

EXCAVATION OF A MEDIEVAL STRUCTURE AT HEMP CROFT THURVASTON, DERBYSHIRE

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SUMMARY

During Autumn 1996 an excavation was undertaken on the northern edge of the village of Thurvaston. This followed an evaluation which had revealed the presence of archaeological deposits, now shown to include five principal periods of activity. A number of isolated features of Neolithic and Iron Age date were present, but the main focus of activity was Medieval in date. The earliest Medieval features comprised an east-west ditch of pre-13th century date. This was succeeded by a rectilinear structure on roughly the same alignment, defined by a continuous, shallow gulley, broken once on its southern side to form a 2.5m-wide entrance. The gulley did not serve a structural function and may be interpreted as an eaves-trench similar to those noted surrounding some timber structures at Barton Blount, Derbyshire (Beresford 1975, 24). A number of post-holes lay within the *c.* 11.0 × 5.5m area enclosed by the gulley, though no coherent structure can be deduced from them. A central hearth and associated charred plant remains suggest a domestic function for the structure, which pottery indicates dates to the late 13th to late 14th century. The structure was overlain by a fragmentary cobbled surface associated with late 14th to mid-15th century pottery. In the mid-15th century the whole site was given over to agricultural use, evidenced by the ridge-and-furrow earthworks which covered the area prior to the excavation.

INTRODUCTION

The village of Thurvaston lies approximately 10 miles to the south-west of Derby (Fig. 1) on the south-east side of the valley of Brailsford Brook, close to its confluence with



Fig. 1: A: Map of Derbyshire showing the location of Thurvaston. B: The location of the excavation site within Thurvaston village, fields containing earthworks are indicated by grey tone. C: Layout of the excavated area showing the earthworks covering the site prior to excavation and the location of Structure 1 in relation to these.

Shirley Brook. The local Mercia Mudstone geology gives rise to heavy, poorly drained, clayey soils.

The course of the Roman road from Derby to Rocester runs immediately north of the village (Fig. 1, inset B). The village itself has declined considerably in size from its maximum extent. Well preserved earthworks, including a substantial moated site, survive in the southern part of the village and indicate some of the formerly inhabited areas. Part of these earthworks, on the south-western side of the village, have statutory protection as a Scheduled Ancient Monument (Derbyshire SAM No 23299). In addition to the Scheduled earthworks, and those recorded by the Derbyshire Sites and Monuments Record, a number of other fields around the village contain earthworks, either of ridge-and-furrow, or perhaps indicating former settlement.

During the Autumn of 1996 an excavation on the northern edge of the village (SK 243378; Fig. 1, inset B) was undertaken on the site of a proposed housing development on behalf of Derwent Housing Association, funded by English Heritage. This followed an evaluation which had confirmed the anticipated presence of archaeological deposits. Prior to excavation the site, which had been recently partitioned from the larger field to the north, contained the well-preserved remains of earthwork ridge-and-furrow on a number of alignments, with a linear bank parallel to the line of the NE/SW village street forming the boundary of the formerly ploughed area (Fig. 1, inset C). Other earthworks, including a number of shallow hollow-ways and a possible pond, lay in the larger field. The field is named as 'Hemp Croft' in the Thurstaston Tithe Award of 1840 (DRO D2360/DL57b) where it is described as 'old turf mowed' suggesting that, though the presence of earthwork ridge-and-furrow indicate former ploughing, the field had been utilised as pasture for some while by the mid-19th century.

THE EXCAVATION

Excavation Methodology

The excavation was undertaken over a period of seven weeks during September and October 1996. Initially, approximately 0.30m thickness of topsoil was removed by machine from an area $17.0 \times 21.0\text{m}$ (this being the full extent of the area to be disturbed by development) to the top of the underlying ridge material (0003) and furrow fill (0021; Fig. 2). To speed excavation the ridge material itself was then carefully machine stripped to the top of underlying archaeological deposits. The fill of an 8.0m length of furrow 0021 was then rapidly excavated to the top of underlying archaeological deposits, the remaining fill of 0021 was not excavated. Apart from the unexcavated portion of 0021, a sample of all pre-ridge-and-furrow archaeological features was then excavated with the emphasis placed upon examining the stratigraphic sequence of the site and fully investigating features comprising Structure 1. During the course of the excavation samples were recovered from a number of contexts for examination for charred plant material. Sample recovery was limited to contexts in which charred material was visible during excavation. A full written, drawn and photographic record was made of the excavation and is held in the site archive which, together with the finds from the excavation, has been deposited at Derby Museum.

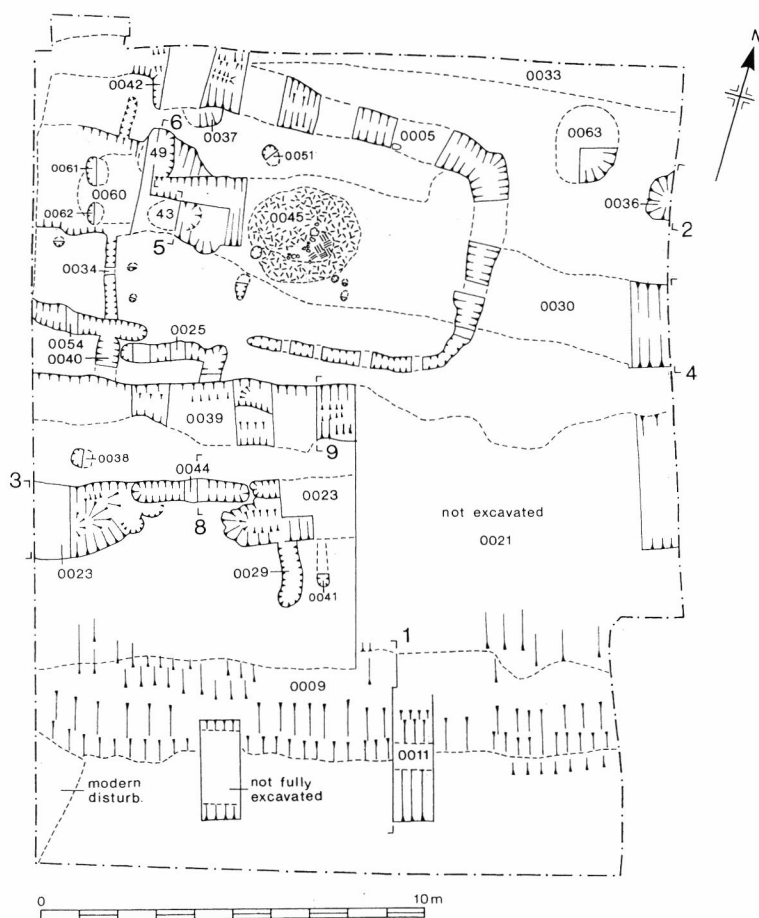


Fig. 2: Plan of the excavated area showing all features of all periods. The locations of sections shown in Figure 8 are indicated.

Summary of Excavation Results by Period

Five periods of activity, ranging in date from prehistoric to late Medieval, were identified on the site. These are reviewed phase by phase below. The assignment of particular features to a phase is based on stratigraphic relationships or on datable artefacts recovered from features where no stratigraphic relationship exists. Where uncertainty exists as to the phasing of specific features this is indicated.

Phase 1: Prehistoric Activity

A number of features indicate prehistoric activity on the site (Phase 1; Fig. 3). The earliest of these features, a shallow pit 0042 (Figs. 2 and 5), contained 11 pieces of struck flint characteristic of the late Mesolithic or Early Neolithic period. 0042 was cut through on its northern side by gully 0005, which delineated Structure 1. No other contemporary features were identified, though struck flint of similar character to that found within pit 0042, together with some of Late Neolithic/Early Bronze Age type, was recovered from

a residual context in adjacent Medieval deposits, principally 0026 (the interior of Structure 1). Two substantial, steep-sided pits (0036 and 0063; Figs. 2 and 8) lay at the north-east corner of the excavated area. The fill of pit 0063 contained three sherds of coarse, handmade pottery of Iron Age date, while pit 0036 produced a single fragment of struck flint. The similarity in form of pits 0036 and 0063 suggests that they are contemporary.

Phase 2: Medieval Features Pre-dating Structure 1

Several features indicate a period of activity pre-dating Structure 1 (Phase 2; Fig. 3). The principal feature belonging to this phase is a substantial east-west ditch 0030 (Figs. 2 and 8), the fill of which contained pottery of the late 12th to early 13th century.

A sequence of small pits, were cut into the fill of 0030 close to the eastern edge of the excavation (0043, 49, 60, 61 and 62; Figs. 2 and 8). They lay stratigraphically in sequence between the infilling of 0030 (late 12th to early 13th century) and Structure 1 (late 13th to late 14th century).

Also perhaps of similar date are two shallow gulleys 0029 and 41 (Fig. 2), cut by ditch 0023, but otherwise undated and a small pit (0037; Figs. 2 and 6) cut by gully 0005.

Phase 3: Structure 1 and Associated Features

The principal activity on the site was associated with a rectangular structure (Structure 1), defined by a shallow, rectilinear gully (0005 and 0054) with a central hearth (0045) and an associated linear east-west ditch with entrance causeway (0023; Phase 3; Fig. 3).

Structure 1

Structure 1 was defined by a continuous, shallow, rectilinear gully (0005) broken by a 2.5m wide entrance causeway on its southern side and with internal dimensions of 11.50m east-west and 5.50m north-south (Figs. 5 and 6; Plate 1). This gully did not serve a structural function (such as the bedding trench for a timber sill beam) and is best interpreted as an eaves-trench, intended to keep water away from the walls of a structure lying within the area that it delineated. A further shallow L-shaped gully (0025) partially blocked the entrance causeway in 0005 and may be contemporary.

Structure 1 lay largely beneath the accumulated material of a later plough-ridge and was thus protected from damage by ploughing. However, on its south side plough-furrow 0021 had partly truncated gully 0005, leading to the variations in depth and profile evident in its excavated sections (Fig. 6).

Hearth 0045 comprised an area of burnt clay and stone and extensive ashy deposits lying on the central axis of Structure 1, towards its east end. Layers of clay and ash filled a shallow stone-lined pit at the base of the hearth (Fig. 6; Plate 2). The ashy deposits comprised both coal and charcoal fragments and contained a range of charred plant material indicating a domestic function for the structure. The associated pottery is also domestic in character and is described in detail in the Medieval pottery report. Burnt stone and clay from the hearth yielded an archaeomagnetic date of AD 1100–1210 or AD 1450–1530, but since the remnant magnetism of the hearth area was weak, and the date is not supported by the pottery, it is probably unreliable (see specialist contribution below).

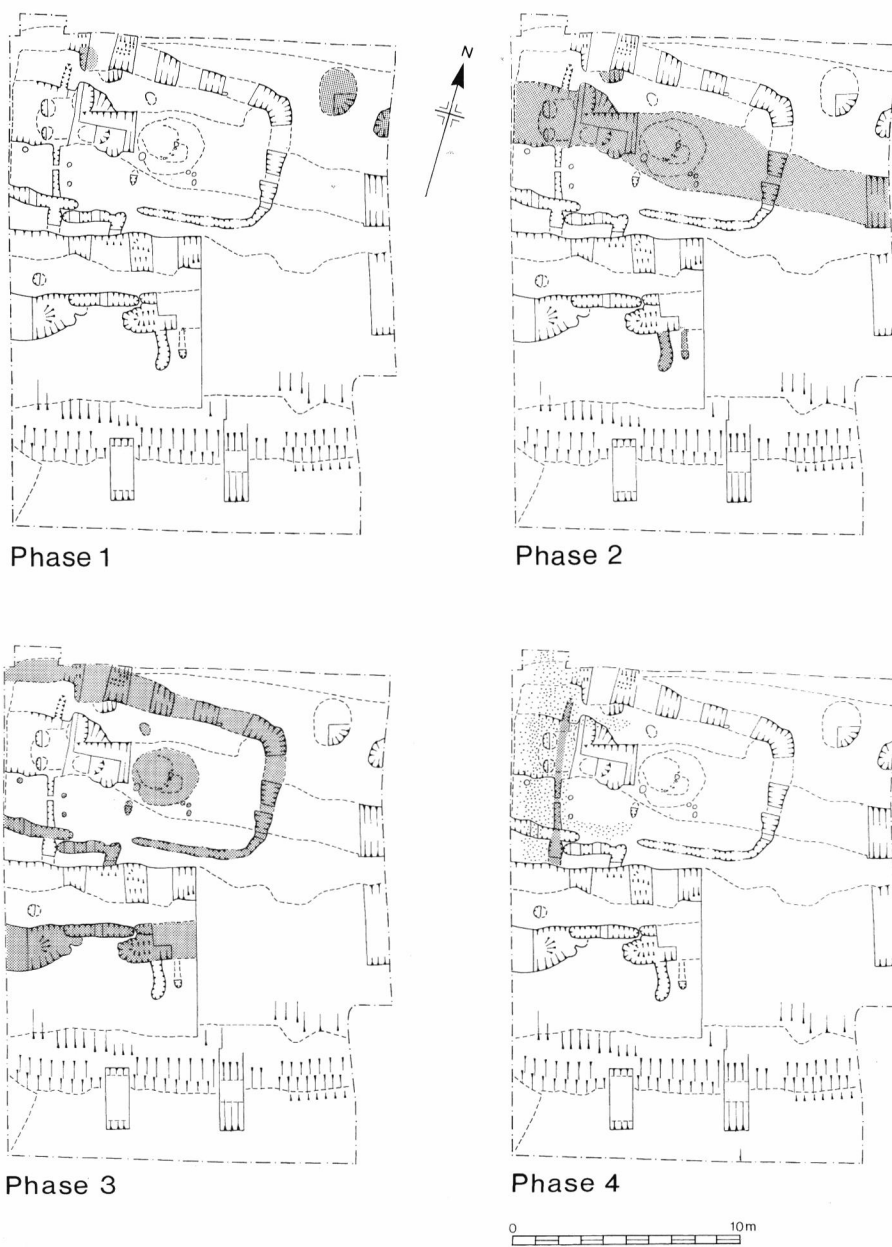


Fig. 3: Simplified plans of the excavated area. Features apparently of the same phase of activity are indicated by the grey tone. Phase 1, prehistoric activity; Phase 2, Medieval activity pre-dating Structure 1; Phase 3, Structure 1 and associated features; Phase 4, Medieval features post-dating structure 1.

