclosure recorded near Aslockton, Nottinghamshire, dating probably from the Middle Iron Age on the basis of associated pottery (Palmer-Brown and Knight 1993).

Recent excavations across the curvilinear boundary ditch obtained little dating evidence, and dating still hinges upon the fragile foundations of a single radiocarbon

date from uncharred poplar of 330+/- 80bc (Har–6497), obtained during excavations in 1983 (Losco-Bradley 1993). The recent sections did, however, demonstrate a surprisingly consistent stratigraphy along the line of the northern boundary ditch, resembling closely that recorded by Losco-Bradley, with a narrow ditch (334) cutting an earlier more substantial ditch (331) along its northern edge. The only evidence for the date of this later ditch is a very abraded Romano-British sherd of Fabric OBC1 from trench 21, possibly dating from the mid-second or third century AD, found during surface cleaning of this feature. The stratigraphic location and abraded condition of the sherd, however, seriously limit its usefulness for dating purposes. No evidence was obtained of entrances, except possibly in trench 03, suggesting a continuous boundary work to the east of Lowes Lane (*pace* Losco-Bradley 1993, 7).

Questions remain regarding the relationship between the curvilinear boundary work and the north-south ditches which extend across the barrow cemetery to the east of Lowes Lane. It seems likely, however, that with the exception of one ditch (330), which it has been suggested respected the northern arm of the curvilinear boundary, the north-south ditches formed part of a Post-medieval field system rather than an Iron Age field system of the kind recognised elsewhere in the Trent Valley (e.g. Knight 1992; Whimster 1989; *pace* Losco-Bradley 1993, 140). No closely datable finds were retrieved from ditch 330, but its spatial relationship to ditch 331 could signify internal divisions of the ridge-top enclosure which could be implied by the curvilinear boundary ditch.

The date and functions of the pit alignments and their relationship to the curvilinear boundary ditch also remain problematic. The few sherds obtained from the upper fillings of five pits in trench 23 provide an Iron Age *terminus post quem* for these monuments, but closer dating is not possible. Trench 23 revealed two rows of evenly spaced paired pits of comparable size and shape, suggesting that at this point the alignment may have comprised two contemporary lines of pits. These could have been separated by a bank or piles of spoil, but no positive evidence of associated boundary works was recovered. No relationships, unfortunately, could be discerned between the group of up to three roughly parallel pit alignments which were recorded on the northern slope of the ridge and the curvilinear ditched boundary. The alignments shadow the northern arm of the curvilinear boundary, converging upon but not overlapping the boundary ditch near its change of direction immediately north of Barrow III. A more regular spatial relationship might be expected if the pit alignments and ditch had been laid out at the same time, and it seems more likely, therefore, that they represent successive boundary monuments.

The purpose of the pit alignments remains obscure, but comparisons with other monuments of this class in the Trent Valley raise the possibility of territorial divisions, possibly separating the economic territories of individual comunities. This is suggested by their frequent demarcation, elsewhere in this region, of large blocks of land which are in turn sub-divided by field boundaries related to scattered occupation foci (e.g. Whimster 1989, figs. 81–82). If so, this would support the argument expounded elsewhere for increasing control over land allocation during the course of the first millennium BC, in the face possibly of growing pressures upon agricultural resources (*cf.* Knight 1992, 83–85).

A related issue is the evidence for progressive woodland clearance. Substantial areas of open ground are implied by the extensive barrow cemetery, and by the results of pollen analysis of samples obtained from the old ground surface sealed beneath Barrow IV

(Posnansky 1956). The case for large-scale clearance is strengthened by the evidence for extensive settlement during the first millennium BC, culminating in the organised landscape which is implied by the Iron Age boundary ditches and pit alignments. Further confirmation of this process is provided by the charred plant, leaf subfossil and insect remains obtained during the excavation of Iron Age contexts. We may imagine, therefore, a largely cleared environment by the end of the first millennium BC, in keeping with the evidence from other first millennium BC sites in the Trent and Tame Valleys (e.g. Fisherwick, Staffordshire: Smith [ed.] 1979), although the discovery of oak leaves in ditch 331 clearly implies some surviving woodland.

Attention should be drawn finally to the unexpected evidence for exchange links between Swarkestone Lowes and Iron Age sites further south in Charnwood Forest, based upon the recognition in some pottery thin-sections of igneous inclusions which may imply importation from a production source in Charnwood Forest. This provides a valuable addition to the accumulating evidence for an Iron Age ceramic exchange network centred upon Charnwood Forest, and ranks as one of the chief contributions of Swarkestone Lowes to the study of the East Midlands Iron Age. It is complemented by the discovery in ditch 278 of fragments of briquetage (Stony VCP), deriving probably from ceramic containers for the transportation of salt derived from a production site in south-eastern Cheshire. Stony VCP has been recorded elsewhere in the Trent Valley at Gamston (Knight 1992, 65) and Foxcovert Farm, Aston-on-Trent (Hughes 1999) and in the Tame Valley at Fisherwick (Smith [Ed.] 1979, 99, 164), while discoveries in Leicestershire at Breedon-on-the-Hill (E. Morris: *pers. comm.*), Enderby (Elsdon 1992, 41) and Normanton-le-Heath (Elsdon 1994, 37–8) indicate the penetration of Cheshire salt into this area (*cf.* Morris 1994). Together, such finds provide important evidence for the complex social and economic ties which may have linked settlements in this period, but which are only rarely registered in the archaeological record.

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