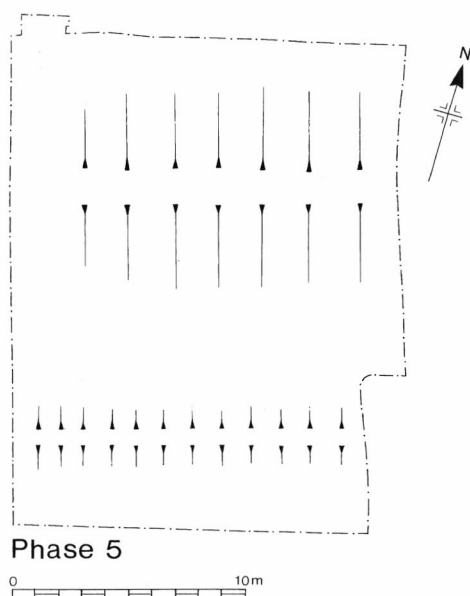


Fig. 4: Simplified plan of the excavated area. Phase 5, agricultural features post-dating the abandonment of the toft.

A number of post and stake holes (0008, 35, 46, 51, 52, 53, 57, 58, 59; Figs. 5 and 6) lay within the area of Structure 1. None of these features have a convincing structural function, though 0046 and 0051, which lay adjacent to the entrance causeway in 0005, might have supported an internal screen dividing Structure 1 into two roughly equally sized rooms.

Ditch 0023, Contemporary Toft Boundary

A number of features lay to the south of Structure 1 in the area truncated by furrow 0021 (Figs. 2 and 8). The most substantial of these was an east-west linear ditch 0023 with a c. 2.5m wide entrance causeway. The causeway had cut through an earlier shallow linear gully 0044. Though there exists no stratigraphic link between 0023 and Structure 1 the coincidence of alignment of the entrance causeways in 0023 and 0005 strongly suggests that the two features are contemporary. The Medieval pottery from 0023 further supports this conclusion.

If ditch 0023 and Structure 1 were contemporary a likely function for the ditch is as a toft boundary, delimiting the plot within which Structure 1 lay, the entrance causeway providing access to a lane on roughly the line of the present village street.

Phases 4 and 5: Activity Post-Dating Structure 1

Phase 4

Structure 1 was replaced by a cobbled surface (Fig. 7; 0031), comprising loosely packed rounded stones, which stratigraphically sealed the fill of gully 0005 (Phase 4; Fig. 3). A shallow north-south linear gully 0034/40 (Figs. 7 and 8) coincided with the eastern limit of the cobbling and thus may have been contemporary. 0031 and 0034 produced a number of sherds of pottery of the late 14th to mid-15th century. It is possible that 0031

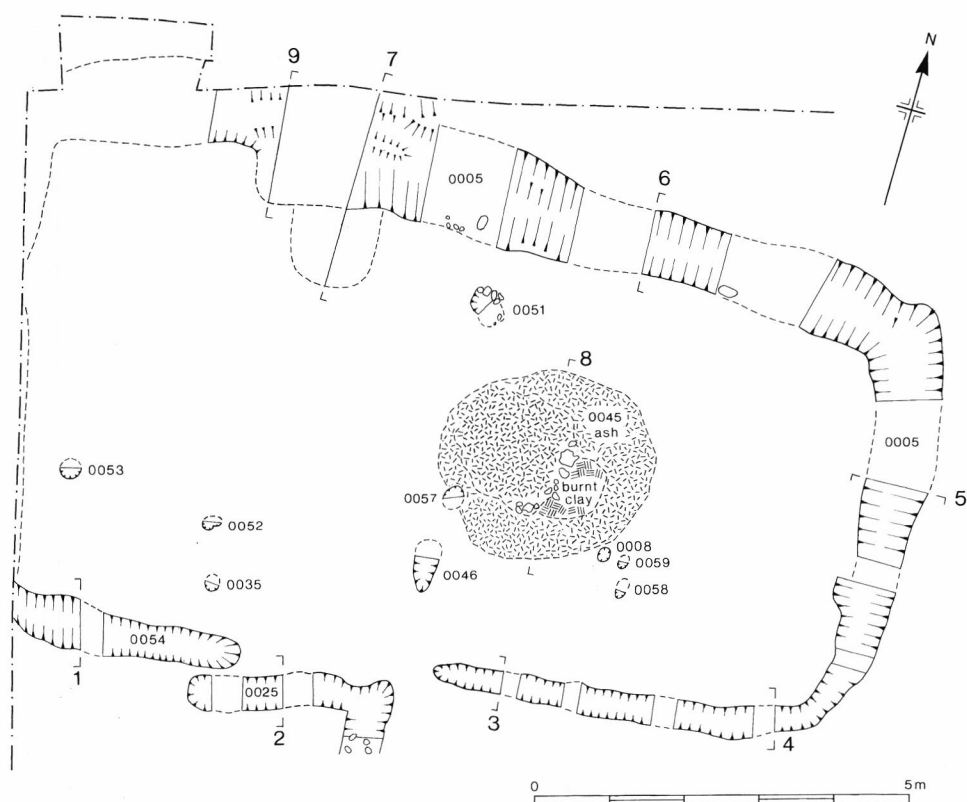


Fig. 5: Plan of the features comprising Structure 1. The locations of the sections shown in Fig. 6 are indicated.

may have formed the surface of a cobbled yard, perhaps associated with a structure lying beyond the boundary of the excavated area.

Phase 5

The latest features on the site were agricultural in nature and comprised plough ridge 0003 and associated plough furrow 0021 (Fig. 4). A shallow, irregular gulley 0039 (Figs. 2 and 8) followed the northern edge of furrow 0021 and might have been produced by ploughing. The fill of furrow 0021 contained a number of fragments of iron smithing slag, including pieces of hearth base and a possible tuyere. This slag is associated exclusively with charcoal as a fuel source and so does not appear to be derived from the hearth within Structure 1, which contained both coal and charcoal and produced no evidence for smithing debris.

At its southern edge the fill of furrow 0021 partially overlay the northern edge of an east-west linear bank of clay and stones (0009) with a substantial ditch (0011) on its southern side (Figs. 2 and 8). It appears likely that the bank and ditch are broadly contemporary with the ridge-and-furrow and represent the pre-enclosure period boundary between the ploughed land and the lane to the south. At enclosure this



Plate 1: An overall view of the site showing the excavation of Structure 1 in progress.

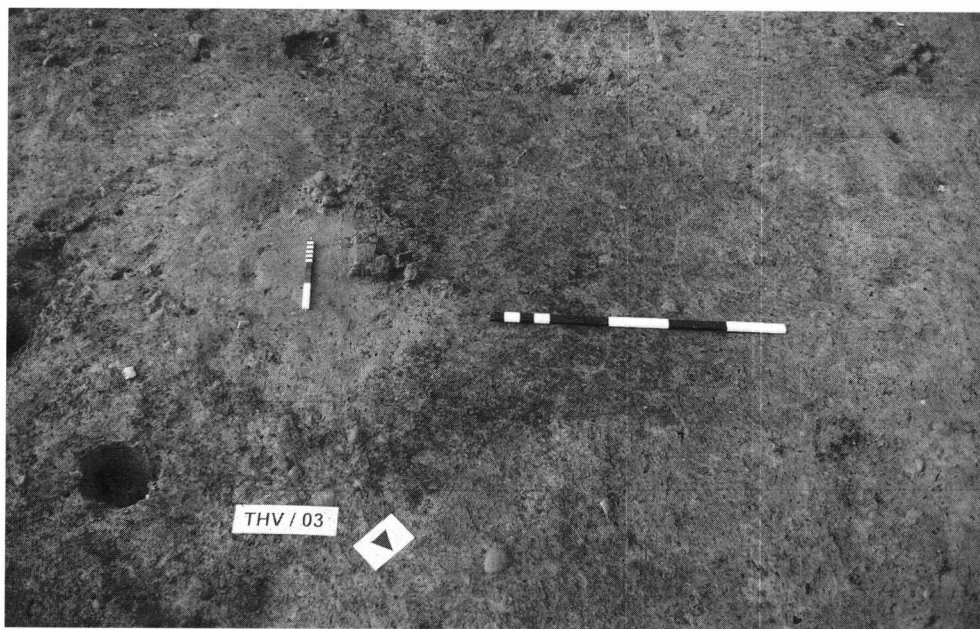


Plate 2: Hearth 0045 during excavation.

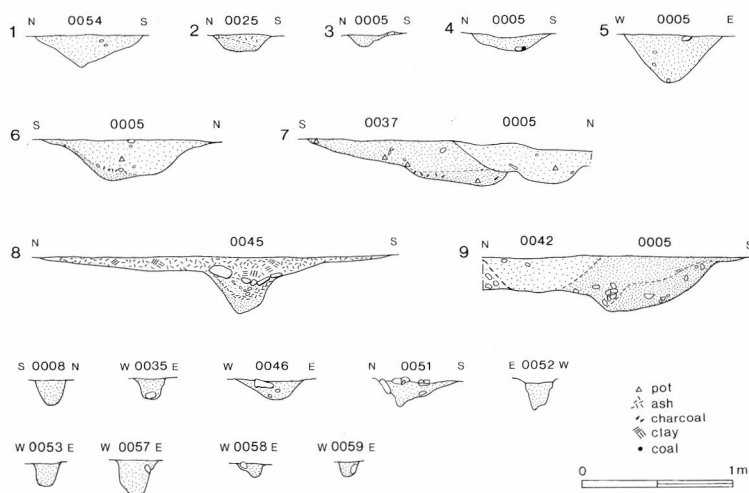


Fig. 6: Sections of features comprising Structure 1.

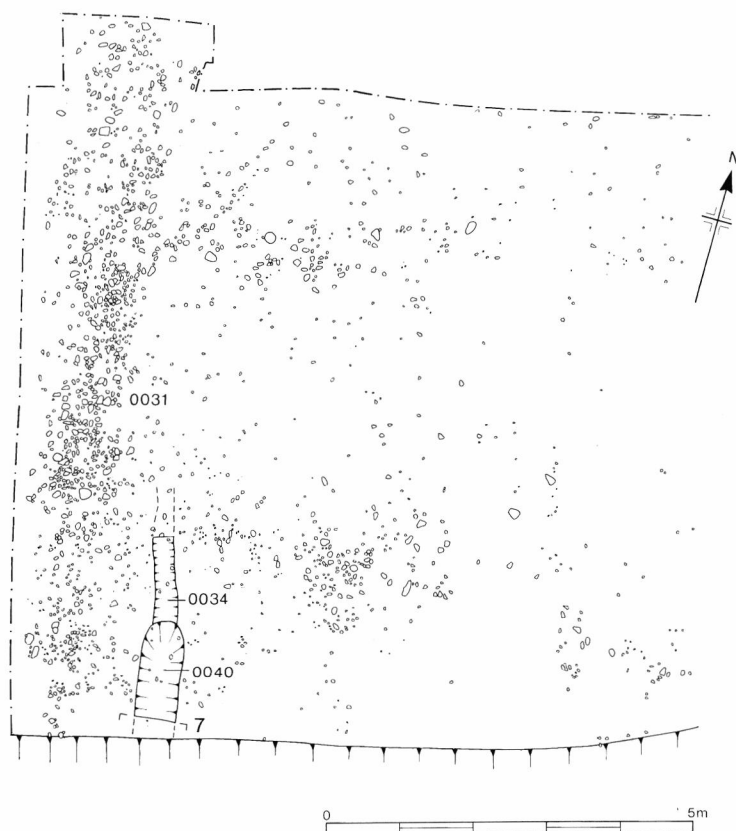


Fig. 7: Plan of cobbled yard 0031 and associated features.

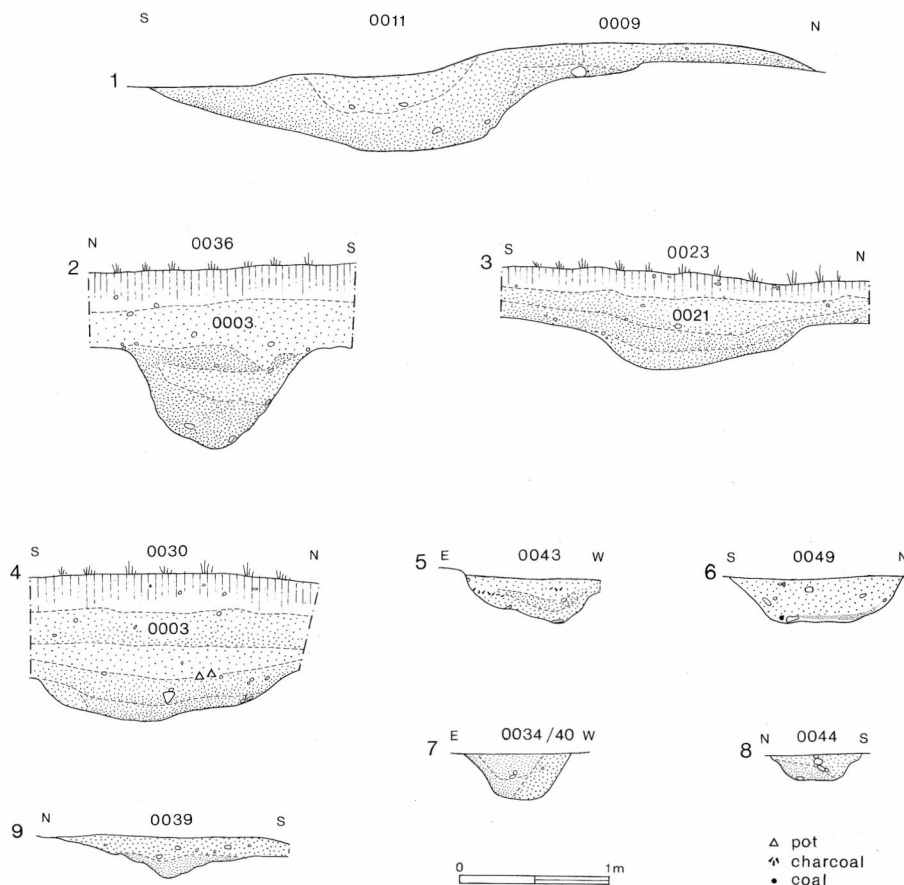


Fig. 8: Sections of other features.

boundary was formalised on its present line and marked by a hedgerow on the south side of the ditch, reducing the width of the lane by some 5m.

DISCUSSION

The conclusions that may be drawn from this excavation are inevitably limited by the fact that the excavated area represents only a part of a complete Medieval toft. Although one apparent boundary of the toft (ditch 0023) lay within the excavated area the other toft boundaries, and hence the size of the toft and other buildings which it may have contained, remain unknown.

Changing Organisation of the Toft

The evidence from the excavation indicates three principal phases of Medieval activity within the toft, culminating in the final abandonment of the inhabited area to agriculture, probably in the mid-15th century. Such a pattern represents the archetypal view of activity within a Medieval toft and may be paralleled in the East Midlands in both wholly

deserted villages, for example Goltho, Lincolnshire and Barton Blount, Derbyshire (Beresford 1975) and in villages experiencing a degree of later Medieval shrinkage, for example Laxton, Nottinghamshire (Challis 1994).

The tofts and crofts at both Goltho and Barton Blount were strongly delineated, with substantial banks and ditches marking their perimeters. A similar pattern appears evident at Thurvaston, with substantial ditches marking two phases of toft boundary. At Thurvaston, in the first Medieval phase, dated by pottery to the late 11th to 12th century, a possible boundary feature (ditch 0030), lies well away from the 13th/14th century toft boundary (0023) and on a slightly different alignment. This may suggest that the early layout of properties in this part of the village differed from that in later periods. The presence of 11th and 12th century pottery, residual in later features, indicates contemporary settlement related activity in the vicinity. The absence of evidence for structures of this date is most probably because buildings lay outside the excavated area, as features associated with later phases of activity appear unlikely to have destroyed all evidence of earlier structures had they existed within the area examined.

In the second phase the focus of activity within the toft changed, with the principal domestic structure (Structure 1 of late 13th to late 14th century date) lying within the excavated area, and with a contemporary toft boundary (0023) close by to the south-east.

In the final inhabited phase, dated by pottery to the late 14th to mid-15th century, the focus of activity within the toft again shifted, with the excavated area encompassing part of a cobbled surface, perhaps a yard. In the mid-15th century habitation in this part of Thurvaston appears to have ceased and the excavated area was given over to agriculture.

Such a pattern of shifting activity within tofts, culminating in final abandonment, is one identified at both Goltho and Barton Blount, where excavation of a number of tofts within wholly deserted settlements revealed evidence for a sequence of buildings and associated features ranging in date from the 10th to 15th centuries. Buildings within the tofts on these sites were often insubstantial, with a short life, and tended to move around the toft from generation to generation, often with little apparent regard to the location and alignment of earlier structures. A significant reorganisation of the settlement at Thurvaston between the 12th and 13th centuries might tentatively be suggested on the basis of the shift in boundary location and alignment from phase 2 to 3. Whatever the case it is clear that at Thurvaston there were marked shifts in the focus and character of activity within the toft from phase to phase.

The Function of Structure 1

Dyer (1986), in reviewing evidence for English peasant buildings in the later Middle Ages in the West Midlands, concluded that a peasant messuage would typically contain a range of buildings including houses, barns, kitchens and bakehouses. Houses and barns, typically 10 to 15m in length, could be of varying quality; high-quality framed structures were not uncommon, using both dwarf stone walls or pad-stones (as at Goltho and Barton Blount) as well as walls of clay lump. It therefore appears likely that a typical Medieval village would contain a variety of buildings of differing construction standards and functions, insubstantial cottages co-existing with more substantial houses.

The evidence for Structure 1 may be compared to Goltho and Barton Blount where buildings, comprising both dwelling-houses and barns ranged from simple late Saxon rectangular halls, constructed using earth-fast posts, to framed structures with upright timbers resting on pad-stones in later centuries. In many cases evidence for the later buildings, contemporary with Structure 1 at Thurvaston, was very slight, comprising only pad-stones, occasional post-holes for internal partitions, and in some cases external eaves-trenches (Beresford 1975, 36). The dimensions of Structure 1 are difficult to reconstruct, though it can have been no more than $11 \times 5\text{m}$, the area within the eaves-trench. This space would be more than adequate for a building providing the average living area of 37.3m^2 for 13th–14th century structures in the Midlands (Astill 1988, 56). The constructional details of the structure remain elusive, some earthfast posts may have been utilised, though a construction technique leaving little physical evidence (clay lump, or timber framing on padstones which were later removed, seems more likely). The presence of cereals and legume seeds amongst the charred plant remains associated with the structure may hint at the use of thatch as a roofing material.

Coal and wood/charcoal were both used as a fuel within Structure 1. The deposits within the building, the eaves-trench and other contexts produced a carbonised plant assemblage indicative of accidental loss during food preparation with no evidence whatsoever of crop processing waste. These remains are particularly concentrated within the structure and around the hearth. Pulses and cereals were the only positively identified food items and it may be that both were accidentally burnt when being dried prior to milling for flour, although either might have been used as whole grain/seeds in gruels and pottages. Beans, peas, wheat, barley and oats have been identified, and pulses appear at least as abundant as cereal grains.

Though slag was present within later features adjacent to Structure 1, the lack of hammer scale from the structure and the abraded nature of many of the slags combined with the small quantity suggests that these were dumped on the site or were the result of brief smithing episodes by visiting itinerant smiths, and are not associated with the use of the structure itself which appears wholly domestic in character.

In conclusion, structure 1 at Thurvaston appears to represent a simple dwelling house of late 13th- to late 14th-century date. The absence of non-local pottery could indicate a structure of relatively low status, as well as hinting at the rural isolation of the Medieval community at Thurvaston. The roughly central hearth was used for domestic purposes, including cooking, evidence by the charred remains of food; sooting on sherds of cooking pot associated with the structure also suggest a domestic function.

After Structure 1

In its final inhabited Medieval phase, in the late 14th century, the toft at Thurvaston was reorganised, with the provision of a cobbled area — perhaps a crew yard. Such reorganisation is noted elsewhere from the 14th century, for example at both Goltho and Barton Blount, where some tofts were reorganised around crew yards to facilitate the over-wintering of livestock. Tofts with crew yards tended to remain occupied later than those without yards, an observation which may be reinforced by the relatively late (mid-15th century) abandonment of the toft at Thurvaston to agriculture.

SPECIALIST REPORTS

Prehistoric Pottery by David Knight

Five body sherds, most probably of Iron Age date, were recovered during excavation. Three slightly abraded sherds probably forming part of the same vessel, of identical fabric, surface colour/finish and thickness, derived from an otherwise undated pit (0063); two of these joined along a fresh break, reflecting breakage during recovery. The other two sherds were abraded or moderately abraded, and had been redeposited within Medieval features (0026 and 0031).

All of the sherds derive from plain and probably handmade vessels of unknown form, and little may be deduced regarding their typological affinities or date. All were manufactured from a similar fabric, the inclusions within which were examined at $\times 30$ magnification. The fabric is characterised by sparse (3–10%), coarse (1–3mm), angular, milky white, crystalline quartz which, in view of its angularity, had probably been crushed deliberately for temper. Quartz could have been obtained from a local drift source, notably the higher terrace deposits of the Brailsford Brook, c. 1km NW of the site (Chisholm *et al.* 1988, 105). The sherds also contain variable quantities of predominantly rounded or subrounded argillaceous inclusions $< 2\text{mm}$, varying in colour according to the firing conditions of the pottery, suggesting the use of clays derived from local Mercia Mudstone sources (*ibid.*, 84–87). It should be noted that the local boulder clays also incorporate Triassic mudstone and siltstone (*ibid.*, 101). However, as these glacial deposits also contain common ‘Bunter’ quartzites and flint, not evident within the pottery, a boulder clay source seems unlikely. The outer surfaces of the sherds from pit 0063 had been oxidised to a bright orange colour, with unoxidised (black) cores and interiors. The more abraded sherds from 0031 and 0026 preserve oxidised (buff) exteriors and unoxidised (dark grey to black) cores; the inner surfaces may be unoxidised (dark grey) or oxidised (buff). All sherds are soft, with a sandy texture and an irregular fracture. The fabric invites comparison with local Iron Age pottery, including material from the Trent Valley at Swarkestone Lowes (Knight 1999), and hence an Iron Age date may be suggested.

Flint by Jenny Brown and Daryl Garton

There are 46 pieces of humanly modified flint from the excavation at Thurvaston, together with 7 naturally fractured or plough-bashed pieces. Most comes from Medieval or Post-Medieval contexts, although two pits which are suggested as prehistoric, 0036 and 0042, produced respectively 1 and 11 pieces of flint. The flint from all contexts is generally very sharp, surprisingly so for material which is largely redeposited.

No sieving was carried out, and this has almost certainly resulted in only partial collection of the available flint, as the assemblage consists almost entirely of readily visible pieces. The sample size is too small for more than tentative comment.

There are two main components to the raw materials. One is a Wolds-type flint, dense opaque white to pale orangey-brown, which may have originated from the Yorkshire or Lincolnshire Wolds, but is likely to have a source nearer to Thurvaston, having been transported there by glacial or periglacial action. The other raw material is a translucent flint, honey-to-deep-brown, macroscopically similar to that found in the Severn/Avon

terraces and to the west of the Pennines. The water-rolled cortex on many pieces testifies to their transportation in high-energy environments. Both types of flint were probably available within a few miles of the site at Thurstaston.

The collection contains five tools, all scrapers. One scraper has a large pronounced butt, indicative of production using a hard-hammer technique. The use of this technology and the irregular typology of the piece are indicative of a Late Neolithic/Early Bronze Age date. The other scrapers are all simple scrapers made on blades, and could support a rather earlier date.

This accords with the high proportion of blades, several with abraded butts, amongst the debitage, which also suggests an earlier technology. A date in the Early Neolithic seems most probable, although the double end-scraper and the piece with a rubbed butt may belong in the Mesolithic. The lack of sieving in excavation would have prevented the recovery of small pieces such as microliths and microburins had they been present. The sample size is too small for the application of length/breadth ratio analysis.

Pit 0042, interpreted as the earliest feature on the site, contains 11 pieces of flint none of which is particularly diagnostic. There are several blades, two with abraded butts which could fit a Mesolithic or Early Neolithic date, but no tools. The possible Iron Age pit, 0036, contains one undiagnostic fragment of debitage.

There are two core rejuvenation flakes: a tablet and what is essentially a flake from an opposed-platform core with a thick termination. The former has subsequently been used, as have a broken blade and a more flake-like piece.

The flintwork could represent either several periods of use, or a wider range of activities during fewer periods; it is too small and variable a collection to be certain. Nevertheless, the collection is important in adding to the small quantity of material known from the Mercia Mudstones. It contributes to a pattern of activity on the heavy clay soils in prehistory which had been previously underestimated. Work such as that in the Vale of Belvoir in the 1970s and 1980s (Hills and Liddon 1981) began to redress the balance. Clay (1996) predicted that this trend would continue, and collections such as this from Thurstaston continue to add weight to the evidence.

Medieval Pottery by Pauline Beswick

Excavation produced a large amount of pottery ranging in date from the later 11th century to the mid-15th century and demonstrating long occupation of the site in what appears to be an unbroken sequence. However, none of the early pottery was in sealed contexts, but rather formed a residual component in all excavated contexts. In order to understand the time span and nature of the occupation and to date the sequence of events, the pottery was analysed in detail and is summarised here by context group in phase order. The full details are in the archive. No attempt has been made to quantify vessel numbers for the site as a whole because none of the contexts was excavated fully, only sampled.

The pottery is important not only for understanding and dating this site but also because it is the first time that a large sample of pottery from a Derbyshire Medieval village has been studied in detail, and this work will help to establish a better understanding of wares of this period in the county.

Fabrics

All the fabrics have quartz as the chief inclusion in varying sizes and quantities. In an attempt to achieve an objective analysis and description of the fabric types they were divided primarily on the basis of inclusion size into three groups, fine (Fabric 1), sandy (Fabric 2) and coarse or gritty (Fabric 3). Subdivision within these broad categories was then made on the basis of other factors such as technology, hardness, colour, glaze etc.

This was followed by a cross-check with sherds from the Full St excavations in Derby (Derby Museum) (Coppack 1972). Coppack's fabric descriptions (1972, 45–7), although without analytical details of inclusions etc., represent the only previous attempt to record the range of pottery fabrics of this period in Derbyshire. In addition sherds in Derby Museum from the Burley Hill kilns and excavations at Barton Blount (Beresford 1975) were scanned briefly for comparable material.

FINE: Fabric 1 (F1A and 1B)

Wheel-made, smooth fabric with angular and rounded quartz inclusions at a frequency of around 10%, moderately sorted and less than 0.5mm in size, on average. F1A also has about 1% red iron oxide inclusions, up to 1mm in size. F1A is the oxidised version externally, but is frequently reduced internally. It is commonly softer than F1B and often has an apple green splashed glaze. F1B is the reduced version and is harder with green/brown suspension glazes and horizontal rilling common. F1A probably starts before 1B, however, the two overlap and both can occur in one pot (F1A/B), and both can have an extensive range of applied motifs as decoration.

Fabric 1 is principally a jug fabric although there is also an occasional bowl (77, 102, 105) and a ?lamp (78). This fabric is matched by 'Burley Hill-type ware', as defined by Coppack (1972, 45), and perhaps also in part, in the case of F1A, with his 'Local developed splashed ware'. Kilns producing Burley Hill-type ware have been identified both at Burley Hill and Allestree on the Darley Abbey estate to the north of Derby and it has not been possible to attribute sherds to one individual source (Coppack 1980, 280).

SANDY: Fabric 2 (F2A, 2A(1), 2B, 2B(1))

Fabrics F2A and 2B are distinctly different and will be described separately.

F2A is hand-made, soft, smooth but sandy textured and often crumbly on the break. The quartz inclusions are both rounded and angular, at a frequency of around 25%, poorly sorted and 0.25 to 0.5mm in size, on average. The colour is usually consistent throughout a sherd and is either dark brown or reddish brown with no glaze. Body sherds occurred in all phases on the site but in small numbers and diagnostic pieces are rare and take the form of cooking pots (e.g. 14, 15, 40, 118). Coppack's Saxo-Norman 'brown sandy ware' sherd from Full St (Pit 36, 1; Coppack 1972, 47) was not available for comparison but the description as hard and with a grey core suggests a different fabric, and probably not hand-made.

F2A(1) occurs more rarely and although badly abraded is probably mainly wheel-made. The quartz inclusions are well-rounded and at a frequency of around 10–15%, well-sorted, but similar in size to those of F2A. The colour is predominantly grey. Forms appear to be bowls (e.g. 19, 41), one probably with an inturned rim (2), a possible jar (18) and cooking pots (42, 64).

F2B is an oxidised fabric occurring in both hand-made and wheel-made vessels, soft, sandy textured and iron rich. The quartz inclusions are well-rounded, at a frequency of 15–25%, well-sorted, and average 0.25–0.5mm in size but occasionally are up to 1mm. Red iron oxide and occasionally black occur at a frequency of around 3%, in sizes averaging 0.5 to 1mm and rounded but not spherical. Lumps of grey clay over 2mm in size also occur occasionally. Glaze is often splashed. Forms include a jug (79), bowls (e.g. 20, 109, 110) and cooking pots (e.g. 53, 56). This fabric is a hybrid between F2A and F1A, the quartz richness often resembling F2A and the colouring and general appearance a 'dirty' F1A. It appears to include Coppack's fully oxidised Burley Hill-type ware.

F2B(1) is a wheel-made, hard, white/cream coloured and well-made sandy fabric, usually with a pale grey core. The quartz inclusions occur at a frequency of around 20%, well-sorted, well-rounded and average 0.25–0.5mm in size. In addition there is black iron oxide at around 1% frequency, rounded but not spherical and averaging the same size as the quartz, although it can go up to 2.5mm. Glaze is often patchy and clear or yellow/green and forms include jugs (rims — 21, ?43; handle 103; baluster shaped base 122) and a cooking pot (80). This fabric equates with Coppack's 'cream sandy ware' (1972, 45) and he is of the opinion that it was made in the Derby area (1980, 280).

COARSE or GRITTY: Fabric 3 (F3A, 3B, 3C)

F3A and 3B will be described separately from 3C.

F3A is the hard version of 3B and both have in common coarse quartz inclusions of 20 to 25% frequency, well-sorted, well-rounded and averaging 0.5 to 1mm in size. Red and black iron oxide is also present in frequencies of 1 to 5%, moderately sorted, well-rounded and a similar size to the quartz. Colours range from oxidised buff/pink/oranges to reduced pale and dark greys and are usually consistent through the sherd, especially in 3A. Occasionally 3A sherds are extra hard-fired, reduced dark grey, and a few are near vitrified and with purple overtones. The former are described as 'hard-fired' in the descriptions which follow and the latter as 'purple ware'. Glaze is rare and patchy on 3A and more common on 3B. Cooking pots are the principal form but there is also the occasional jug (46, 65, 66, 81, 82, 92, 93, 123), bowl (44, 124, 125) and a ?mortar (83). F3A cooking pots frequently have very thin walls (c. 2–3mm thick — e.g. 27) and although cooking pots generally had a variety of uses, including storage, the majority of examples from Thurstaston have soot deposits on the outside, indicating they were used mainly for cooking. There is an overlap between the two fabric types and both F3A and F3B can appear on occasion in the same vessel.

These fabrics are similar to Coppack's 'grey' and 'orange gritty wares', although his early rim forms are absent and a high proportion at Thurstaston are in buff coloured fabrics. His 'purple ware', also appears similar. Coppack describes his 'gritty wares' as apparently of local manufacture (1972, 73) and his purple ware as overfired Burley Hill-type ware. A scan of material from the Burley Hill kilns in Derby Museum by the author, indicated that both F3A and F3B type wares were being produced there and because of its proximity (c. 10 miles) this and the Allestree kilns are the most likely sources for much of the Thurstaston material. However, a number of the Thurstaston F3A and 3B sherds are distinctively pink/cream in colour and have a preponderance of pink quartz inclusions. These may be products from the kilns at Brackenfield, near Alfreton, on the

basis of physical inspection of sherd 194 from Full St (Coppack 1972, 61), and are suggested as such in the descriptions which follow. Forms include bowls (e.g. 23, 84) and a cooking pot (30).

Fabric 3C is a soft, oxidised, hand-made fabric characterised by coarse quartz inclusions of 10–15% frequency, poorly sorted and both rounded and angular with low sphericity, and averaging 0.5 to 1mm in size. In addition iron oxides (usually red) are present at about 1% frequency and 1–3mm in size, and also white clay lumps at 1–2% frequency and up to 4mm in size. Only cooking pots have been recognised and normally these are very abraded but one (33) has traces of yellow glaze on a white slip. No comparable fabric was seen in the Full St or Barton Blount material and it may have been produced close to Thurstaston, and on a small scale.

In conclusion fabrics F1A, 1B, 3A and 3B, and at least some of 2B, are likely to have been produced at kilns on the outskirts of Derby, at Burley Hill or Allestree. These fabric types make up most of the fine and coarse wares found at Thurstaston. In addition a small amount of pottery was perhaps obtained from Brackenfield to the north, near Alfreton. Fabric F2B(1) may have been produced in Derby but the sources for F2A, 2A(1) and 3C are not known. It is interesting to note that some of the contemporary fabrics identified at Full St, Derby, are absent at Thurstaston, particularly Stamford-type ware, Limestone tempered ware, Nottingham products and foreign imports. This may indicate low spending power for the inhabitants but could also suggest that there was access to a restricted range of products in country markets compared with the wider choice obtainable in larger towns.

Context Groups by Phases

Phase 2 (Fig. 9)

The small quantity of pottery found in the east-west ditch (context 0030), pre-dating Structure 1 (Phase 3), represented 6 vessels including a jug (1), a bowl (2), a base of a bowl or jug in F2B(1) and sherds of three probable cooking pots in F2A, 3A and 3C.

- 1 Jug body sherd, with scale decoration and a clear glaze with green 'splodges', in F1A.
- 2 Shoulder of bowl probably with an inturned rim, in F2A(1).

A number of features (0060, 0061, 0062, 0049) cut into the fill of 0030, lay stratigraphically between the infilling of the ditch and Structure 1:

Pit 0060 — sherds of 2 jugs in F1B, one very abraded, as was also a 2A sherd. In addition there was a cooking pot (3) and sherds of at least three others, two in F2B and one in 3A.

- 3 Cooking pot rim with spots of green/brown glaze, in F3A.

Pit 0061 — the base of a possible jug and two F2B sherds probably from the same vessel.

Pit 0062 — six sherds included abraded sherds in F1B, ?2B and 3A and 3A/B fabrics.

Pit 0049 — abraded sherds in F1A, 1B, 2A and 2A(1), but less abraded sherds in 1B and 3A.

Pit 0043 cut 0030 and lay below 0026, (probably an occupation deposit relating to Structure 1. Finds included at least 3 jugs (4, 5, 6). Number 6 and other sherds with traces of applied decoration (not illustrated), were abraded. In addition there was a bowl

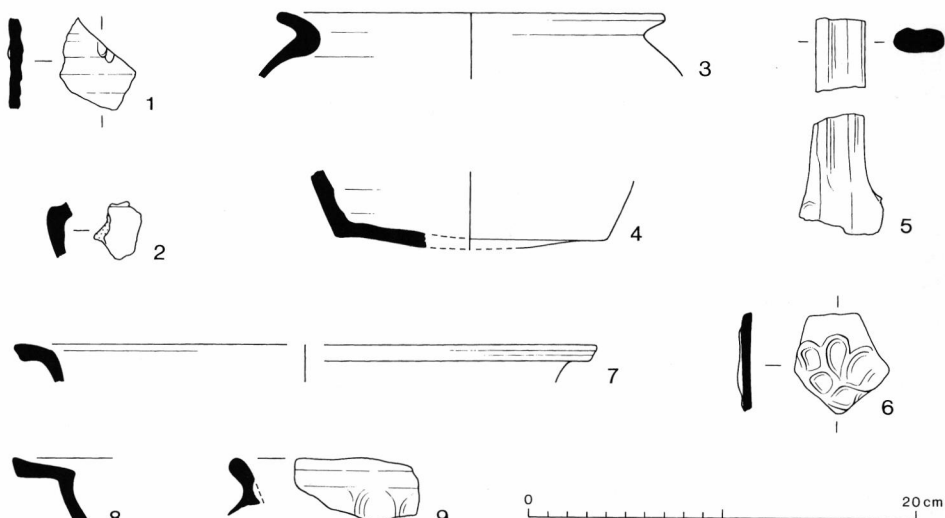


Fig. 9: Medieval pottery from phase 2 (features pre-dating structure 1).

(7) and bases of two cooking pots in a hard-fired F3A fabric, together with sherds of other cooking pots in 2A and 3B, some abraded.

- 4 Jug base with splashes of clear and apple green glaze, in F1A. Fitting sherds came also from 0026 (Phase 3) and from 0034 (Phase 4).
- 5 Jug handle with splashes of green glaze, in F1A. (Part of a handle found unstratified was probably from this but does not join.)
- 6 Decorated jug sherd with applied rosette, abraded and with traces of green glaze, in F1B.
- 7 Bowl rim in grey fabric with orange/red slip internally, in ?F2A(1). Abraded rim sherd of same pot from 0055 (Phase 3).

Other features pre-dating Structure 1 included an east-west gulley (0033) and a shallow scoop (0037), both cut by 0005:

0033 — sherds of three cooking pots in F3A and abraded sherds of 1B and ?2B.

0037 — the base of a hand-made vessel in F2B and a similar body sherd were abraded, unlike the sherds of a cooking pot in 3A from the lower spit.

Finally features which could be of a similar date are gulley 0029, cut by 0023 the toft boundary, and gulley 0044, which may be an earlier line of 0023:

0029 — abraded rim sherds of bowl and handled cooking pot (8, 9) and sherds of F1B and 3A.

- 8 Bowl rim sherd with traces of internal glaze, in ?F2B.

- 9 Cooking pot rim sherd with evidence of a handle, in ?F2B.

0044 — jug base in F2B, plus 3A and 3B sherds, together with abraded sherds including 3C.

Phase 3 (Figs. 10 and 11)

The rectilinear gulley defining the area of Structure 1 (0005, 0054) was excavated in a series of cuttings and by 10cm deep spits along the north side where the deposits were

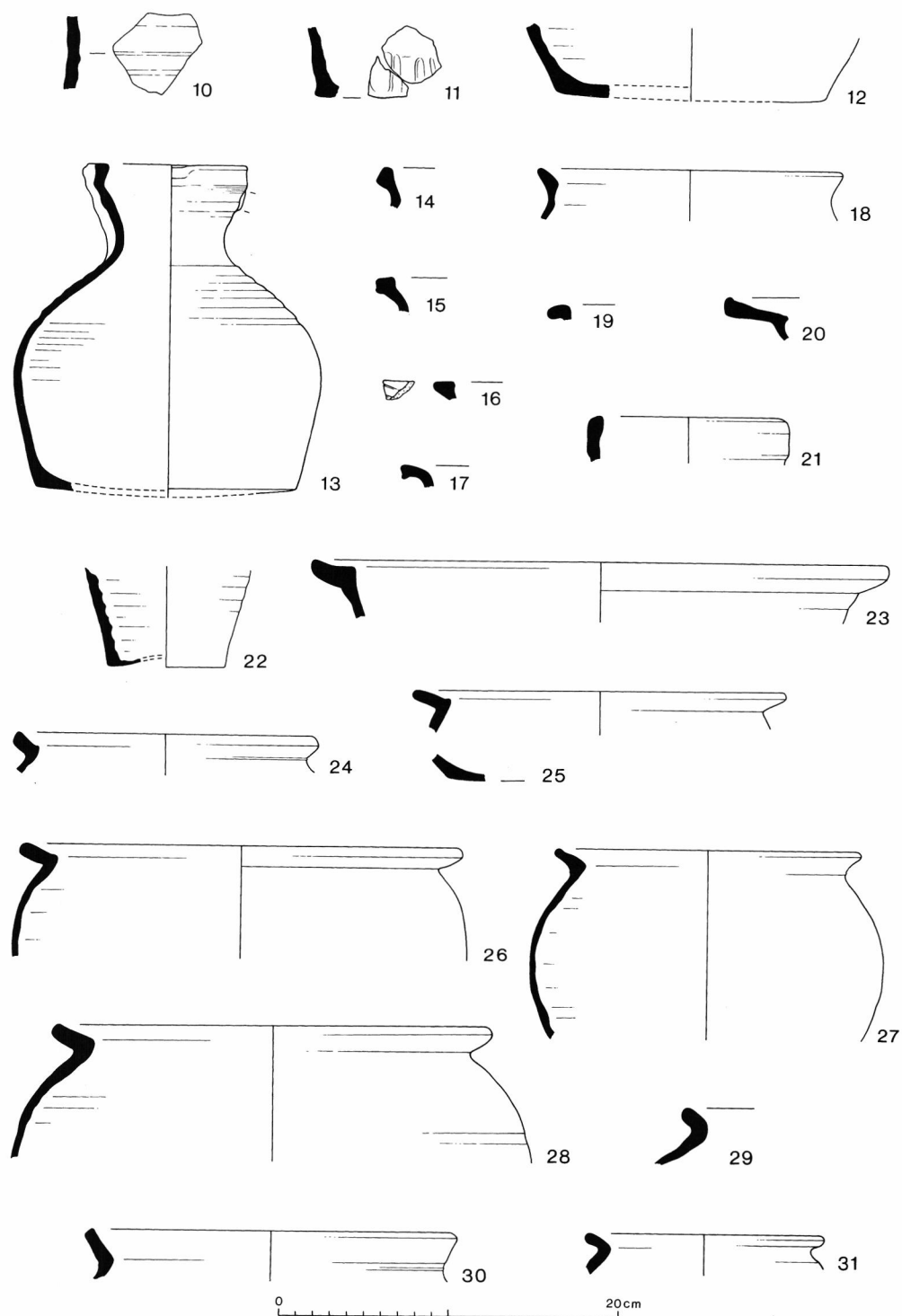


Fig. 10: Medieval pottery from phase 3 (structure 1 and associated features).

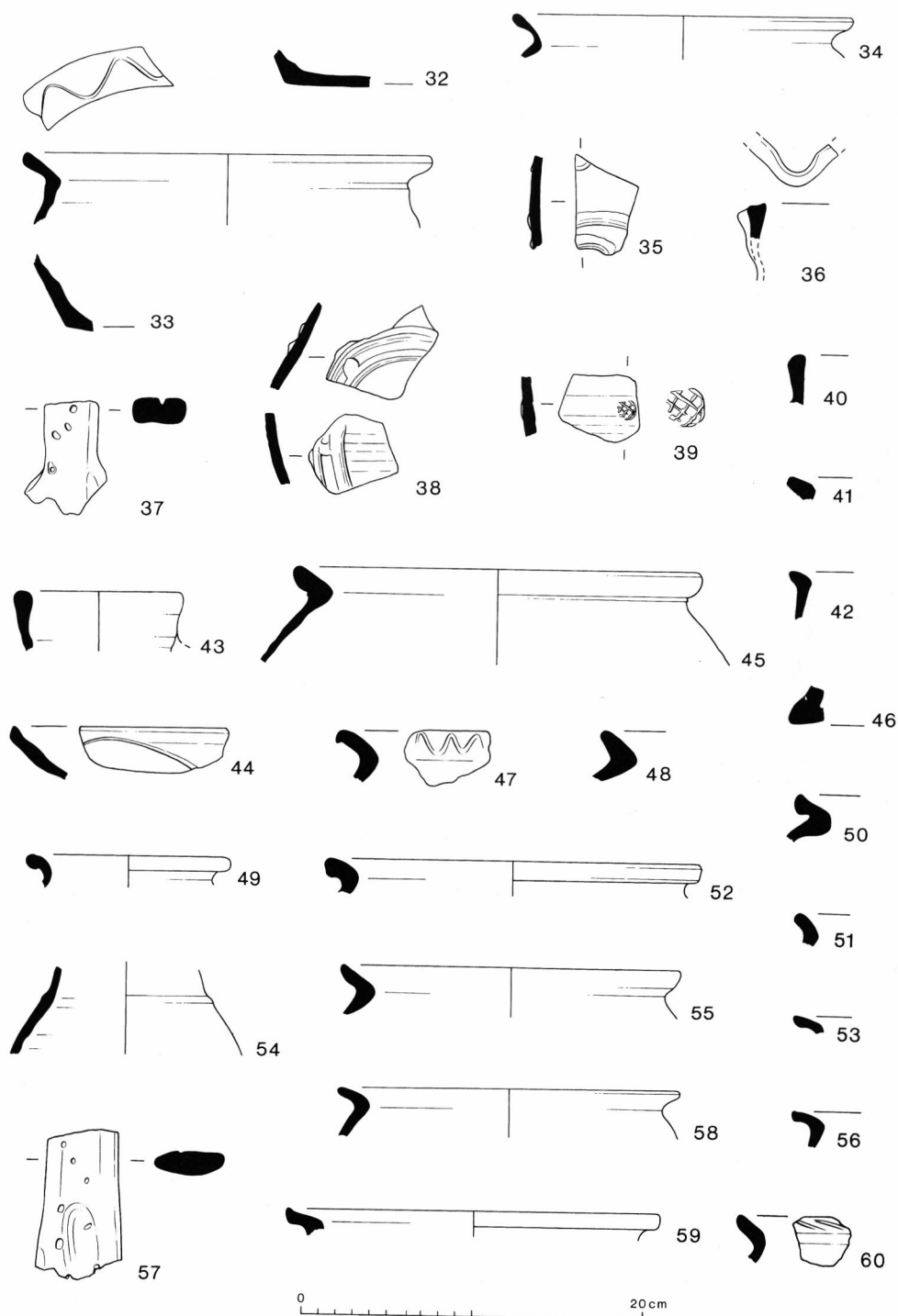


Fig. 11 Medieval pottery from phase 3 (structure 1 and associated features).

deeper. However, analysis of the pottery indicates mixed occupation deposits with the major portion of sherds small and abraded. Many will most likely be residual from earlier phases but there is no certain method of distinguishing them from those relating to early occupation of Structure 1 and all sherds featuring details of form and decoration are illustrated. Larger fresher groups of related sherds which are more likely to relate to the latest rubbish disposal in the gulley are represented by jug 13 and cooking pots 26, 27 and 28. Pot 23 found in both the gulley and a post-hole within Structure 1, is probably also contemporary either with the building or occupation of the area.

- 10 Jug body sherd decorated with horizontal lines and green/brown glaze, in F1A.
- 11 Jug base with joining sherds on old breaks, and decorative notches and green/brown glaze, in F1A. Matching sherds probably of same pot in 0023 (probable contemporary toft boundary, Phase 3).
- 12 Jug base with joining sherd on old break and green glaze, in F1A.
- 13 Jug (around 50%) with complete profile but no handle, and green/brown glaze, in F1A/B.
- 14 Cooking pot rim, abraded, in F2A.
- 15 Cooking pot rim in F2A.
- 16 Rim fragment with possible impressed decoration on one edge, in F2A.
- 17 Rim, plus non-joining body sherds, in F2A.
- 18 Rim and neck of ?jar, abraded, in F2A(1).
- 19 Bowl rim, abraded, in F2A(1).
- 20 Bowl rim, abraded, and hand-made, in F2B.
- 21 ?Jug/pitcher rim with patch of green/brown glaze, in F2B(1).
- 22 Jug base, small (7cm diameter), hard-fired and with patch of green/brown glaze, in F3A.
- 23 Bowl rim, pink/cream with pink quartz inclusions and spot of clear glaze, in F3A. Possibly a Brackenfield product. Pieces of same pot in 0046, (post-hole in Structure 1, Phase 3) and unstratified in Phase 5.
- 24 Cooking pot rim, hard-fired and with spots of green glaze, in F3A.
- 25 Cooking pot rim and base with traces of green/brown glaze inside, in F3A.
- 26 Cooking pot rim and shoulder with two joining sherds on old break, in F3A.
- 27 Cooking pot rim and body sherds, joining on old breaks, in F3A.
- 28 Cooking pot rim and shoulder, hard-fired, large fresh sherd, in F3A. Another rim sherd of this pot was found in plough furrow 0021, Phase 5.
- 29 Cooking pot rim, traces of green/brown glaze internally, in F3A/B.
- 30 Cooking pot rim, abraded and pink with pink quartz inclusions, in F3B. Possibly a Brackenfield product.
- 31 Cooking pot rim, in F3B.
- 32 Cooking pot base, in F3A/B. In colouring and fabric compares closely with pot 27 but no join. Pot 27 is from cut 1, and pot 32 is from cut 5. A similar base sherd, but not fitting, was also found in 0032, Phase 4.
- 33 Cooking pot rim, base and body sherds, abraded and rim decorated with incised wavy line and traces of yellow glaze on white slip internally, in F3C.
- 34 Cooking pot rim in F3C.

Probably also relating to the gulley are a few sherds from the first spit over a prehistoric pit (0042) cut by 0005. These include sherds from 4 jugs (2 base sherds in F1A plus 35, 36) and from cooking pots in F2A, 2A(1) (rim profile similar to pot 19), 3A and 3B.

- 35 Jug sherd, abraded and decorated with applied curved linear designs, in F1B.
- 36 Jug rim, lip and neck, hard-fired with purplish glaze splash, in F3A.

The pottery from a gully (0025), partially blocking the entrance causeway, may also be contemporary. This includes a jug handle (37) and sherds in F1A, 3A and 3B.

- 37 Jug handle, abraded and decorated with random punched holes and patch of green/brown glaze, in F3B.

Sherds from the occupation deposit filling hollows within Structure 1 (0026) comprise numerous small pieces representing all fabric types. They include sherds from at least 5 jugs (38, 39, 43, 46, and one base sherd which fits pot 4 from feature 0043, Phase 2), 2 bowls (41, 44) and 9 cooking pots (40, 42, 45, 47–51, plus one in F3A with a profile close to that of 24 but from a different pot).

- 38 Decorated jug sherd with part of a horseshoe shape. The applied triangular-sectioned strips are oxidised in contrast to the reduced pot surface which is covered in a brown/green glaze. In F1A. A similar sherd was found in 0021, Phase 5.
- 39 Decorated jug sherd with applied grid-stamped pad, in F1B.
- 40 Cooking pot rim in F2A. Another rim sherd of this pot was found in 0021, Phase 5.
- 41 Bowl rim in F2A(1).
- 42 Cooking pot rim, abraded, in F2A(1).
- 43 Jug rim, abraded and partly oxidised, in ?F2B(1). A further rim sherd of the pot was found in 0028, Phase 4.
- 44 Bowl rim decorated with curved incision, in F3A.
- 45 Cooking pot rim, hard-fired and red, in F3A.
- 46 Jug base sherd from flaring base with decorative perforation in side and spots of brown/green glaze, in F3B.
- 47 Cooking pot rim, abraded and decorated with incised zigzags, in F3B.
- 48 Cooking pot rim, abraded, in F3B.
- 49 Cooking pot rim, in F3B.
- 50 Cooking pot rim, abraded, in F3C. A rim sherd probably also from this pot was found in 0003, Phase 5.
- 51 Cooking pot rim, abraded, in F3C.

Sherds from the hearth area of Structure 1 (0045) include an unabraded F1B sherd with a fragment of applied decoration from close to the base of the section, and 1A, 2A and 2B sherds. From the hearth area also, sherds from context 0004/0017 include abraded F2A, 2A(1), 2B, and 3A sherds and a cooking pot body sherd in F3A, plus a rim (52).

- 52 Cooking pot rim in F3C.

Some of the post and stake holes from within the area of Structure 1 produced pottery:

0006 — a small F3A sherd.

0008 — a fragment of F2B and sherd of 3A.

0046 — two F3A sherds from different cooking pots, and two large rim sherds from same pot as number 23 from the gully of Structure 1.

0055 — one abraded F2A sherd and an abraded rim sherd of pot number 6 from 0043, Phase 2.

0057 — an abraded sherd (53).

- 53 Cooking pot rim, abraded, in F2B.

The postulated contemporary toft boundary (0023) to the south contained mainly abraded sherds of all recognised fabric types, except for F2B(1). These include four joining sherds on old breaks which match jug base 11 from 0005, but here are more

abraded. In addition there are sherds from at least 3 jugs (F1A base and 54, 57) and 4 to 5 cooking pots (55, 56, 58, 60 and ?59).

- 54 Jug neck sherd, abraded and with horizontal raised line decoration, in F1B.
- 55 Cooking pot rim, abraded, in ?F2A(1).
- 56 Cooking pot rim sherd, abraded, and oxidised sandy orange/red fabric with patch of clear to brown glaze under rim, in F2B.
- 57 Jug handle decorated with random perforations and khaki-green glaze patches, in F3A.
- 58 Cooking pot rim in F3A.
- 59 ?Cooking pot rim with dark green/brown glaze on top, in F3A.
- 60 Cooking pot rim, abraded and with incised diagonal slashes on top, in F3B.

Phase 4 (Fig. 12)

The cobbled surface (0031) which replaced Structure 1 contained sherds of all recognised fabric types. The majority are small and abraded and included sherds from 6 jugs (61, 62, 63, 65, 66 and base sherd in F1A) and 7 cooking pots (64, 67, 68, 69 plus a rim similar to 49 but from a different pot, and 2 base sherds in F3A and 3A/B).

- 61 Jug rim and part of lip, abraded, in F1A.
- 62 Jug rim, abraded, in F1B.
- 63 Decorated jug sherd, abraded, and with triangular-shaped impressions and patch of green/yellow glaze, in F1A.
- 64 Cooking pot rim, abraded, in F2A(1).
- 65 Jug rim, hard-fired, in F3A.

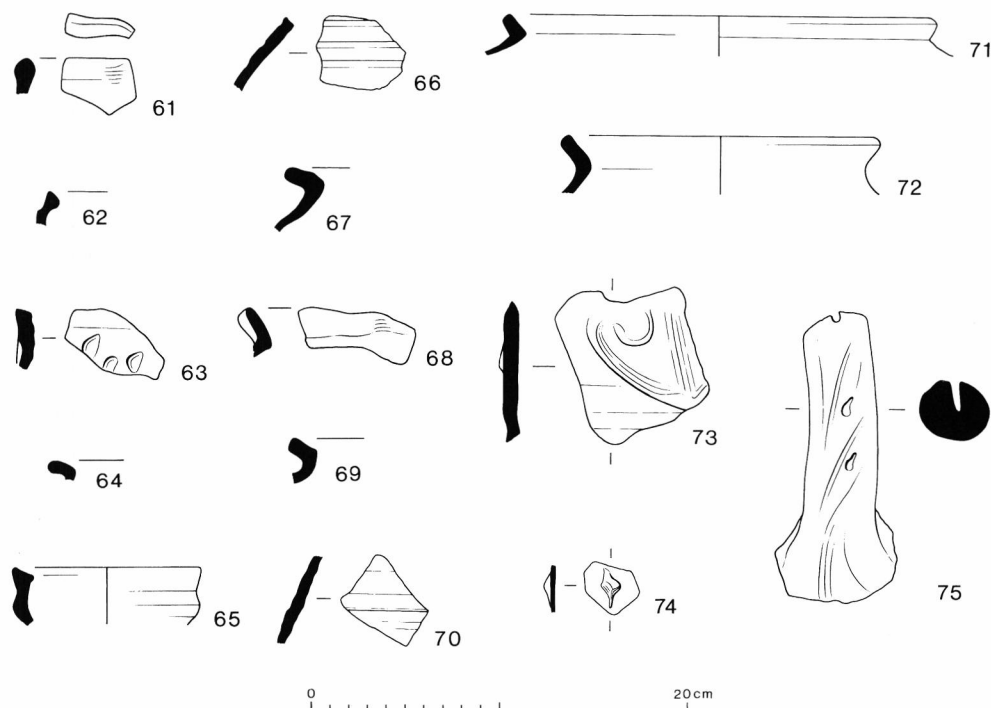


Fig. 12: Medieval pottery from phase 4 (cobbled surface post-dating structure 1).

- 66 Decorated jug sherd, hard-fired and with broad horizontal grooves and dark olive glaze, in F3A.
- 67 Cooking pot rim in F3A.
- 68 Cooking pot rim, abraded and with crudely incised 'X', in F3B. Pink fabric and quartz inclusions suggest this may be a Brackenfield product. Another rim sherd of the same pot was found in 0032, Phase 4.
- 69 Cooking pot rim, abraded, in F3B.

A shallow gully (0034), which it is thought may be contemporary, contained sherds of all fabric types except for F2A(1) and 2B(1). These included three joining sherds on old breaks of jug number 4 from 0043, and a decorated sherd (70) which may be from the same vessel. Also there were at least three cooking pots, one represented by an F2A rim fragment (not illustrated) and another from the gully surface (72), the latter in near fresh condition and therefore likely to represent the latest phase of occupation.

- 70 Decorated jug sherd with horizontal ridges and green/brown glaze, in F1A.
- 71 Cooking pot rim in F3A. Another rim sherd of this pot was found in 0021, Phase 5.
- 72 Cooking pot rim with red slip on cream fabric and spots of clear glaze, in F3B.

Miscellaneous contexts which may relate to this phase include 0028 in the north-west corner of the excavation and overlying 0031, the cobbled surface. Finds included examples of almost all the fabrics but as small and/or abraded sherds. Jugs include a rim sherd from pot 43 from 0026, the occupation deposit in Structure 1 (Phase 3), and sherds decorated with applied motifs (73, 74) plus one with a grid-stamped pad, like pot 39, but not illustrated. Also a cooking pot rim sherd in F3B and not illustrated, resembles the profile of pot 53, although the latter is in a different fabric (F2A(1)).

- 73 Decorated jug sherd, abraded and with applied motifs in the form of curving tendrils, in F1B.
- 74 Decorated jug sherd, abraded and with applied elongated diamond-shaped motif, in F1B.

Context 0032 again included a fair sample of all the fabrics as small and/or abraded sherds. Among them was a rim sherd of pot 68 (from 0031, the cobbled surface in Phase 4), a base sherd close to pot 32 (Phase 3) in fabric and form but not actually fitting, and a jug handle (75).

- 75 Jug handle, abraded and decorated with comma-shaped holes, in F1A.

Phase 5 (Figs. 13 and 14)

More than half of the pottery recovered from the site was incorporated in the Medieval plough soils and clearly this later ploughing had destroyed much of the site.

Plough furrow 0021 incorporated examples of all fabric types (apart from F2A(1)) demonstrating varying stages of abrasion. A few were matched with pots identified already from contexts. For instance a sherd in F1B with part of an applied horseshoe is similar to pot 38 from 0026 (Phase 3); part of a rim is from pot 40 from the same context; another rim sherd is from pot 28 from the gully of Structure 1 (Phase 3); and there is a rim sherd of pot 71 from gully 0034 (Phase 4). The illustrated sherds represent only vessel form types and features not recognised in the contexts described above.

- 76 Jug handle, decorated with deep slashes and green/brown glaze, in F1A.
- 77 Bowl rim, abraded and with traces of green/brown glaze, in F1A.

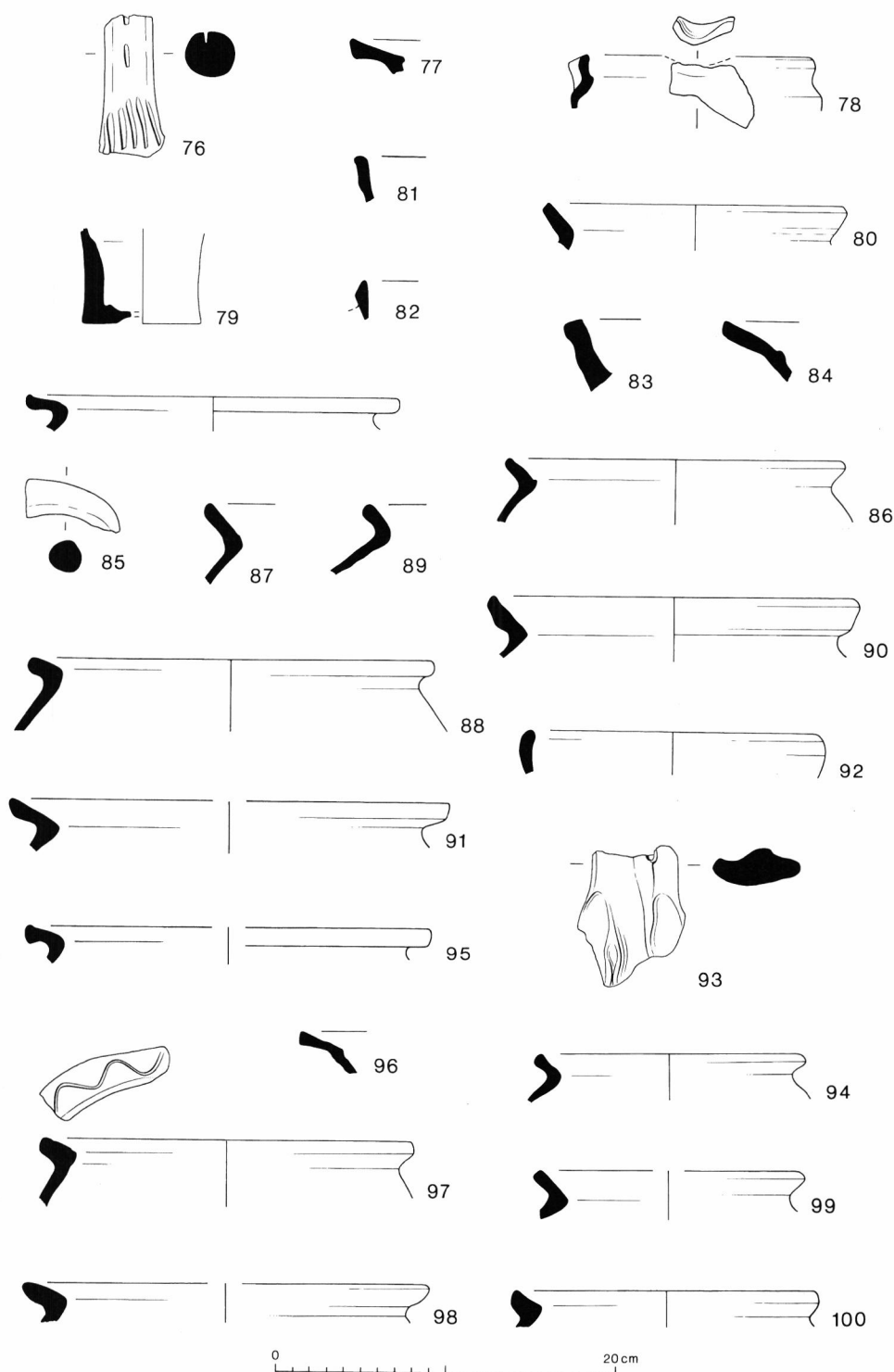


Fig. 13: Medieval pottery from phase 5 (late Medieval agricultural activity).

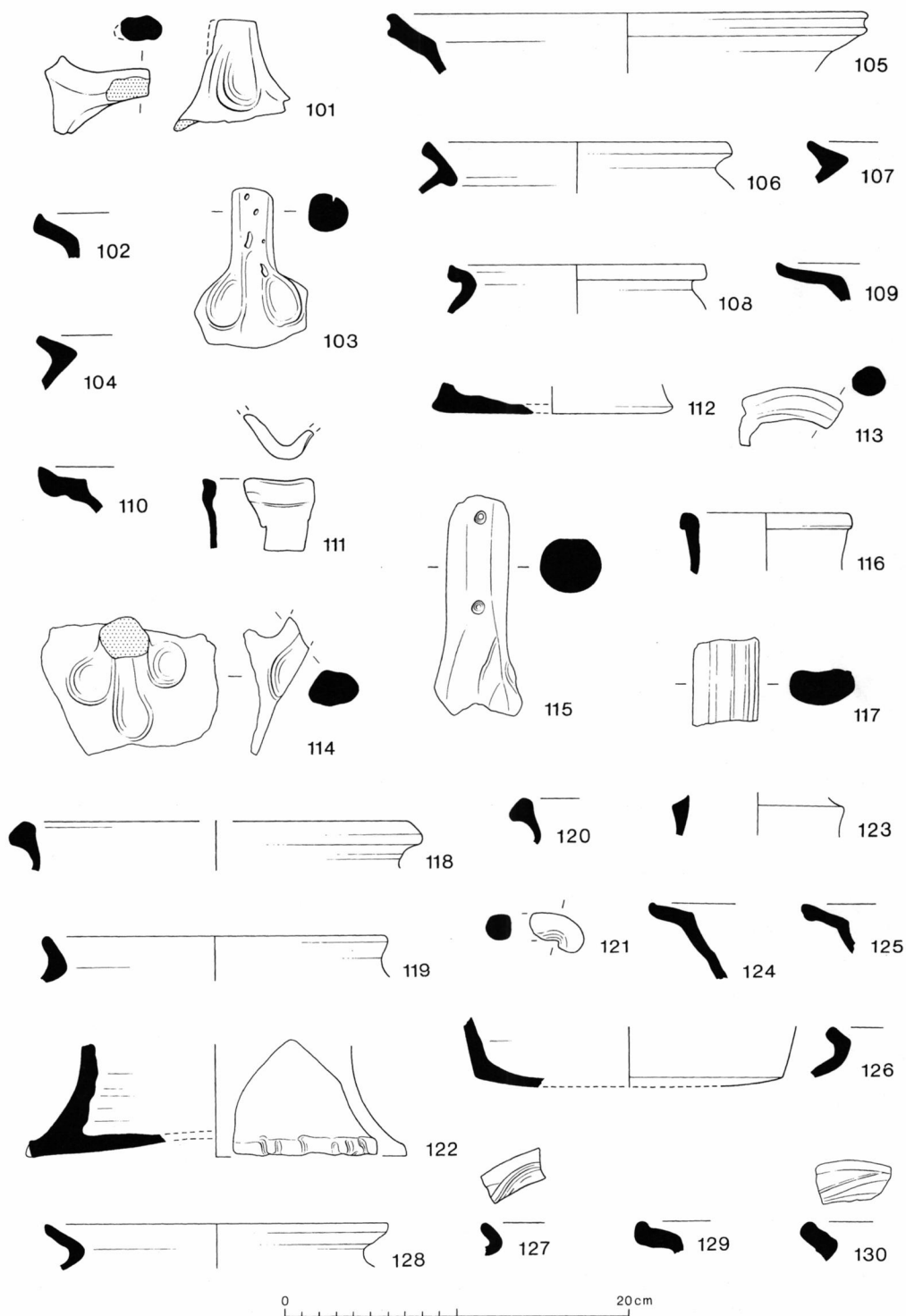


Fig. 14: Medieval pottery from phase 5 (late Medieval agricultural activity).

- 78 ?Lamp rim and lip, burnt inside, abraded and with traces of brownish glaze, in F1A/B. Rim sherd also from 0003, the upper plough soils, Phase 5.
- 79 Jug base, small and crudely finished inside, in F2B.
- 80 Cooking pot rim in F2B(1).
- 81 Jug rim, hard-fired, in F3A.
- 82 Jug rim, hard-fired and with patch of blistered dark glaze, in F3A.
- 83 ?Mortar rim, hard-fired and with spots of dark olive green glaze internally, in F3A.
- 84 Bowl rim in F3A. Cream/pink fabric and pink quartz inclusions suggest possibly a Brackenfield product. Rim sherd also in 0003, the upper plough soils, Phase 5.
- 85 Cooking pot or pipkin rim and handle, in F3A. Another rim sherd of the same pot was found in the adjacent cutting.
- 86 Cooking pot rim with spot of green glaze on top, in F3A.
- 87 Cooking pot rim decorated with a diagonal slash, in F3A.
- 88 Cooking pot rim, hard-fired, in F3A. Rim sherd also in 0010, part of 0003, the upper plough soils, Phase 5.
- 89 Cooking pot rim, hard-fired purple ware, in F3A.
- 90 Cooking pot rim, hard-fired purple ware, in F3A.
- 91 Cooking pot rim, hard-fired purple ware, in F3A.
- 92 Jug rim, abraded, in F3B.
- 93 Jug handle base with perforation as decoration and light yellow/green glaze, in F3A/B.
- 94 Cooking pot rim, abraded and 2 joining sherds on old break, in F3B.
- 95 Cooking pot rim, abraded, in F3B.
- 96 Bowl rim, abraded, in F3B. Rim from same pot in another cutting of 0021.
- 97 Cooking pot rim, abraded and with incised wavy line decoration, in F3B.
- 98 Cooking pot rim, abraded, in F3B.
- 99 Cooking pot rim, abraded, in F3B.
- 100 Cooking pot rim in F3B.
- 101 Cooking pot or pipkin handle, abraded, in F3C.

The gully (0039, 0024) along the northern edge of 0021 contained a small number of sherds representing most of the fabric types and many are small and abraded. Again only new form types are illustrated.

- 102 Bowl rim, abraded, in F1A.
- 103 Jug handle, abraded and decorated with deep random perforations and patches of pale green glaze, in F2B(1).
- 104 Cooking pot rim, abraded, in F3B.

The bank (0009) to the south of furrow 0021 incorporated sherds of all fabric types except for F2A, 2A(1), 2B(1). Again many were small and abraded and only new form types are illustrated.

- 105 Bowl rim, abraded and with patches of light green glaze, in F1A.
- 106 Cooking pot rim in F3A. Joining sherds from 0003, the upper plough soils, Phase 5.
- 107 Cooking pot rim, hard-fired in purple ware, in F3A.
- 108 Cooking pot rim in F3C.

Ditch 0011, to the south of bank 0009, again incorporated the same range of fabric types (but with one sherd of F2A) and in similar condition. They included a sherd decorated with a grid-stamped pad in F1B (not illustrated but compares with pot 39) and the new form types illustrated.

- 109 Bowl rim, abraded, in F2B.
- 110 Bowl rim, abraded, in F2B.

The upper part of the Medieval plough soils (0003 and including unstratified and mixed material) incorporated a mix of pottery sherds similar to plough furrow 0021 and also in varying stages of abrasion from fresh to very abraded. A number were recognised as parts of vessels identified previously; part of ?lamp 78 (Phase 5); probable part of a jug handle 5 (Phase 2); bowl rim 84 (Phase 5); bowl rim 23 (Phase 3); cooking pot rim 106 (Phase 5); cooking pot rim 88 (Phase 5); and cooking pot rim 50 (Phase 3). Again only new form types are illustrated.

- 111 Jug lip, abraded, in F1A.
- 112 Jug base, abraded with traces of flaring 'frilled' edge, in F1A.
- 113 Jug handle and upper part of attachment to body of jug with green/brown glaze, in F1A. Possibly part of same pot as 114.
- 114 Jug handle and lower part of attachment to body of jug, in near fresh condition and with green/brown glaze, in F1A. Possibly part of same pot as 113.
- 115 Jug handle, abraded and two circular perforations, in F1A.
- 116 Jug rim, abraded and with traces of green glaze, in F1B.
- 117 Jug handle, with green/brown glaze, in F1B.
- 118 Cooking pot rim in F2A.
- 119 Rim, upright and abraded, in ?F2B.
- 120 Cooking pot rim, in ?F2B.
- 121 Pipkin handle, abraded, in ?F2B.
- 122 Jug base, abraded and baluster shaped with 'frilled' edge and traces of clear glaze, in F2B(1). Two sherds join on old break.
- 123 Jug rim, hard-fired and with blistered dark to purple glaze, in F3A.
- 124 Bowl rim and side, with khaki glaze spots, in F3A.
- 125 Bowl rim, in F3A.
- 126 Cooking pot rim and base with splashes of green/brown glaze, in F3A.
- 127 Cooking pot rim with incised wavy line decoration, in F3A.
- 128 Cooking pot rim, in F3A.
- 129 Rim of bowl or cooking pot, abraded, in F3B. Pink coloured fabric and quartz inclusions suggest this may be a Brackenfield product.
- 130 Cooking pot rim, abraded and with incised diagonal line decoration, in F3B.

'Tiles' (Fig. 15)

There are a number of flat, thick (c. 18mm) pieces of fired clay, partly glazed on one surface but with the other surface left roughly finished and randomly pierced with holes about 155mm deep but not penetrating the glazed surface. One example appears to have a curved edge (Fig. 15.2). The fabric is very coarse with abundant (c. 40% frequency), rounded, quartz inclusions, averaging 0.5–1mm in size. Firing varies from hard to soft and the glaze is green/brown. In appearance the fabric resembles a coarse type of F3 and may be a product of the Burley Hill/Allestree kilns.

They first appear at Thurvaston in Phase 3 and were found in the gully of Structure 1 (0005; Fig. 5), the hearth area (0004/0017), and post-holes 0006 and 0008. Pieces also occurred in the toft boundary (0023; Fig. 15.1). The few pieces from Phases 4 and 5 are most likely residual.

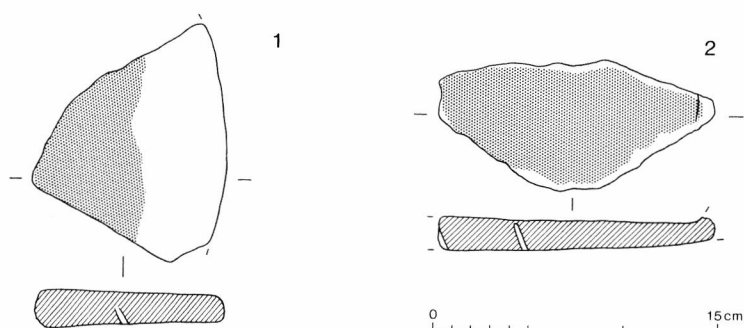


Fig. 15: Possible tile fragments of fired clay. Stippling indicates the presence of glaze.

Their purpose is not known but they are clearly associated with the occupation phase relating to Structure 1. Similar material is in the Barton Blount assemblage but is unpublished. One possibility is that they are parts of roof tiles, but their curved edges would seem to make this unlikely and perhaps they could be expected to occur in larger quantities. Another possibility is that they were used somehow in cooking or baking and the occasional occurrence of burnt residue on broken edges would lend support to such a theory.

Dating

In attempting to use the pottery to date the structural sequence, the first consideration is the date ranges of the fabrics and forms found. Unfortunately the ceramics of this period in Derbyshire are not yet well understood, defined or dated. None of the known kiln sites have been adequately published or dated and the only detailed study is Coppack's (1972) analysis of a sequence of rubbish pits in Full Street, Derby. Even here much of the dating is relative and is mainly by typology of fabric and form in comparison with material from Nottingham and elsewhere, and from a few continental imports. However, in the absence of more suitable material for comparison this will be used as the starting point for dating the Thurvaston pottery.

When describing the Thurvaston fabrics attention was drawn to some similarities with the Full St fabrics. F1A overlaps with 'Local developed splashed ware' and with 'Burley Hill-type ware' (Coppack 1972, 45). The splashed ware at Full St is confined to the late 12th century and early 13th century although it continues into the mid-13th century elsewhere (Coppack 1972, 74), while the 'Burley Hill-type ware' begins about the same time but becomes common in the early 13th and continues into the early 15th century (Coppack 1972, tables 1 and 2).

F2A is likely to belong to 'brown sandy ware' traditions current in the 11th and 12th centuries and possibly earlier (Coppack 1980, 274), but is unusual in comparison with Chester ware and so-called Derby ware in being hand-made. F2A rim forms compare with 'grey and orange gritty ware' forms from Full St dated to the late 12th century (e.g. compare Thurvaston rims 14 and 15 with Pit 43, 15 and 16; Coppack 1972, 48).

Fabric F2A(1) is similar to 'grey sandy wares' in the Thetford ware tradition (Coppack 1987, 135) with dates beginning in the Saxon period but probably continuing into the 12th and possibly 13th centuries locally (e.g. Barton Blount; Beresford 1975, 71). Rim

forms at Thurstaston appear to start around the later 11th to early 12th century. For example, the inturned form of number 2 compares with bowls from Goltho of around the mid-11th century (Coppack 1987, 166, 139: 31); number 18 compares with the profiles of late Thetford Smooth wares (e.g. McCarthy and Brooks 1988, 161: 178, 179) of the 11th to early 12th century; and 19 with early 12th-century forms in 'Stamford-type ware' from Full St (Pit 33, 3; Coppack 1972, 47); further, the straight sides of number 42 compare with cooking pots from the Midlands of the mid-11th to early 12th centuries (Beresford 1975, 59: 25; McCarthy and Brooks 1988, 173: 293). However, there are also examples of late 12th century style rims in F2A(1), e.g. number 7 compares with a Full St rim of this period (Pit 21, 40; Coppack 1972, 48).

F2B partly includes Coppack's oxidised 'Burley Hill-type wares' which he has described as early in the series (i.e. late 12th century onwards) (Coppack 1980, 239) but at Full St appear to continue to the late 14th century (Pit 10; Coppack 1972, 61). However, the hand-made component of F2B is probably earlier. For instance cooking pot rim sherd 56 is similar to a Nottingham example of the late 11th century (Coppack 1980, 186: group N2, 25).

F2B(1) equates with Coppack's 'cream sandy ware' which appears in the late 12th century at Full St and continues during the 13th century in Derby and also at Barton Blount, Repton and Chesterfield (Coppack 1980, 280).

F3A and B are in part similar to Coppack's 'grey' and 'orange gritty wares' which at Full St run from the early 12th to the late 13th century (Coppack 1972, tables 1 and 2). The lack of his early 'gritty ware' rim forms in F3A and 3B at Thurstaston, however, may mean a later arrival date. Also the limited sample from Full St of 14th and 15th century pottery (Coppack 1980, 281), presumed to be because of changes in rubbish disposal methods, could mask a longer survival for 'gritty wares'. Coppack's 'purple ware', which at Full St appears in the early 13th century (1980, 282), is a type of 'gritty ware' and at Full St continues into the 17th century. The Brackenfield kilns have been tentatively dated to c.1400 (Webster and Cherry 1973, 184) on typological grounds but have still to be securely dated.

F3C because it is hand-made is likely to be early rather than later in the sequence and rim 50 compares in profile with early 12th-century forms at Full St (Pit 22, 6; Coppack 1972, 47) and Barton Blount (Beresford 1975, 75: 6).

On fabric grounds, therefore, F2A and 2A(1) are probably earliest in the sequence and could date from the later 11th and 12th centuries. The hand-made F2B and 3C examples on typological grounds are likely to be roughly contemporary. By the late 12th century, however, F1A, 1B, 2B(wheel-made), 2B(1) and 3A and 3B could all have been introduced and would continue through the 13th century. By the end of the 13th century F2B and 2B(1) appear to die out but the rest probably continue into the 14th century, F1A and 1B up to the early 15th century and 3A as 'purple ware' into the Post-Medieval period.

The presence of all these fabrics at Thurstaston suggests that occupation generally spanned a lengthy period, dating from at least around the time of the Norman Conquest into the 15th century. To try to date the excavated individual structural features from the pottery, however, requires a more detailed assessment of the likely date range and depositional history of the pottery component of specific contexts.

Phase 2

Pottery from the earliest excavated context, a ditch underlying Structure 1, included all fabric types except F1B and 3B, suggesting a date for the ditch filling at the earliest in the late 12th century, and at the latest at the close of the 13th century when F2B(1) died out, because the F2B(1) base sherd is unabraded and unlikely to be residual. Also likely to have been deposited when current is pot 1, a scale decorated jug sherd in F1A. The earliest appearance of scale decoration at Full St is in the early 13th century (Pit 46, 90–92; Coppack 1972, 54) but decoration in the form of grid-stamped pads had appeared as early as the late 12th century (Pit 21, 43; Coppack 1972, 48). Both forms of decoration continued into the 14th century but the poorly mixed glaze on pot 1 could imply that it is early rather than later and that a likely date for the filling of the ditch lies around the late 12th or early 13th century.

Pit 0043 cut this ditch but lay below 0026, probably an occupation deposit relating to Structure 1 (Phase 3). Contents included a splashed ware jug (4), at the latest mid-13th century in date and pieces of which were also found in the two succeeding contexts (0026, 0034), and an abraded jug sherd decorated with an applied rosette. A similar example was found at Full St (Pit 20, 151; Coppack 1972, 56) and dated to the last quarter of the 13th century. These finds suggest 13th century occupation in the vicinity and predating occupation of Structure 1.

Phase 3

Structure 1 is defined by a rectilinear gully the fill of which contained pottery of all fabric types and many sherds are likely to be residual. It is more likely that unabraded joining sherds and larger, fresher groups of related sherds will relate to rubbish disposal in the gully during occupation. Pots which fulfill these criteria include the following: Pot 11, a decorated jug base, with similar examples from Full St dating to the last quarter of the 13th century (e.g. Pit 26, 165; Pit 18, 177; Coppack 1972, 58); pot 13, 50% of a jug, the profile of which compares with a Full St example of the mid-14th century (Pit 1, 188; Coppack 1972, 61); pot 23, a bowl rim, pieces of which were also found in a post-hole in Structure 1, and are similar to a Full St bowl dated to the last quarter of the 13th century (Pit 26, 168; Coppack 1972, 58); pot 26, a cooking pot rim and shoulder with joining sherds, which compares generally with late 13th to mid-14th century examples (Coppack 1980, 313, 315); pot 27, rim and joining body sherds of a cooking pot which compares with a late 14th-century example from Full St (Pit 10, 207; Coppack 1972, 61); pot 28, rim and shoulder of a large cooking pot, which compares generally with late 13th to mid-14th century types. The earliest material, therefore, suggests a late 13th-century date for the start of occupation, not unexpected in the light of evidence from pit 0043, with maybe pot 23 indicating the construction phase. Evidence for the latest date for occupation from the gully is in the mid to late 14th century.

Pottery from features associated with Structure 1 includes sherds from decorated jugs. The style of the linear designs on number 35 compares with the 'knight' jugs of the final quarter of the 13th century (Coppack 1980, 281) and 38 with part of a horseshoe motif is probably of around the same date. The horseshoe was the badge of the de Ferrers family from Duffield, who were deprived of their earldom in 1278 but the production site may have had a longer life (McCarthy and Brooks 1988, 129, 279). Sherd 39 illustrates one of

the four grid-stamped pads found at Thurvaston which, as described above, range in date from the late 12th century into the 14th century

The possibly contemporary toft boundary (0023) contained joining base sherds of jug 11 from the gully of Structure 1, but here in a more abraded condition. None of the rest of the pottery is likely to be later in date than the mid-14th century so the evidence suggests that the boundary was in use at the same time as Structure 1. Moreover, feature 0029, which is likely to be earlier, contained a bowl rim similar to one from Full St dated to the final quarter of the 13th century (Pit 20, 154; Coppack 1972, 56), suggesting that the toft boundary could have been constructed at around the same time as Structure 1.

Phase 4

Pottery from the cobbled surface is mainly of 13th–14th century date and probably residual from earlier phases. However, sherd 66 compares with examples of jugs from Nottingham of the early to mid-15th century (Coppack 1980, 225; e.g. pot N20, 257) which are thought to copy stave-built wooden vessels and suggests the latest date for this context.

The possibly contemporary gully (0034) also contains residual material except for sherd 72, which is in near fresh condition and is a cooking pot rim comparable with a Full St example of the late 14th century (Pit 10, 210; Coppack 1972, 61). The pottery evidence, therefore, indicates that the cobbled surface dates from the late 14th century and that its use did not extend beyond the mid-15th century.

Phase 5

The ploughing which subsequently took place, presumably from around the mid-15th century, cut into the occupation deposits and incorporated significant quantities of pottery into the plough soils. The number of sherds which match examples found in the earlier contexts is proof of the derivation of the plough soil contents. The bank and ditch to the south incorporate the same mix of pottery which would suggest that the bank was constructed after ploughing and destruction of the site had commenced. However, an absence of any early Post-Medieval pottery in these contexts indicates that there was no significant time lapse between these events.

Analysis of the typological date ranges of the 54 sherds illustrated from Phase 5 offers some indication of the likely length and intensity of occupation on the site. There are around 19 (35%) 12th and early to mid-13th century sherds and these consist mainly of cooking pot rims (e.g. 80, 88) which compare with forms in 'Stamford-type ware' from Full St of late 12th century date (Pit 2, 61 and pit 21, 25; Coppack 1972, 48, 51), a bowl (109) a jug rim (116) and a possible lamp (78). Late 13th–14th century sherds number about 28 (52%) and comprise jugs, bowls and cooking pots. Jug handle 76 is a classic Burley Hill type and compares with late 13th and mid-14th century examples from Full St (Pit 18, 176 and pit 1, 188; Coppack 1972, 58, 61). Bowl rims can be compared with Full St examples from the late 13th century (e.g. 84 and 105 with Pit 18, 182; Coppack 1972, 58). Probable late 14th to mid-15th century types number about 7 (13%). These include hard-fired and 'purple ware' types such as jug rim 123 (compare Full St Pit 37, 214; Coppack 1972, 64 — early 15th century), and cooking pot rims 90 (compare Nottingham group Coppack 1980, 212, 213: N21, 266, 269 — mid-15th century) and 91 (compare Full St Pit 10, 210; Coppack 1972, 61 — late 14th century). Also included is

the possible mortar (83) and the base of a small unglazed jug (79) which resembles the drinking jugs of the late 14th to 15th century (Jennings 1992, 29).

This evidence suggests that there was substantial 12th–13th century domestic occupation although no surviving structural remains were found in the excavated area. The pottery suggests that the late 13th to late 14th century was a period of intensive domestic occupation of Structure 1 and that the cobbled yard phase which followed was much less so, although it appears that domestic tasks were still being undertaken in the vicinity early in the 15th century.

Charred Plant Remains by James Rackham

Five samples were processed. These ranged in size from 5 to 70 litres but no more than 30 litres was processed for any sample. The following samples were collected:

Context	Volume	Description
0005	20	fill of eaves-trench around Structure 1
0026	40	interior of Structure 1
0029	20	gully fill
0043	5	pit fill
0045	70	ashy deposits around hearth within Structure 1

Table 1.

Sample volume and weight were measured prior to processing. The samples were washed using a flotation sieve with a 0.25mm mesh and an internal wet-sieve of 1mm mesh for the residue. Both residue and float were dried. The residue was then re-floated, to improve the recovery efficiency of the carbonised remains with the second flot being caught on a 0.125mm mesh. The residue and second flot were then re-dried. The dry volume of the combined first and second flots was measured, and the volume and weight of the residue recorded.

The sample residue was sorted by eye, and environmental and archaeological finds picked out. A magnet was then run through the residue to pick up any magnetised material (particularly flake and spheroidal hammer scale) after which the residue was bagged. The float of each sample was scanned under a low power binocular microscope and a record made of the categories of material present (ie. snails, charcoal, carbonised seeds, bones, etc.) with their abundance and species diversity noted on the assessment sheet. The float was then bagged. The float and finds constitute the material archive of the samples. The sorted residue was discarded.

Most of the samples included large quantities of fragmented fibrous root material probably of fairly recent date. Numbers of uncarbonised seeds were also present and of these the most common were specimens of *Rubus* sp. blackberry/raspberry, with a few *Sambucus* sp. elder, seeds. These are particularly robust seeds and although it is not impossible that they could be contemporary with the deposits it is much more probable that they reflect deposition and seed movement through the soil since the Medieval period.

There is a complete absence of animal bone in the samples, which given the general density of material recovered (Table 2) suggests that the burial conditions were not suited to the survival of unburnt animal bone.

The site has produced quantities of smithing slag and particular attention was paid to whether there was any evidence for iron smithing in the form of slag or hammerscale in the samples. Small fragments of slag, probably fuel ash slag, were recovered but no hammerscale or smithing slag was present in any samples. Cowgill (below) records that charcoal probably fuelled the smithing activity, while coal is abundant in most of the soil samples (Table 1). This is particularly so in contexts 0026 and 0045, the interior of Structure 1 and the hearth, and 0029 a gully fill. The abundance of coal associated with the Structure 1 suggests that it is being used as a domestic fuel as well as wood. Coal was certainly used by smithies at this period and there is little reason for it not to have been used if smithing was being carried out at the site.

Context	Vol. Lt. Proc	Coal # wt g	Slag	Pottery wt g	Metal wt g	Beans	Peas	Cereals	Weeds seeds	Charcoal	Water- logged seeds	Vol. Flot ml
0005	20	60*	+	45	12	+	+	++	+	+++	+	30
0026	30	220**	+	20	12	+	++	++	+	+++++	+++	100
0029	20	105*				+	+	+	+	+++		18
0043	5	29*		2	2	+	+	+	+	+++	++	20
0045	30	39**	+	<1		+	++	+++	+	+++++	++	80

+ present/ < 10 items; ++ > 10 and < 100 items; +++ > 100 and < 250 items; ++++ > 250 and < 500 items; +++++ > 500 items; # weight of coal extracted from 7mm residue; * coal present in finer residues;

** coal abundant in finer residues

Table 2.

The most abundant category of find after coal, is charcoal. Most of this material is very fragmented but a few pieces in each context, 0043 particularly, include fragments which could be identified to species. Carbonised plant material, other than charcoal, occurs in all samples. This is most abundant in 0005, 0026 and 0045, in the contexts associated with Structure 1. The carbonised assemblage is composed of cereals and pulses with very few weed seeds and no evidence of cereal chaff. It seems clear that all this material probably reflects food waste accidentally burnt at the hearth. Peas and beans are common with the former abundant within the structure (0026) and around the hearth (0045). Cereals appear to include wheat and barley, and occasional oat grains, with several dozen present in the ashy deposits around the hearth.

Identification of the Charred Plant Remains by Lisa Moffett

The samples assessed by Rackham were quantified and analysis of the charred material was undertaken. Two of the samples were large, and were approximately halved for the purpose of the analysis due to limitations of time. The other samples were analysed in full. The results are presented in Table 2.

Cultivated legume seeds and cereal grains were both present. Legumes appeared to be slightly more abundant, but it is not clear if this is significant since the over-all number

Sample no.	0005	0026	0029	0043	0045	
Sample size	20	30	20	5	30	
Flot size	19	82	15	26	85	
% analysed	100	50	100	100	44	
No. of items per litre	3	2	0.5	3	4	
						Common name
<i>Triticum</i> cf. <i>aestivum</i> L. rachises	1	—	—	—	—	? bread wheat
<i>Triticum</i> sp(p) free-threshing basal rachises	—	—	2	—	—	free-threshing wheat
<i>Triticum</i> sp(p) free-threshing	22	8	1	6	8	free-threshing wheat
<i>Triticum</i> sp(p)	—	—	—	—	4	wheat
<i>Hordeum vulgare</i> L.	—	—	—	—	2	barley
<i>Avena</i> /large POACEAE	2	—	—	—	—	oat/large grass
Cereal indet.	—	2	—	1	2	cereal
Cereal/POACEAE	—	—	1	—	2	cereal/grass
<i>Linum usitatissimum</i> L.	—	—	—	1	—	flax
<i>Vicia faba</i> L.	2	1	—	—	—	bean
cf. <i>Vicia faba</i> L.	—	—	—	1	2	? bean
? <i>Vicia faba</i> L.	—	—	1	—	—	? bean
<i>Vicia sativa</i> L.	3	—	—	1	—	vetch
<i>Pisum sativum</i> L.	1	—	—	1	—	pea
cf. <i>Pisum sativum</i> L.	—	—	—	—	1	? pea
<i>Vicia</i> / <i>Pisum</i>	3	3	2	—	15	bean/vetch/pea
<i>Vicia</i> / <i>Pisum</i> / <i>Lathyrus</i>	16	11	2	4	13	bean/vetch/pea/ vetchling
CHENOPODIACEAE	—	1	—	—	1	fat hen family
<i>Rumex</i> sp.	—	1	—	—	—	dock
POLYGONACEAE/CYPERACEAE	—	—	—	—	1	dock family/ sedge family
ROSACEAE thorn	—	—	—	1	—	rose family
<i>Vicia</i> / <i>Lathyrus</i> (small)	2	1	—	1	2	tare/vetch/vetchling
<i>Poa</i> sp.	—	1	—	—	—	meadow grass
<i>Hordeum</i> sp.	—	—	—	—	1	? wild barley grass
POACEAE	—	2	—	—	1	grass family
Unidentified	1	—	—	—	4	unidentified
Total items identified	53	31	9	17	59	

Table 3: Identifications by Lisa Moffett. Taxonomy after Stace (1997). All items are 'seeds' in the broadest sense unless noted otherwise.

of identified items per litre of soil was low. A few weed seeds and chaff remains were found, but these were rare, and there is nothing to suggest the presence of any of the by-products of crop processing.

The cereal grains were mainly a free-threshing wheat. The grains could not be further identified to species, but a single rachis fragment, of possible bread wheat (*Triticum* cf. *aestivum*), suggests that at least this species may have been present. There were also a couple of grains of barley. Two poorly preserved grains from the eaves trench (0005) might have been oat but could also have been large grass seeds. Free-threshing wheat, barley and oat are all common on Medieval sites.

Many of the legumes had lost their seed coats (the testa), including their hila, and if their shape was distorted as well then they could only be roughly categorised on the basis of size. Very large legumes were classified as bean/pea (*Vicia/Pisum*). Somewhat smaller legumes had to be classified as bean/pea/vetch/vetchling (*Vicia/Pisum/Lathyrus*), which could include wild as well as cultivated legumes. From the well-preserved specimens three species of cultivated legumes were identified: field bean (*Vicia faba*), vetch (*Vicia sativa*) and pea (*Pisum sativum*).

The vetch is considered to have been possibly cultivated vetch on the basis of size. The identified specimens were all about 5mm × 5mm in length and breadth, and, allowing for the shrinkage that occurs during charring, it seems plausible that these are large enough to be considered cultivated. This size, however, does overlap with large-seeded wild populations of vetch, so it is possible that the vetch was a weedy contaminant of the other cultivated legumes. Unlike bean and pea, vetch is not usually grown for human consumption. It is generally a fodder crop, probably often used as part of a field rotation system. The presence of vetch in association with food crops could suggest that it was being unintentionally consumed, perhaps as a weed contaminant. However, if there were animals kept nearby it is also possible that these vetch seeds represent the remains of fodder.

Beans, peas and vetch are all found on Medieval sites, but it is fairly unusual for legumes to be as abundant as cereals. It is possible that the cereals and legumes found here represent remains from food processing activities, as suggested here by Rackham. De Moulins and Letts (forthcoming), however, point out that in Medieval buildings with open thatched roofs and open hearths, it is possible that seeds falling from crop straw used as thatch (which often includes weeds) may get burned in the hearth. Legumes as well as cereals were often used in thatch (Letts in press). This explanation would also account for the presence of vetch among the food legumes.

Ironworking Slag by Jane Cowgill

The slag was visually examined and identified solely on morphological grounds with the aid of a × 10 binocular microscope.

A note of probable fuel type has been recorded when fragments were incorporated within the slags. All of the 6563g of slag recovered was generated by iron smithing. The categories are identified in Table 4.

The slags are generally large, quite dense and many have a dark grey outer surface suggesting that they have probably been affected by post-depositional 'leaching' of the surface iron content. Many also have a rusty iron corrosion layer on the surface. This will also be partly due to post-depositional factors but indicates that the slags probably have quite a high metallic iron content.

Type	Quantity	Weight (g)
Cinder	4	96
Hearth Bottom	13	4988
Slag	3	47
Smithing slag lumps	13	1351
Stone	1	46
Tuyere?	1	35
Total	35	6563

Table 4.

The cinder is very glassy and most have frequent clay inclusions with occasional stones and sand. Few of the hearth bottoms are measurable due to breaks but these give quite wide ranges (length: 50–130mm; width: 100mm; height: 30–75mm). Two of the hearth bottoms are extremely unusual because they have a flat smooth surface on what appears to be the hearth wall side. In one instance the mark appears to be formed by a 'rod' with a smooth end and curved side (0021). The impression could have been formed after the hot slag had been removed from the hearth or possibly by the presence of a metal, or an exceptionally smooth fabric, tuyere. A third possibility is that the tool, probably tongs, used to remove the slag from the hearth created them. No hearth lining was noted on any of the hearth bottoms but this is a common feature of Medieval slags.

There is a single possible tuyere fragment from context 0026. The piece, which is formed from clay, may be the outer part of a cylindrical tuyere, however, without any evidence for the perforation this identification must remain tentative.

The sole fuel type noted was charcoal. Imprints and inclusions of generally quite small pieces were recorded. On the basis of the quantity of charcoal inclusions within and on the base of the slags it is possible to subdivide the assemblage into two groups. The slags from contexts 0021 and 0003 have very frequent charcoal inclusions and imprints, generally have very rusty surfaces, are large and probably abraded. All the other slags are much denser and have very occasional charcoal imprints. This difference may not be significant. The formation of slags is dependant on the method of smithing and tasks being undertaken and a range of other factors such as air draught, temperature, iron type and quality of fuel. Modern smiths tend to make consistent slags (although these vary greatly depending on the smith's manner of working) but they also tend to use similar metals and have a consist regular fuel supplier. Other Medieval assemblages studied by the author have also tended to be fairly consistent so there is a possibility that this group represents two different dumps of slag produced by two different smiths.

Archaeomagnetic Dating by Mark Noel

Archaeomagnetic samples were obtained from hearth 0045 with the aim of determining the date of last firing. Archaeomagnetic sampling was carried out during the final stages of excavation when the hearth had been cleaned and fully recorded. The feature could then be seen to comprise several random blocks of fired stone set in a matrix of soft, red fired clay containing flecks of charcoal. Samples were taken from both the clay and stone

materials. Full details of the methodology employed in obtaining archaeomagnetic dates are contained in archive.

Intensities of natural remanent magnetisation in the hearth were found to be very weak. The low intensity of magnetisation probably reflects a low concentration of remanence-carrying minerals in the clay and stone. It should be noted that only a low reliance can be placed on the resulting archaeomagnetic date. A standard correction was used to convert the mean archaeomagnetic vector in context 0045 to Meriden, the reference locality for the British Master Curve. The mean vector at Meriden for context 0045 (declination 11.5, inclination 64.6 at 95% confidence level) is positioned within a 'loop' of the curve which evolved during the Medieval period such that two possible dates for the last firing can be inferred: AD 1100–1210 or AD 1450–1530.

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